

Storage
no Avenue
A 91710
Islenwski
Manager

3, 20, 2000
#46895

**EO
SALE**
HEREBY
that the
e sold as is
sale on
20, 2000 at
11:30 a.m.
ntana Park
737 Valley
Fontana,
in order to
the lien
the owner
above
Mobilehome
storage and
ed charges
by Rex
id Jerome

of the
be sold is:
72 Redman
Family
HCD Decol
2601363
50355
Width 12'

creditor
his lien will
minimum
edit bid of
38.72.
6, 13, 2000

**T I O U S
STATEMENT**
ing persons
usiness as:
R E S T
at 10737
Suite 101,
ucamonga,

Guaranty
orporation,
of St., 8th
a Mesa, CA
siness is
by d
CA
ransacting
10/16/2000
BURT, VP
ment was

Upland, CA 91786
Aleandra G. Forias,
9434 Exeter Ave.,
Montclair, CA 91763
Andy Brodley, 539 E.
13th St. #227, Upland,
CA 91786

This business is
conducted by
co-partners
Began transacting
business on 11/08/2000
ANDY BRADLEY
This statement was
filed with the County
Clerk of San
Bernardino County on
11/08/2000

NOTICE
This
Fictitious Business
Statement expires five
years from the date it
was filed in the office
of the County Clerk. A
new Fictitious Business
Statement must be
filed before that time.
The filing of this
statement does not of
itself authorize the use
in this state of a
fictitious business
name in violation of
the rights of another
under federal, state, or
common law. (see
Section 14400 et seq.)
and
Business
Professions Code).
EBN: 2000-11568
Nov. 13, 20, 27, Dec. 4,
2000 #75845

**F I C T I O U S
BUSINESS NAME
STATEMENT**
The following person
is doing business as:
PAWS AND PLAY
PET CARE at 301 E.
Cedar St. Unit 40,
Ontario, CA 91761
Charles R. Varvaro,
301 E. Cedar St. Unit
40, Ontario, CA 91761
This business is
conducted by an
individual
Began transacting
business on
applicable
CHARLES R.
VARVARO

This statement was
filed with the County
Clerk of San
Bernardino County on
10/24/2000
NOTICE
This
Fictitious Business
Statement expires five
years from the date it
was filed in the office
of the County Clerk. A
new Fictitious Business
Statement must be
filed before that time.
The filing of this
statement does not of
itself authorize the use
in this state of a
fictitious business
name in violation of
the rights of another
under federal, state, or
common law. (see
Section 14400 et seq.)
and
Business
Professions Code).
EBN: 2000-11057
Oct. 30; Nov. 6, 13, 20,
2000 #101115

LINDA MARTINI
This statement was
filed with the County
Clerk of San
Bernardino County on
10/25/2000
NOTICE
This
Fictitious Business
Statement expires five
years from the date it
was filed in the office
of the County Clerk. A
new Fictitious Business
Statement must be
filed before that time.
The filing of this
statement does not of
itself authorize the use
in this state of a
fictitious business
name in violation of
the rights of another
under federal, state, or
common law. (see
Section 14400 et seq.)
and
Business
Professions Code).
EBN: 2000-11057
Oct. 30; Nov. 6, 13, 20,
2000 #101115

and must be removed
the day of sale. Sale is
subject to prior
cancellation in the
event of a settlement
between landlord and
obligated party.
Pub: 11/13, 11/20/00
#43836

**NOTICE OF PUBLIC
HEARING**
THE CITY OF POMONA
does hereby
declare and give notice
that a public hearing
will be held on
Monday, November 20,
2000, in the City
Council Chambers, 505
South Garey Avenue,
Pomona, California,
commencing at 7:00
p.m. regarding:
Adoption of the City
of Pomona's Year 2000
Urban Water Manage-
ment Plan, as required
under Section 10610, et
seq. of the Water Code
of the State of Calif-
ornia. A copy of the
plan will be available
for public review at
the offices of the City
Clerk's Office, in
Pomona City Hall, 505
South Garey Avenue,
Pomona, California,
during normal working
hours. City Hall is
open Monday through
Thursday from 8:00
a.m. to 6:00 p.m. and
Friday from 8:00 a.m.
to 5:00 p.m.
Date: October 25, 2000
Elizabeth Villeral
City Clerk
Pub: November 6, 13,
2000 #12464

**NOTICE OF
PETITION TO
ADMINISTER
ESTATE OF**
Kathleen L. Guerra
Case No. KP007433
To all heirs, bene-
ficiaries, creditors,
contingent creditors,
and persons who may
otherwise be inter-
ested in the will or
estate, or both, of
Kathleen L. Guerra
A PETITION FOR
PROBATE has been
filed by Cynthia Slink
in the Superior County
of California, County
of LOS ANGELES.
THE PETITION
FOR PROBATE re-
quests that Cynthia
Slink be appointed as
personal representa-
tive to administer
the estate of the
decedent.
THE PETITION
requests authority to
administer the estate
under the Indepen-
dent Administration
of Estates Act. (This
authority will allow
the personal repre-
sentative to take

tions or file written
objections with the
court before your
hearing. Your
appearance may be
in person or by your
attorney.
IF YOU ARE A
CREDITOR or a
contingent creditor of
the deceased, you
must file your claim
with the court and
mail a copy to the
personal representa-
tive appointed by the
court within four
months from the date
of first issuance of
letters as provided in
Probate Code sec-
tion 9100. The time
for filing claims will
not expire before
four months from the
above hearing date.
YOU MAY EXAM-
INE the file kept by
the court. If you are
a person interested in
the estate, you may
file with the court a
Request for Special
Notice (form DE-154)
of the filing of an
inventory and app-
raisal of estate assets
or of any petition or
account as provided
in Probate Code
section 1250. A
Request for Special
Notice form is
available from the
court clerk.
Attorney for peti-
tioner:
Stanley Springer
100 W. Second St., No
210
Pomona, CA 91766
(909)623-5400
Pub: Nov. 10, 13, 17,
2000 #164401

**NOTICE OF PUBLIC
SALE**
Notice is hereby gi-
ven that the under-
signed will sell at
Public Auction, pur-
suant to Chapter 10,
Section 21700 of the
Business and Profes-
sional Code, the
property listed below.
Sale will be by open
bid on Monday
November 27, 2000 at
10:00 a.m. on the
premises of
ALL-AMERICAN

and must be removed
the day of sale. Sale is
subject to prior
cancellation in the
event of a settlement
between landlord and
obligated party.
Pub: 11/13, 11/20/00
#43836

2046 Stoddard Place,
Pomona Calif. 91750
Shirley R. Jochem,
2046 Stoddard Place,
Pomona Calif. 91750
This business is
conducted by: An
individual
Type of Business:
Mailing, envelope
prep., computer input,
clerical
The registrant
commenced business
under the fictitious
business name or
names listed on:
1/7/2000
/Shirley R. Jochem
This statement was
filed with the County
Clerk of Los Angeles
County on date
indicated by file stamp
above: Oct. 19, 2000

**F I C T I O U S
BUSINESS NAME
STATEMENT**
The following
persons are doing
business as: Western
Extrusion Tooling
1170 Centre Dr. Unit K
91789
S.R.A. Corp.
1170 Centre Dr. Unit K
City of Industry, CA
91789
This business is
conducted by: A
corporation Calif.
Type of Business:
Aluminum Extrusion
Dies
The registrant
commenced to
transact business under
the fictitious business
name or names listed

**NOTICE OF PUBLIC
SALE**
Notice is hereby gi-
ven that the under-
signed will sell at
Public Auction, pur-
suant to Chapter 10,
Section 21700 of the
Business and Profes-
sional Code, the
property listed below.
Sale will be by open
bid on Monday
November 27, 2000 at
10:00 a.m. on the
premises of
ALL-AMERICAN

2046 Stoddard Place,
Pomona Calif. 91750
Shirley R. Jochem,
2046 Stoddard Place,
Pomona Calif. 91750
This business is
conducted by: An
individual
Type of Business:
Mailing, envelope
prep., computer input,
clerical
The registrant
commenced business
under the fictitious
business name or
names listed

2046 Stoddard Place,
Pomona Calif. 91750
Shirley R. Jochem,
2046 Stoddard Place,
Pomona Calif. 91750
This business is
conducted by: An
individual
Type of Business:
Mailing, envelope
prep., computer input,
clerical
The registrant
commenced business
under the fictitious
business name or
names listed

2046 Stoddard Place,
Pomona Calif. 91750
Shirley R. Jochem,
2046 Stoddard Place,
Pomona Calif. 91750
This business is
conducted by: An
individual
Type of Business:
Mailing, envelope
prep., computer input,
clerical
The registrant
commenced business
under the fictitious
business name or
names listed

Dorey Buelster
Shirley R.
11/18/2000

**NOTICE OF PUBLIC
HEARING**

THE CITY OF POMONA does hereby declare and give notice that a public hearing will be held on Monday, November 20, 2000, in the City Council Chambers, 505 South Garey Avenue, Pomona, California, commencing at 7:00 p.m. regarding:

Adoption of the City of Pomona's Year 2000 Urban Water Management Plan, as required under Section 10610, et seq. of the Water Code of the State of California. A copy of the plan will be available for public review at the offices of the City Clerk's Office in Pomona City Hall, 505 South Garey Avenue, Pomona, California during normal working hours. City Hall is open Monday through Thursday from 8:00 a.m. to 6:00 p.m. and Friday from 8:00 a.m. to 5:00 p.m.
Date: October 25, 2000

Elizabeth Villeral
City Clerk

Pub: November 6, 13,
2000 #12464

THE CITY OF POMONA

Utility Services Department



HENRY PEPPER
Utility Services Director

October 15, 2008

Mr. David Todd
Water Use Efficiencies and Transfers Office
Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Subject: Urban Management Water Plan (UWMP) 2005 Update Amendment Letter from the City of Pomona

Dear Mr. Todd:

The City of Pomona (Pomona) is pleased to submit this response to the comments received from the California Department of Water Resources (DWR) via telephone and in writing regarding Pomona's Urban Water Management Plan (UWMP) 2005 Update. Each comment is addressed separately below:

1. Comment:

Need to review groundwater pumping in light of the Demand and Supply projections.

Response:

Upon further review of the groundwater pumping estimates in the Six Basins, the amount of pumping reported in the 2005 report was too low. With the addition of the Air Stripping Facility at the Reservoir 5 complex, Wells 7 and 8B are now operable and should be accounted for. As a result, the amount of *Supplier – Produced Groundwater* listed on **Table 8 Current and Planned Water Supplies** reflects an increase from 20,850 to 22,900 acre-feet per year, respectively. Also, for ease of understanding, an additional row was added at the bottom of the table to accumulate the total water supplies.

Table 8						
Current and Planned Water Supplies - AFY						
Water Supply Sources	2005	2010	2015	2020	2025	2030
Wholesale Water Providers						
Three Valleys Municipal Water District	7,000	6,000	6,000	6,000	6,000	6,000
Supplier Surface Diversions						
San Antonio Spreading Grounds	2,000	2,000	2,000	2,000	2,000	2,000
Transfers in or out	2,500	0	0	0	0	0
Exchanges in or out	NA	NA	NA	NA	NA	NA
Supplier-Produced Groundwater	18,659	22,900	22,900	22,900	22,900	22,900
Recycled Water (current and projected use)	6,000	6,200	6,200	6,200	6,200	6,200
Desalination	0	0	0	0	0	0
Other						
Local Groundwater Production	0	0	0	0	0	0
Total	36,159	37,100	37,100	37,100	37,100	37,100

2. Comment:

Need to review groundwater pumping in Six Basins.

Response:

As previously noted, the Six Basins groundwater pumping estimates reported in the 2005 report were lower than they should have been. As a result, the amount of groundwater pumping shown for the *Pomona Basin* listed on **Table 12 Amount of Groundwater Projected to be Pumped** reflects an increase from 750 as reported for 2005 to 2,800 acre-feet per year, beginning in 2010.

Basin Name(s)	2010	2015	2020	2025	2030 - opt
Chino	18,000	18,000	18,000	18,000	18,000
Six Basins					
Claremont	1,200	1,200	1,200	1,200	1,200
Pomona	2,800	2,800	2,800	2,800	2,800
Spadra	900	900	900	900	900
% of Total Water Supply	60.42%	60.42%	60.42%	60.42%	60.42%

3. Comment:

Need to review impact on customer's deliveries as a result of the expected increase in recycled water usage.

Response:

We are anticipating an increase of 200 acre-feet of recycled water usage by 2010 as a result of our current planning efforts. Consequently, staff expects the increase in recycled water usage will result in an equivalent decrease in industrial demands. Therefore, beginning with the Year 2010, in **Table 15-Past, Current and Projected Water Deliveries**, the potable water *Deliveries AF/Y* for industrial use were decreased by 200 acre-feet. This has the effect of lowering the delivery values for the subsequent years.

Year	Water Use Sectors	Single Family	Multi-family	Commercial	Industrial	Instit/gov	Land-escape	Agric	Total
2000	# of Accounts	23,567	2,443	2,583	150	748	304	-	29,616
	Deliveries AFY	14,203	5,503	5,824	705	75	1,127	-	27,438
2005	# of Accounts	24,790	2,566	2,715	158	787	320	-	31,337
	Deliveries AFY	14,927	5,784	6,121	741	79	1,185	-	28,837
2010	# of Accounts	25,055	2,699	2,853	166	827	336	-	32,935
	Deliveries AFY	15,263	6,079	6,433	578	83	1,245	-	29,682
2015	# of Accounts	27,384	2,836	2,999	174	870	353	-	34,615
	Deliveries AFY	15,816	6,399	6,761	618	88	1,309	-	30,981
2020	# of Accounts	28,781	2,981	3,152	183	914	371	-	36,381
	Deliveries AFY	16,566	6,715	7,106	660	92	1,375	-	32,515
2025	# of Accounts	30,249	3,133	3,313	192	961	380	-	38,237
	Deliveries AFY	17,310	7,058	7,469	704	97	1,446	-	34,083
2030	# of Accounts	31,013	3,212	3,396	197	965	400	-	39,203
	Deliveries AFY	18,349	7,236	7,657	726	99	1,482	-	35,550

4. Comment:

Need to review future water uses and losses as they add to the City's total demand.

Response:

In our original submission, the shift obligation pursuant to MWD's Dry Year Yield Conjunctive Use Program (Program), was listed in **Table 16 Additional Water Uses and Losses** as a category of use. This entry is viewed as an increase in demand but rather should have been viewed as a change in supply. The Program's intent is to defer pumping by taking surface water in times of surplus and maximizing groundwater pumping in times of water droughts. Therefore, the previous value of 2,000 acre-feet applied in the year 2010 was reduced to 0 acre-feet. Also, the expected increased in recycled water use will offset a portion of the future irrigation demands. Lastly, a column for the year 2030 was added for consistency with the other tables.

Water Use	2000	2005	2010	2015	2020	2025	2030
Groundwater Recharge	0	0	0	0	0	0	0
Conjunctive Use	0	0	0	0	0	0	0
Recycled	1,400	1,400	200	200	200	200	200
Unaccounted-For System	1,413	2,148	2,035	1,922	1,809	1,696	1,696
Total	2,813	3,548	2,235	2,122	2,009	1,896	1,896

5. Comment:

Need additional discussion regarding future water supply projects.

Response:

Two wells, namely Well 32 and 37 are located in the Six Basins and will be operable by the end of this calendar year. Well 32 will be pumped to the Reservoir #5 site to be treated for Volatile Organic Compounds (VOC) and nitrates. Well 37, on the other hand, will have wellhead treatment in the form of ion exchange. As listed in **Table 17 Future Water Supply Projects** below, the well production is expected to boost water supply in the Six Basins.

Project Name	Projected Start Date	Projected Completion Date	Normal-year AF to agency	Single-dry year yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Well 32	Jan-07	Sept, 2008	744	722	700	679	659
Well 37	Jan-07	Aug, 2008	1,032	1,001	971	942	914
			1,776	1,723	1,671	1,621	1,572

6. Comment:

Need to provide some discussion regarding the possible opportunities for using desalted water in Pomona.

Response:

The City of Pomona is located too far inland from the Pacific Coast shoreline and therefore do not have access to oceanwater or brackish groundwater. As a result, there are no expected opportunities listed below in **Table 18 Opportunities for Desalinated Water**.

Table 18 Opportunities for desalinated water	
Sources of Water	Check if yes
Ocean Water	
Brackish ocean water	
Brackish groundwater	
other	
other	

7. Comment:

Need to provide some discussion regarding wholesaler deliveries.

Response:

Three Valleys Municipal Water District (TVMWD) is the wholesale water supplier for Pomona. To that end, the supply projections listed in **Table 20 Wholesaler Identified & Quantified the Existing and Planned Sources of Water** are consistent with projections listed in TVMWD's 2005 UWMP.

Table 20 Wholesaler identified & quantified the existing and planned sources of water- AFY					
Wholesaler sources	2010	2015	2020	2025	2030 - opt
TVMWD	6,000	6,000	6,000	6,000	6,000
(source 2)					
(source 3)					

8. Comment:

Need to provide some discussion regarding water use monitoring mechanisms.

Response:

There are a variety of ways in which Pomona can currently detect a reduction in water usage as shown in **Table 31 Water Use Monitoring Mechanisms**. A volume reduction in water production meter reads would indicate less well production consistent with a decrease in water

demand. A reduction in power meter reads would be on par with less water distributed throughout the system due to a decrease in water demand. Lastly, a reduction in retail sales would be in direct response to a decrease in water demand.

Table 31 Water Use Monitoring Mechanisms	
Mechanisms for determining actual reductions	Type data expected (pop-up?)
Water Production Meter Reads	Reduction in hours run
Power Meter Reads	Reduction in monthly billings
Customer Information System	Reduction in Retail Sales

9. Comment:

Need to provide some discussion regarding the project supply and demand scenarios.

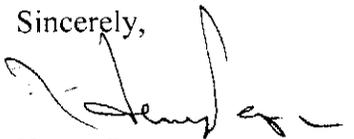
Response:

As a result of changes made in previous tables, Pomona's water supply outlook appears promising. As **Table 42 Projected Supply and Demand Comparison** illustrates, the water supply totals exceed the water demand for every five-year increment. Even with this outcome, Pomona will continue to develop new sources of supply to sustain reliability for its water system.

Table 42 Projected Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030 - opt
Supply totals	37100	37100	37100	37100	37100
Demand totals	31916	33103	34523	35980	35549
Difference	5,184	3,997	2,577	1,120	1,551
Difference as % of Supply	14.0%	10.8%	6.9%	3.0%	4.2%
Difference as % of Demand	16.2%	12.1%	7.5%	3.1%	4.4%

Please feel free to contact Raul Garibay, Supervising Water Resources Engineer, at (909) 620-2239 or Vince Carstensen, Utility Resource Efficiency Coordinator, at (909) 620-3628, if you should require additional information regarding this information.

Sincerely,



Henry Pepper
 Utility Services Director

cc: Meg McWade, Utility Services Manager
 Jim Taylor, Water/Wastewater Operations Manager
 Raul Garibay, Supervising Water Resources Engineer

URBAN WATER MANAGEMENT PLAN

December, 2005

Prepared by:

THE CITY OF

POMONA

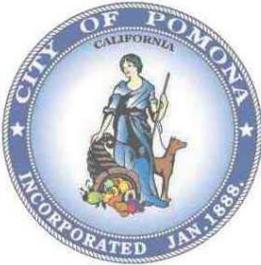


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**APPENDIX C – ORDINANCE 3546 – USE REGULATIONS AND PROTECTIVE
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EXECUTIVE SUMMARY

This is the Urban Water Management Plan for the City of Pomona for the period of years 2005-2009. This report has been prepared in compliance with the Urban Water Management Planning Act of 1994.

The Act requires that every urban water supplier providing water for more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an urban water management plan. The legislation requires the plan to be updated every five years. This plan will be submitted to the California Department of Water Resources within 30 days of approval by the City Council of the City of Pomona.

The purpose of the plan is to achieve conservation and efficient use of urban water supplies to protect the people of Pomona and their water sources, and ensure that sufficient water supplies will be available for future beneficial use.

This report has been prepared in accordance with the guidelines established by the Department of Water Resources and includes an estimate of water use, a discussion of current and future water conservation measures, evaluation of alternative conservation measures, an implementation schedule, Urban Water Shortage Contingency Plan, and a discussion of the steps necessary to implement any proposed actions.

Water Master Plan

A Water and Recycled Water Master Plan (Master Plan) was completed by the City of Pomona in May 2005. The Master Plan provides an evaluation of the City's existing water and recycled water system, an evaluation of the future system requirements through 2025, and water supply strategies to meet the future system needs. Data used in this UWMP update was taken directly from this recent Master Plan, and discussion in this UWMP update is consistent with the findings and recommendations included in the Master Plan.

The 2005 Water Master Plan, prepared by the City's consultant, MWH Americas, Inc., represents a comprehensive review of the existing water and recycled water systems and their respective operations. The Master Plan contains an analysis of existing infrastructure and operations, and provides a list of capital improvements needed to maintain and enhance the City's Water and Recycled Water Systems. In order to ensure that consistency be maintained with the City's effort to update the General Plan, the Water Master Plan was coordinated with the City's Master Plan update currently under way. Additionally, the 2005 City Council Strategic Goals and Objectives were utilized by the consultant to aid in project prioritization efforts.

The Master Plan outlines that the City of Pomona is projected to be at complete build out in the year 2025, with a population growth, based on Southern California Association of Governments (SCAG) projections (as revised by the City through the General Plan process), of almost 27% over the year 2000 census population information. Since the

City is largely built out presently, the projected growth is expected to occur either through in-fill developments or re-development of vacant/developed properties. The population growth translates to a build-out population of approximately 190,000 residents and a resulting 18% growth in residential water demand. The non-residential water demand is expected to increase by approximately four percent. Because of these anticipated changes and the consultant's detailed review of the existing systems/operations, the following highlights some of the consultant's findings and recommendations:

- Water pipeline improvement/replacement will be required to comply with existing and future pressure, and fire flow requirements, as well as regulatory and capacity requirements.
- Facilities such as wells, pumps, booster stations, etc. will need to be replaced / upgraded to meet existing and future regulatory and industry standards.
- Additional groundwater production will need to be developed to increase system production capacity and reliability. This will be accomplished by installing wells, wellhead treatment, and system interconnections, all of which minimize dependence on imported water supplies.
- Because of increasing water demand, the City will need to reduce or eliminate the sale of water from the Chino Basin, in the near future. Additionally, the City will need to market our groundwater, only after our needs are met.
- With the potential addition of large recycled water customers, expansion of the recycled water system may be possible.
- The City currently has a water system storage capacity of 87.7 MGD. There is an average daily demand of 25 MGD, and a peak daily demand of 42 MGD. By the year 2025, the average daily demand is projected to be 29 MGD, and the peak daily demand is projected to be 52 MGD. The existing storage capacity is adequate for current and future demands.
- Development of a Program Environmental Impact Report (EIR), for the projects contained in the Water Master Plan would streamline CIP implementation and, at the same time, would make California Environmental Quality Act (CEQA) compliance more effective.

In keeping with the findings, the consultant provided 20-year replacement / upgrade plans for the Water system to ensure regulatory compliance and improve operational efficiency. Some of the proposed projects from the 2005 Master Plans are listed below.

Major Capital Improvement Program (CIP) Goals identified in the 2005 Water Master Plan

- Replace 106 miles of water transmission and distribution lines, of which, 96 miles exceed 75 years of useful life, and the remaining ten miles of recommended improvements relate to pipeline condition, pressure issues or fire flow.
- Provide water system protection from terrorism and other acts through implementation of the security enhancement guidelines.
- Maintain water system capacity through systematic replacement of aging

infrastructure, such as pumping plants, reservoir sites, system valves, meters, water service lines, etc.

- Increase local groundwater production by adding wells, and increasing wellhead treatment capacity.
- Expand and optimize the Anion Exchange Plant to supply a minimum of 1.8 MGD of additional capacity to minimize reliance on more expensive imported water and to meet Dry Year Yield requirements.
- Implement use of the comprehensive hydraulic model for determining land use development impacts, operational needs and emergency planning purposes.
- Enhance the Geographic Information System (GIS) to expand the functionalities of this tool.
- Where a good business case exists, expand the use of recycled water to reduce potable water demand, by adding schools and parks to the recycled water system.

The cost for the 20-year Water CIP is estimated at \$155.2 million, of which \$152.2 million (or 98%) is allocated to potable water system improvements, and the remaining \$3.0 million (or 2%) is allocated to recycled water system improvements.

Water Conservation

The following is a list of the conservation measures which the City currently employs:

A. Educational and Public Information

1. Public Information
2. Water Conservation Literature
3. Bill Inserts
4. Speakers' Bureau
5. Exhibits/Events Programs
6. Tours of the Water Facilities/Water conservation practices
7. Notice letters of excessive water usage.

B. Promotional

1. Coordination with Developers
2. Water audits/inspections

C. Water Management and Policy Measures

1. Water conservation Program/Urban Water Shortage Contingency Plan
2. Ultra-Low Flow (ULF) Toilet Ordinance for all new construction and ULF fixture replacement program.
3. Distribution System Water Audits, Leak Detection and Repair
4. Water Metering and Rates
5. Large landscape water audits and incentives

6. Landscape water conservation requirements for new and existing commercial, industrial, governmental, and multi-family developments.
7. Commercial and industrial water conservation
8. Conservation pricing
9. Landscape water conservation for new and existing single family homes
10. Water waste prohibition
11. Water conservation coordinator
12. Financial incentives
13. Capital improvement plan
14. Recycled water
15. Water management
16. Xeriscape street medians

The following is a list of the “Best Management Practices” or “Potential Best Management Practices” which the City is currently practicing or may implement:

A. Education and Public Information

Public Information, Education, Water Conservation Literature, Bill Inserts, Speakers’ Bureau and Exhibits/Events Programs

B. Promotional/Incentive

1. Water Conservation kits/fixtures

C. Water Management and Policy Measures

1. Water conservation program
2. Interior/exterior water audits for customers
3. Ultra-low-flow toilet ordinance for all new construction and ULF Fixture replacement in existing residences
4. Distribution system water audits, leak detection and repair
5. Water metering and rates
6. Large landscape water audits and incentives
7. Landscape water conservation requirements for new and existing commercial, industrial, governmental, and multi-family developments
8. Commercial and industrial water conservation program
9. New commercial and industrial water use review/audit
10. Conservation pricing
11. Landscape water conservation for new and existing single family homes
12. Water waste prohibition
13. Water conservation coordinator
14. Financial incentives
15. Additional potential Best Management Practices

Based on normal weather conditions, projected water usage and growth potential, future water demands will be met by the existing sources of water supply. The impact of the implemented Best Management Practices (BMPs) is helping the City to stay within its historical water supplies.

The plan is to achieve water conservation, and efficient use of urban water supplies, so the City's water resources will be available for future beneficial use.

CHAPTER 1

INTRODUCTION

1.1 URBAN WATER MANAGEMENT PLANNING ACT

This is the Urban Water Management Plan for the City of Pomona for the period of years 2005-2009. This report has been prepared in compliance with the California Water Code, Division 6, and Part 2.6., the Urban Water Management Planning Act (Water Code Section 10610 et. al Seq.), which was added by statute in 1983, Chapter 1009, and became effective on January 1, 1984. The Urban Water Management Planning Act is included as Appendix “A” to this update.

The Act, known as Assembly Bill (AB) 797, requires that “...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.” The Act requires urban water suppliers to file plans with the California Department of Water Resources (DWR) every five years describing and evaluating reasonable and practical efficient water uses, reclamation, and conservation activities. Urban water management plans are due to DWR by December 31, 2005. This plan will be submitted to the California Department of Water Resources within 30 days of approval by the City Council of the City of Pomona.

This Act has evolved since its passage in 1983. There have been several amendments to the Act, with the most recent being in 2004. Some of the amendments provided for additional emphasis on metering, drought contingency planning, recycling/reclamation and desalination. The process of refining the Act continues in 2005 as efforts are being made to further develop and clarify various aspects of the Act.

Summary of Amendments

1990 – AB 2661 (Klehs):	Eliminated sunset clause, and added metering
1991 – AB 11X (Filante):	Added Drought Contingency Plan
1991 – AB 1869 (Speier):	Added reclamation
1993 – AB 892 (Frazee):	Eliminated dual reporting on conservation to CUWCC and UWMP
1994 – AB 2853 (Cortese):	“Recycled Water Bill”
1995 – AB 1845 (Cortese):	Required normal, dry, and critically dry water supply and demand assessment in URMP
1995 – SB 1011 (Polanco):	Require update to plan at least once every 5 years on or before December 31, in the years ending in 5 and 0
2000 – AB 2552 (Bates):	Required notification to City and Counties within which the supplier provides water supplies that the UWMP update was in process and to ask for feedback and or comment
2000 – SB 553 (Kelley):	Revision of water demand management measures
2001 – SB 610 (Costa):	Added water project and program requirements

- 2001 – AB 901 (Daucher): Required quality of existing water sources over time
- 2001 – SB 672 (Machado): Added description to minimize the need to import water
- 2002 – SB 1348 (Brulte): Funding recommendations based on water demand management activities of local supplier
- 2002 – SB 1384 (Costa): Required water use projections
- 2002 – SB 1518 (Torlakson): Required recycled water coordination among suppliers and sanitary districts along with comparison of actual and projected recycled water uses
- 2004 – AB 105 (Wiggins): Required submittal of plans to the California State Library
- 2004 – SB 318 (Alpert): Added opportunities for desalination

1.2 CITY OF POMONA

1.2.1 Formation and Location

The City of Pomona is a moderately growing metropolitan area located in eastern Los Angeles County. Incorporated in January 1888, Pomona is located approximately 25 miles east of downtown Los Angeles and can be reached by using the San Bernardino Freeway (10) or the Pomona Freeway (60) or by Orange Freeway (57). The topography of the City is rolling hills surrounding a relatively flat valley floor. Pomona is surrounded by the cities of Diamond Bar, Industry, Walnut, San Dimas, La Verne, and Claremont in Los Angeles County, and by the cities of Montclair and Chino in San Bernardino County.

1.2.2 Management

Pomona is run by the Council-Manager form of government. The Mayor is elected at-large and serves a four-year term. Six Council members are elected by their respective districts and serve four-year staggered terms. Other officials include the City Manager and Department Directors. Managerial positions such as the City Manager, City Attorney, and City Clerk are appointed by the City Council.

1.2.3 Water Systems Management

The operation and management of the City of Pomona’s water system fall within the jurisdiction of the Utility Services Department.

1.3 FORMAT OF THIS REPORT

This report is formatted to comply with the Urban Water Management Planning Act, Sections 10620, 10621, 10642, 10631, 10632, 10633, 10635, and 10643. The individual chapters corresponding with the specific provisions of the Act are presented as follows:

CHAPTER 1 – INTRODUCTION

Describes the City’s location and water system management.

CHAPTER 2 – PUBLIC AND OTHER AGENCIES

Section 10642:	Public Participation
Section 10620: (d) (2)	Agency Coordination
Section 10621: (b)	Agency Notification

CHAPTER 3 – WATER SYSTEMS

Section 10631: (a)	Supplier Service Area
Section 10631: (b)	Water Sources
Section 10631: (e) (1)	Water Use and Water Use Projections
Section 10631 (g)(h)(i)(k)	Estimates and Reporting

CHAPTER 4 – RELIABILITY PLANNING

Section 10631: (c)	Reliability
Section 10631: (d)	Transfer or Exchange Opportunities
Section 10632: (b)	Three-Year Minimum Water Supply
Section 10634:	Water Quality Impacts on Reliability

CHAPTER 5 – SUPPLY AND DEMAND COMPARISON PROVISIONS

Section 10635: (a) (b)	Supply and Demand Comparison
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CHAPTER 6 – WATER RECYCLING

Section 10633: (a)	Wastewater System Description
Section 10633: (b)	Wastewater Generation, Collection and Treatment
Section 10633: (c)	Current Recycled Water Uses
Section 10633: (d)	Potential Uses of Recycled Water
Section 10633: (e)	Projected Recycled Water Use
Section 10633: (f)	Encouraging Recycled Water Use
Section 10633: (g)	Plan for Optimizing the Use of Recycled Water

CHAPTER 7 – WATER SHORTAGE CONTINGENCY PLAN

Section 10632: (a)	Plan to Provide Urban Water Contingency Analysis
Section 10632: (c)	Actions Undertaken during a Catastrophe
Section 10632: (d)	Mandatory Prohibitions during Water Shortage
Section 10632: (e)	Consumption Reduction Methods
Section 10632: (f)	Penalties for Excessive Water Use
Section 10632: (g)	Analysis of Catastrophic Impacts

Section 10632: (h) Water Shortage Contingency Ordinance
Section 10632: (i) Mechanism for Determining Actual Reduction

CHAPTER 8 – CONSERVATION, PUBLIC AFFAIRS, AND BEST MANAGEMENT PRACTICES

Section 10631: (j) BMP reporting
Section 10643 Adoption

The appendices contain references and specific documents such as City Ordinances and Resolutions, etc., referred to throughout this report.

The City is a member of the Three Valleys Municipal Water District (TVMWD), which in turn is a member agency of the Metropolitan Water District of Southern California (MWD). This plan is prepared as a supplement of the Regional Urban Water Management Plan of MWD, dated 2005, and the Urban Water Management Plan for TVMWD, dated 2005. The City of Pomona last prepared the Urban Water Management Plan in 2000.

1.3.1 Plan Adoption

The City of Pomona prepared this update of its Urban Water Management Plan during the 2005 year. The update plan was adopted by City Council on December 12, 2005 and submitted to the California Department of Water Resources within 30 days of Council approval. Attached to the cover letter addressed to the Department of Water Resources and as Appendix “B” are copies of the signed Resolution of Plan Adoption. This plan includes all information necessary to meet the requirements of the California Water Code Division 6, part 2.6 (Urban Water Management Planning).

CHAPTER 2

PUBLIC AND OTHER AGENCIES

Law

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. 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.

2.1 PUBLIC PARTICIPATION

2.1.1 Public Participation

The City of Pomona has actively encouraged community participation in its urban water management planning efforts since the first plan was developed in 1995, updated in 2000 and again in 2005.

The City has held a public hearing for each Urban Water Management Plan developed. Notices of public meetings were published in the local newspapers and posted at city facilities. Copies of the draft plan were available at city offices.

A public hearing was held on December 12, 2005 to receive public comments on the 2005 Urban Water Management Plan, following which the final version was reviewed and formally adopted by the City Council. Notice of the meeting was published in the local newspaper Daily Bulletin on November 21, 2005 and November 28, 2005, and posted at city facilities throughout the end of November and first part of December 2005.

2.2 AGENCY COORDINATION

Law

10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source water management agencies, and relevant public agencies, to the extent practicable.

10621 (b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or country within which the supplier provides water supplies that the urban water supplier will be reviewing the plan 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.

2.2.1 Coordination Within the City

The Business Services Division coordinated with the Water/Wastewater Operations Division to develop this plan.

To insure the City meets increasing water demands and maintains reliable service to its customers, periodic reviews and improvements of the potable and recycled water systems are undertaken. Most recently, the City of Pomona retained the services of Montgomery Watson Harza (MWH) (May 2005) to conduct a review and update of the City’s Water System Master Plan. This Master Plan was developed in coordination with the City’s General Plan Update, and the information was utilized in the UWMP 2005 update. Previous reviews and subsequent adopted plans include retaining Black & Veatch Corporation as a consultant to develop a City-Wide Water Operations Division Emergency Response Plan (December 2003), adoption of the Potable and Recycled Water Systems Review (November 1998), and Evaluation of Water Marketing Strategies (December 1999).

2.2.2 Interagency Coordination

The City of Pomona is a member of the Three Valleys Municipal Water District (TVMWD), which in turn is a member agency of the Metropolitan Water District of Southern California (MWDSC). The City coordinated the development of this plan with TVMWD as its potable water wholesaler. A “Notice of Intention to Adopt” letter was sent to the following agencies: Walnut Valley Water District, Rowland Water District, the City of LaVerne, the City of Covina, the City of West Covina, as fellow member agencies of TVMWD, along with the Sanitation Districts of Los Angeles County (LACSD) as a recycled-water wholesaler.

Table 1 summarizes the actions the City has taken to include other agencies in its planning process.

Table 1 Coordination with Appropriate Agencies							
Check at Least One Box on Each Row	Participated in Developing of the Plan	Commented on the Draft	Attended Public Meetings	Was Contacted for Assistance	Was Sent a Copy of the Draft Plan	Was Sent a Notice of Intention to Adopt	Not Involved / No Information
Other Water Suppliers: Three Valleys Municipal Water District	X			X	X		
Water Management Agencies						X	
Sanitation Districts - Los Angeles County						X	

CHAPTER 3

WATER SYSTEMS AND RELIABILITY

Law

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

10631 (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 5-year increments to 20 years or as far as data is available.

3.1 Supplier Service Area

3.1.1 Climate

Warm, dry summers, low precipitation, and mild winters characterize climate in the City of Pomona. The average daily winter temperature is 51° F and the average daily summer temperature is 75° F. Throughout the year, temperatures range from a low near 20° F during the winter to a high of over 100° F during the summer. More than two-thirds of annual rainfall occurs from December through March with approximately 90 percent occurring between November and April. Mean annual precipitation ranges from 13 inches to 25 inches. In the San Gabriel Mountains, average rainfall has reached as high as 40 inches with extremes ranging between 20 to 200 percent of normal. Relative humidity averages 45 percent year-round, 40 to 70 percent in winter, and 10 to 20 percent in the summer. Prevailing winds are generally light, and westerly or southerly. Night and early morning winds are usually northeasterly. Summer daytime wind speed averages 10 to 15 miles per hour (mph); whereas winter daytime wind speed averages 5 to 8 mph. Occasionally during autumn and winter, “Santa Ana” conditions develop from a high pressure zone to the east. This brings dry, high velocity winds from the deserts to the east and northeast over Cajon Pass. Gusting to over 80 mph, these winds can reduce relative humidity to below 10 percent.

Table 3 below identifies rainfall and temperature for the City of Pomona.

Table 3						
Climate						
	January	February	March	April	May	June
Standard Monthly Average ETo	1.72	2.03	3.37	4.54	5.00	5.80
Average Rainfall (Inches)	3.5	3.5	3.0	1.25	0.4	0.1
Average Temperature (Fahrenheit)	52°	54°	56°	60°	64°	68°

Table 3 (continued)							
Climate							
	July	August	September	October	November	December	Annual
Standard Monthly Average ETo	6.51	6.39	4.69	3.48	2.27	1.71	47.51
Average Rainfall (Inches)	0	0.1	0.3	0.6	1.5	2.7	17.3
Average Temperature (Fahrenheit)	74°	74°	72°	66°	58°	53°	63°

3.1.2 Other Demographic Factors

Located in eastern Los Angeles County, the City of Pomona is made of 22.85 square miles and was incorporated in January 1888. The City provides water services to all residential, commercial, industrial, and agricultural customers and for environmental and fire protection within the city, with the exception of three areas. These areas are (1) an irregular area of approximately 40 acres south of Foothill Boulevard and west of Towne Avenue along with an area of about 20 acres north of Foothill Boulevard and west of Garey Avenue and are presently served by the Southern California Water Company (SCWC). The second area (2) is a small portion of the City located north of Valley Boulevard and west of Temple Avenue and is served by the Walnut Valley Water District (WVWD). The third area (3) is the California State Polytechnic University (Cal Poly) Pomona campus located westerly in an unincorporated area of Los Angeles County. The City also services about 275 acres of residential property and open space area outside of the City limits include approximately 98 percent of the Rolling Ridge Estates, which are located in the Los Angeles and San Bernardino Counties south of the Pomona Freeway and west of the Corona Expressway.

3.1.3 Existing Land Use

Existing land uses by parcel are shown in **Figure 1**, **Table 4** lists the approximate net acreage by land use category (streets and roads have been excluded) and the percent of the total net acreage for each land use category. As seen in **Table 4**, Single Family Residential (SFR) comprises a larger area (31 percent) of the City than any other land use, and the area of all residential categories comprises about 42 percent of the City.

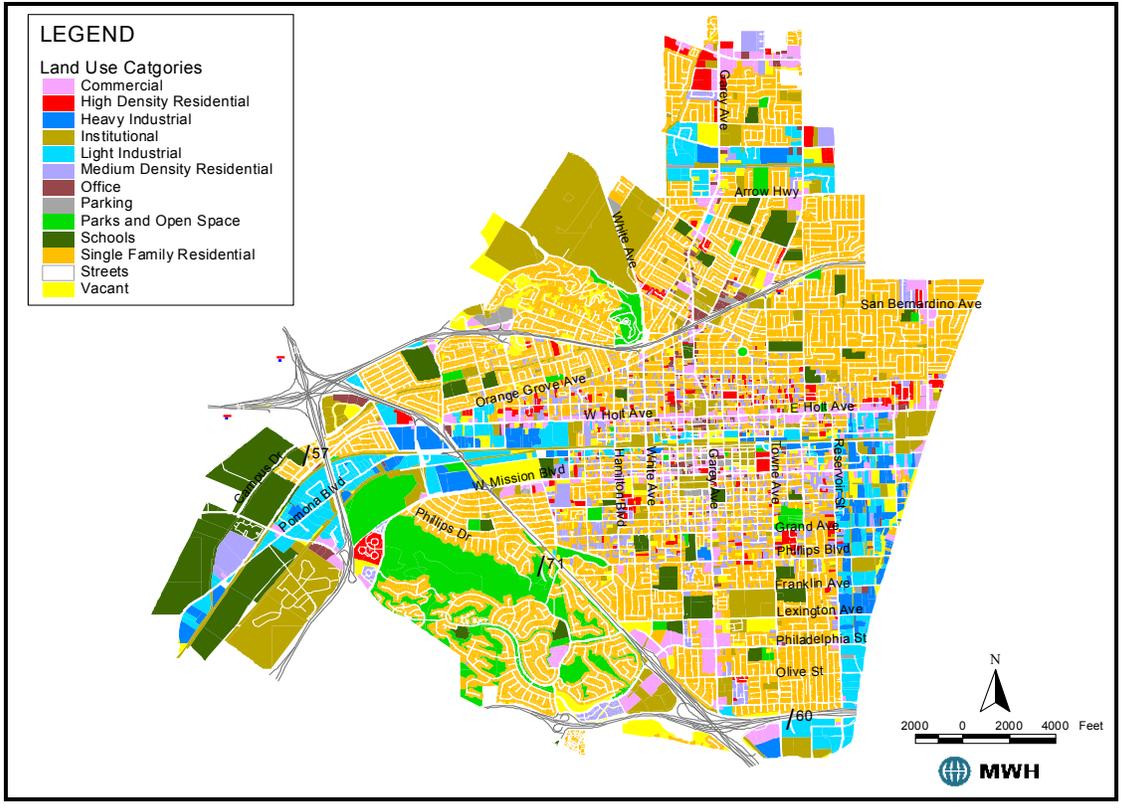


Figure 1
Existing Land Use

Table 4
Summary of Existing Land Use Distribution

Land Use Category	Area (acres)	Area (square miles)	Area (percent)
Administrative Professional	141	0.22	1%
Convenience Commercial	122	0.19	1%
General Commercial	882	1.38	6%
High Density Residential	28	0.04	0%
Industrial	2,119	3.31	14%
Institutional	1,835	2.87	12%
Low Density Residential	1,028	1.61	7%
Medium Density Residential	535	0.84	4%
Open Space	638	1.00	4%
Single Family Residence	4,594	7.18	31%
Specific Plan	2,107	3.29	14%
Blank	675	1.06	5%
Total	14,703	22.97	100%

Source: Existing Land Use shapefile provided by the City

PROJECTED DEVELOPMENTS

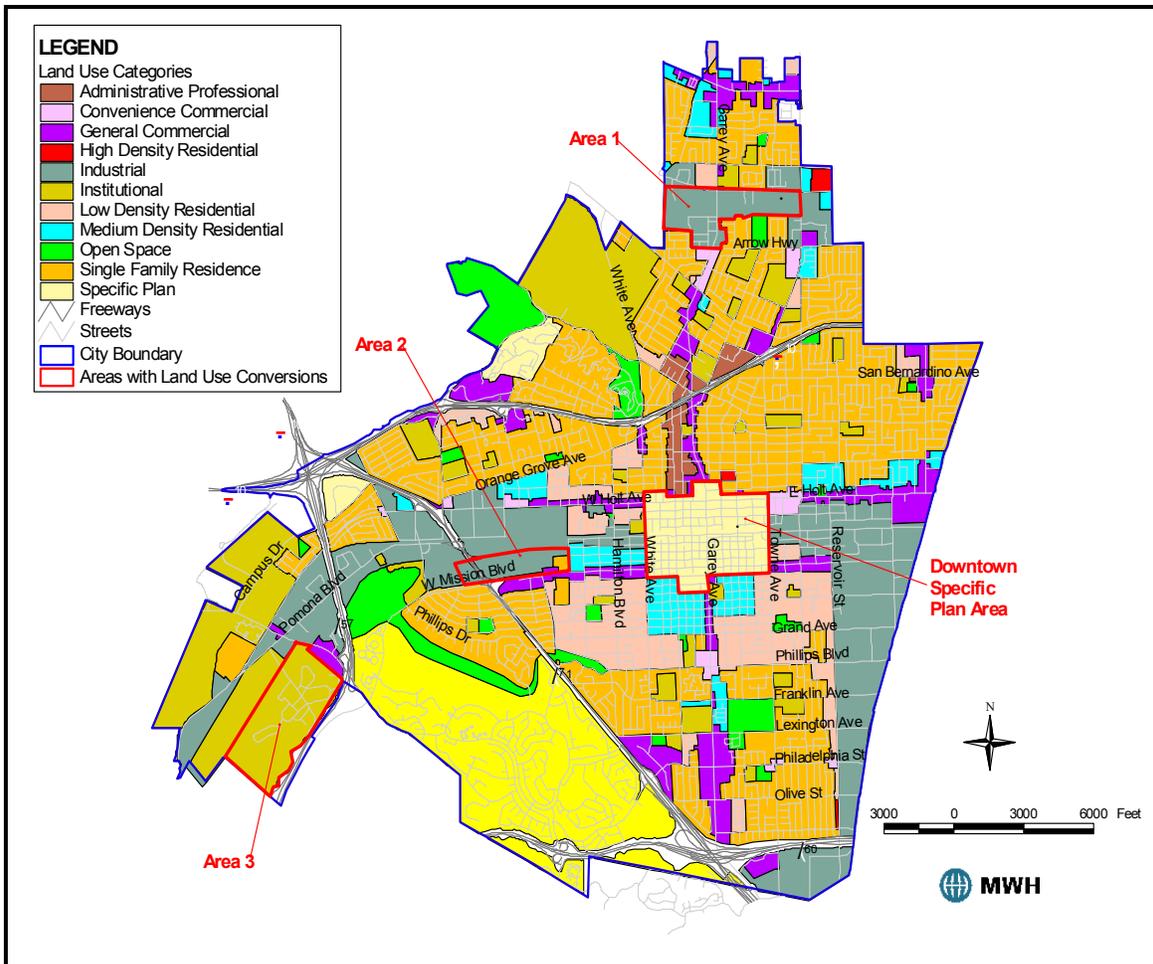
The City’s General Plan is currently in the process of being updated from the latest version completed in 1976. The general plan land use is shown on **Figure 2**, and the land use distribution is summarized in **Table 5**. Percentages vary slightly between **Table 4** and **Table 5** due to categories and definitions used.

Table 5
Summary of General Plan Land Use Distribution

Land Use Category	Area (acres)	Area (square miles)	Area (percent)
Commercial	536.3	0.84	4%
Heavy Industrial	418.06	0.65	3%
High Density Residential	293.86	0.46	2%
Institutional	1616.51	2.53	11%
Light Industrial	811.66	1.27	6%
Medium Density Residential	590.99	0.92	4%
Office	115.26	0.18	1%
Parking	75.95	0.12	1%
Parks and Open Space	863.72	1.35	6%
Schools	959.08	1.50	7%
Single Family Residential	4310.63	6.74	29%
Streets	10.58	0.02	0%
Vacant	629.41	0.98	4%
Blank	3471.31	5.42	24%
Total	14,703	22.97	100%

Source: General Plan Land Use shapefile provided by the City.

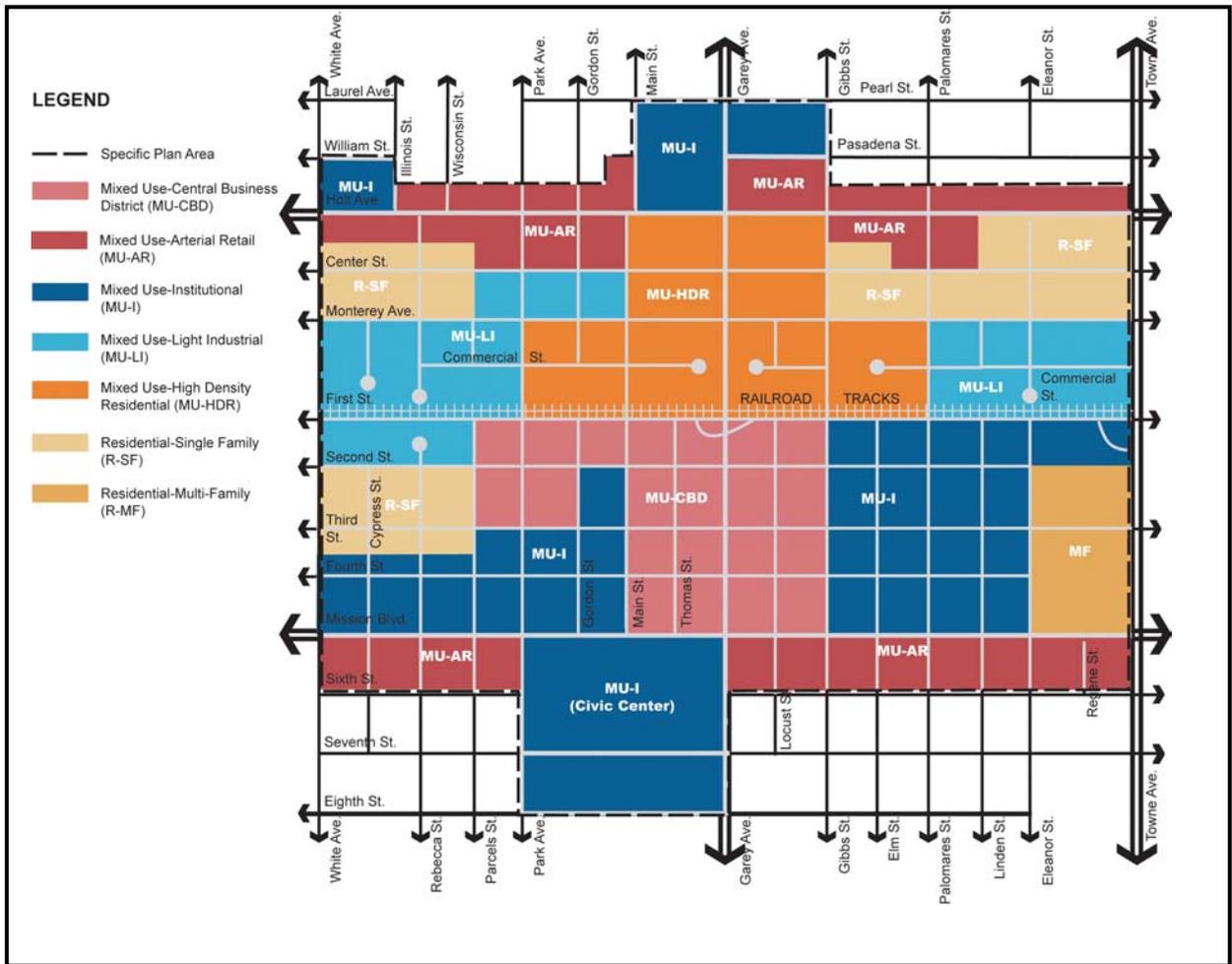
As the general plan update is not available at this time for the demand projection, meetings were held with the City Planning Division to obtain an understanding of upcoming developments. The Planning Division provided information on specific areas that are expected to change land use significantly or are currently vacant. These areas are listed below:



**Figure 2
General Plan Land Use**

- Convert industrial area along W. Bonita Avenue to medium density residential (Area 1)
- Convert vacant land between W. Mission Boulevard and W. 2nd Street, just east of the 71 freeway, to half commercial and half medium density residential (Area 2)
- Convert institutional area west of the 57 Freeway to half commercial and half medium density residential. This is area to be abandoned Lanterman property (Area 3)

In addition to these anticipated developments listed above, the City has developed the Downtown Specific Plan (DSP) to plan for developments in the downtown area. The DSP, shown in **Figure 3**, includes several mixed-use land uses, which will contain a mixture of high density residential housing and retail and office space. This specific plan calls for the development of 2,560 dwelling units between years 2005 and 2016; 228,000 square feet of retail space between years 2012 and 2015; and 236,000 square feet of office space between years 2013 and 2016.



**Figure 3
Downtown Specific Plan (DSP)**

3.1.4 Past and Projected Population

The City of Pomona is a moderately growing metropolitan area. The City experienced extremely rapid population growth in the 1950's and 1960's. The population decreased during the 1970's but is showing a steady increase since the 1980's. According to the 2000 census, the City of Pomona had a population of 149,473. The estimated population of the City according to the Planning Division for 2004, was 156,646 persons.

HISTORICAL AND PROJECTED POPULATION

The City’s historical population estimates are based on California Department of Finance (DOF) and United States Census Bureau data, as listed in **Table 6**. Future estimates are obtained from the Southern California Association of Governments’ (SCAG) 2001 projections, which are presented in **Table 7**.

**Table 6
Historical Population Estimates (1990 to 2003)**

Year	Population	Population Increase (percent)	Source	
1990	131,723	3.36	Department of Finance Historical City, County, and State Population Estimates, 1991-2000, with 1990 and 2000 Census Counts (Official State Estimates)	
1991	133,200	1.11		
1992	136,600	2.49		
1993	138,000	1.01		
1994	139,300	0.93		
1995	139,400	0.07		
1996	140,000	0.43		
1997	141,200	0.85		
1998	143,200	1.40		
1999	145,400	1.51		
2000	149,473	2.72		
2001	151,600	1.40		Department of Finance Report E-4 Population Estimates for Cities, Counties and the State, 2001-2003, with 2000 DRU Benchmark
2002	153,800	1.43		
2003	156,500	1.73		

3.1.5 Future Population

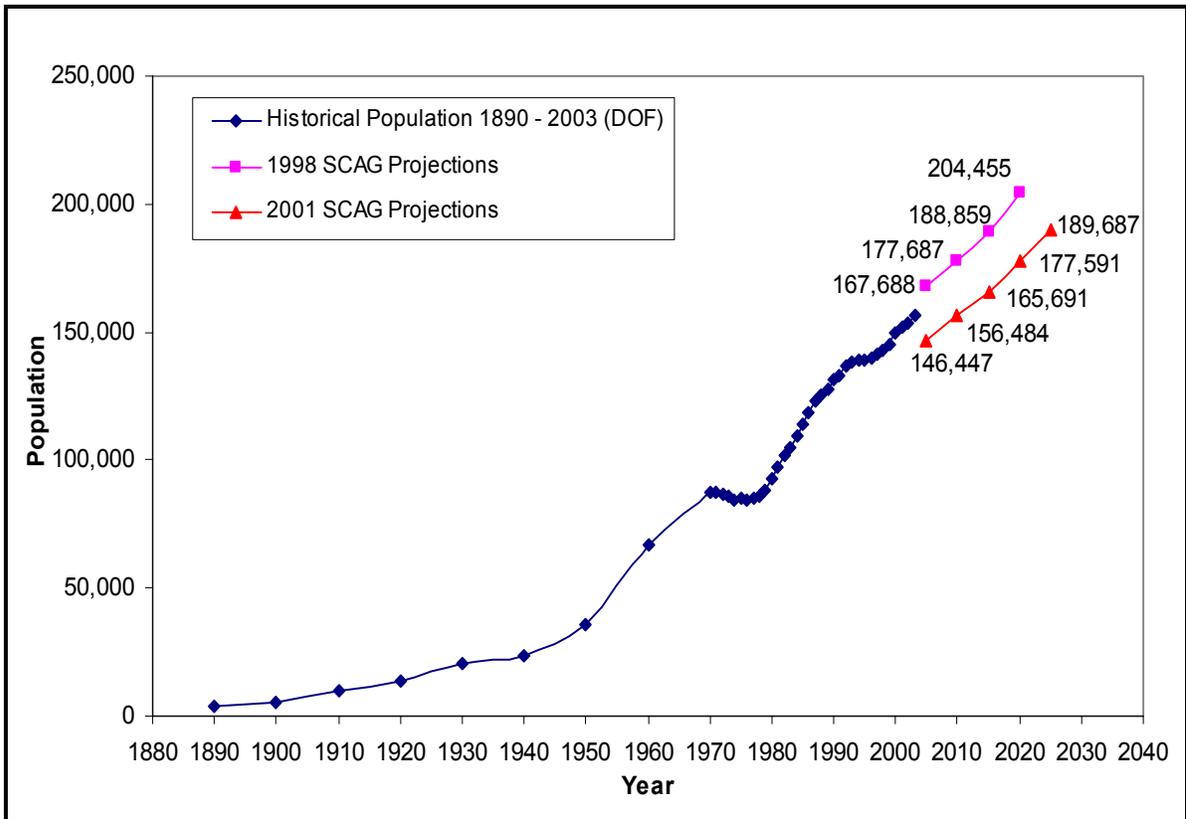
**Table 7
Projected Population Estimates (2005 to 2025)**

Year	Population ¹	Annual Increase (percent)
2005	146,447	--
2010	156,484	1.37
2015	165,691	1.18
2020	177,591	1.44
2025	189,687	1.36

¹ – Based on SCAG 2001 Population Projections.

As shown in **Table 6** and **Table 7**, the City has an estimated 2003 population of 156,500 and a 2025 projected population of approximately 189,690.

Figure 4 shows that a rapid population growth occurred between 1940 and 1970. Although population decreased in the 1970s, there was an increasing trend since the 1980s.



**Figure 4
Historical and Projected Population (1880 to 2025)**

Figure 4 also indicates a data discrepancy between data obtained from DOF and SCAG, suggesting a population decrease from over 10,000 people (from 156,500 people to 146,447 people) between 2003 and 2005. Based on discussions with City staff it was concluded that this variance is likely due to the different data sources used. Historical estimates were obtained from DOF and the census, while future estimates were provided by SCAG. The SCAG projections were developed prior to publication of the 2000 census data.

Figure 4 shows the 1998 and 2001 population projections by SCAG. Although the population variance between the two data sources is over 20,000 people for year 2005, the difference in population growth between the two data sources is only 5,600 for the period 2005 through 2020. Based on discussions with City staff, it was decided to use the 2001 SCAG projections. The 2001 SCAG projections are more recent and use a more conservative population increase, which is more in-line with the expectations of the City's Planning Division. In addition, the 2001 SCAG projections are also used for the General Plan Update that is currently being prepared.

SCAG has projected the population to increase to 189,686 by 2025, or nearly 27 percent over the year 2000 census population. If the City is to grow as projected by SCAG, the City's population density will increase since the City is currently largely built out. The projected growth will have to occur either through in-fill developments of currently vacant parcels or re-development of underutilized (not built to current zoning) parcels.

3.2 Water Sources

Law

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

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments 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:

10631 (b) (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.

10631 (b) (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.

10631 (b) (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.

10631 (b) (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by available, including, but not limited to, historic use records.

3.2.1 Water Supply Sources

The City of Pomona Water/Wastewater Division operates potable and recycled water systems serving customers in a moderately growing metropolitan area in eastern Los Angeles County. The potable system delivers water from a combination of surface, groundwater, and imported sources to approximately 30,200 service connections serving a population of about 163,943 persons and numerous commercial establishments. The City's unique recycled water system, one of the first recycled systems to serve Southern California, provides an alternative water source at competitive rates that serves the

process and irrigation water needs of commercial, industrial, and governmental users, making more potable water available for domestic water customers in the City.

The total average yearly water production in the latest five-year period (FY 2000-01 through FY 2004-05) was about 28,394 acre-ft, which is 22 percent lower than the previous five year period of 36,400 acre-ft. The total average daily production in FY 2004-05 was 23.3 million gallons per day (mgd) or 26,066 acre-ft per year.

The total potable production was 29,388 acre-ft in FY 2000-01 compared to 26,066 acre-ft in FY 2004-05. This represents an annual decrease of 11.3 percent in potable water production over the past five years.

Table 8 details the current and the projected water supply for the City of Pomona up to 2030.

Table 8						
Current and Planned Water Supplies - AFY						
Water Supply Sources	2005	2010	2015	2020	2025	2030
Wholesale Water Providers						
Three Valleys Municipal Water District	7,000	6,000	6,000	6,000	6,000	6,000
Supplier Surface Diversions						
San Antonio Spreading Grounds	2,000	2,000	2,000	2,000	2,000	2,000
Transfers in or out	(2,500)	0	0	0	0	0
Exchanges in or out	NA	NA	NA	NA	NA	NA
Supplier-Produced Groundwater	18,659	20,850	20,850	20,850	20,850	20,850
Recycled Water (current and projected use)	6,000	6,000	6,000	6,000	6,000	6,000
Desalination	0	0	0	0	0	0
Other						
Local Groundwater Production	0	0	0	0	0	0

3.2.2 Groundwater

The City overlies and produces groundwater from three different groundwater basins as shown in **Table 9**. The three basins listed below:

- Chino Basin
- Six Basins
- Spadra Basin

The Chino Basin and Six Basins (Pomona Basin and Claremont Heights Basin) are adjudicated and managed by a Watermaster. The Pomona Basin and Claremont Heights Basin are part of the Six Basin Adjudication Agreement (December 1998), which covers the Two Basins and Four Basins areas. The Two Basins area includes the Live Oak and Ganesha Basins, while the Four Basins area includes Canyon, Upper Claremont Heights Basin, Lower Claremont Heights Basin, and Pomona Basin. The Spadra Basin is neither adjudicated nor formally managed, however discussions are ongoing to establish some form of basin management.

Table 9	
Groundwater Pumping Rights in FY 2004 - AF Year	
Basin Name	Pumping Right - AFY
Chino Basin ¹	17,925
Six Basins	
Canyon Basin	0
Upper Claremont Heights Basin	1,055
Lower Claremont Heights Basin	822
Pomona Basin	1,555
Spadra Basin *	TBD
Total	21,357

As shown in **Table 10**, the City has a total of 39 potable groundwater wells and two recycled water wells. Chino Basin provides the largest source of groundwater supply with 18 of the City's 27 active groundwater wells, contributing to about 83 percent of the active well capacity. Both the Pomona Basin and Claremont Heights Basin contain four active groundwater wells that contribute to about 7 percent of the total active well capacity per basin. Spadra Basin has one active potable water well and contributes to only two percent of the City's groundwater supply.

Table 10
Summary of Groundwater Well Capacities

Basin	Number of Wells					Well Capacity (gpm)	
	Active	Inactive	Standby	Recycled Water	Total	Active Wells	All Wells
Chino Basin	20	3	1		24	14,858	18,276
Pomona Basin	4	4			8	1,220	3,020
Claremont Height Basin	4	2			6	1,335	1,335
Spadra Basin	1			2	3	435	435
Total	29	9	1	2	41	17,848	23,066

As shown in **Table 11**, Chino Basin was the largest source of groundwater supply over the past five years, contributing to 86 percent of the total groundwater production and 61 percent of the total water supply over the period 1998 through 2003. The Claremont Heights Basins contributed seven percent of the total water supply over the period 1998 through 2003. Although Spadra Basin has only one active potable water well, it contributed four percent of the City's groundwater supply, compared to three percent with four active groundwater wells in the Pomona Basin. The City also produces groundwater from two non-potable wells in the Spadra Basin for its recycled water system.

Basin Name (s)	2000	2001	2002	2003	2004	2005
Chino Basin	18,972	17,453	17,667	17,574	16,256	15,982
Six Basins						
Claremont Heights Basin	1,722	1,129	1,001	795	1,116	1,222
Pomona Basin	552	1,041	870	138	438	551
Spadra Basin	467	1,085	1,101	797	956	904
Total Groundwater Supply	21,713	20,708	20,639	19,304	18,766	18,659
% of Total Water Supply	70%	70%	70%	69%	64%	64%

In addition to the groundwater wells located within the City’s boundaries, the City has the possibility to obtain small amounts of groundwater from the City of La Verne’s Old Baldy Well, which is delivered to the Pomona-Walnut-Rowland Joint Water Line (PWR-JWL). Groundwater pumped from this well has high nitrate concentrations. Because of water quality issues, Wells 3, 7, 8B, and 32 use the PWR-Reservoir 5 connection for blending purposes at the Reservoir 5 site. When those wells are in operation and the PWR5 connection cannot contain high nitrates from the addition of the Old Baldy Well, then the Old Baldy Well cannot be operated.

Basin Name(s)	2010	2015	2020	2025	2030
Chino Basin	18,000	18,000	18,000	18,000	18,000
Six Basins					
Claremont Heights Basin	1,200	1,200	1,200	1,200	1,200
Pomona Basin	750	750	750	750	750
Spadra Basin	900	900	900	900	900
Total Groundwater Supply	20,850	20,850	20,850	20,850	20,850
% of Total Water Supply	70%	67%	64%	61%	58%

Chino Basin

The Chino Basin encompasses a total area of about 235 square miles, of which the western portion overlies the City’s service area. The basin contains about 5 million acre-ft of water in storage and has an unused storage capacity of about 1 million acre-ft. The western portion of the basin within the City’s boundary is about nine square miles or 5,900 acres. Total annual groundwater production from the basin was about 182,000 acre-ft/yr during FY 2003-04.

The Chino Basin is the largest groundwater basin in the Upper Santa Ana River watershed. The basin is bounded on the north by the Red Hill fault and Cucamonga fault zone, on the northwest by the San Jose fault, on the southwest by the Chino Hills, on the northeast by the Rialto-Colton fault, on the east by the Jurupa and Pedley Hills and on the south by the Santa Ana River. The basin is an alluvial valley that was formed when eroded sediments from the surrounding San Gabriel Mountains, the Chino Hills, the

Puente Hills and the San Bernardino Mountains filled a geological depression. The water bearing sediments consist of older Pleistocene alluvium that is overlain by younger Holocene alluvial deposits. The younger alluvium varies in thickness from over 100 ft near the mountain front to a few feet south of Interstate 10. The younger alluvium is not saturated and does not yield water to wells; however, it readily transmits recharged water to the deeper aquifers. The older alluvium varies in thickness from about 200 feet near Prado Dam to over 1,100 feet near Fontana. A review of lithologic and geophysical logs indicated the presence of three main water-bearing units in the basin (Montgomery Watson, 1992).

In FY 2003-04, the City pumped a total of 16,256 acre-ft from the Chino Basin. This was about 93 percent of the average production over the past six fiscal years. The 20 active wells in the basin have a combined capacity of 14,858 gpm or 23,964 acre-ft/yr if all wells are pumped continuously.

Pomona Basin

The Pomona Basin is part of the Six Basins and occupies about nine square miles between the cities of La Verne, Claremont, and Pomona. The basin is bounded on the north by the Indian Hill fault, on the south and east by the San Jose fault and on the southwest by the San Jose Hills. The basin is partially divided by the “Intermediate” fault, which acts as a barrier to groundwater flow from the east to the west. The estimated groundwater storage capacity of the Pomona Basin is about 320,000 acre-ft based on an average saturated thickness of 700 feet and a specific yield of 0.081. The operating storage of the Pomona Basin may be low as the basin is partially confined.

The Pomona Basin is naturally recharged by subsurface inflow across the western end of the Indian Hill fault from the Live Oak and Claremont Heights Basins during high level conditions. During years of below average rainfall, little recharge occurs in the Pomona Basin. Outflow from the basin only occurs across the San Jose fault.

In FY 2003-04, the City pumped a total of 438 acre-ft from the Pomona Basin. Due to water quality issues, pumping levels achieved amounted to 73 percent of the average production over the past six fiscal years. The four active wells in the basin have a combined capacity of 1,220 gpm or 1,968 acre-ft/yr if all wells are pumped continuously.

Claremont Heights Basin

The Claremont Heights Basin is part of the Six Basins and occupies about seven square miles. The basin is bounded on the north by the Cucamonga fault, on the east by the San Jose fault, on the south by the Indian Hill fault, and on the west by the Thompson Wash where it borders with the Live Oak Basin. The Claremont Heights Basin is separated into the Upper Claremont Heights and the Lower Claremont Heights Basins by the Claremont Heights Barrier, which extends from the Indian Hill fault north along the northwest side of the Indian Hill and along a line directed toward Gail Canyon. The Upper Claremont Heights Basin is located on the eastern side of this barrier, while the Lower Claremont Heights Basin is located on the western side of this barrier.

The Upper Claremont Heights Basin has an estimated storage capacity of 150,000 acre-ft, assuming an average saturated thickness of 500 feet and a specific yield of 0.102. The basin is naturally recharged by subsurface inflow from the San Antonio Canyon Basin, deep percolation of precipitation and applied water, and percolation from spreading grounds operated by the Pomona Valley Protective Association (PVPA), a non-profit corporation made up of the groundwater producers. Subsurface outflow occurs through or over the Claremont Heights Barrier, the Indian Hill fault, and the San Jose fault in a minor degree.

The Lower Claremont Heights Basin has an estimated storage capacity of 50,000 acre-ft, assuming an average saturated thickness of 400 feet and a specific yield of 0.092. The basin is naturally recharge by subsurface inflow from the San Antonio Canyon Basin and the Upper Claremont Heights Basin, and from deep percolation of precipitation and applied water. Subsurface outflow occurs through or over the Indian Hill fault to the Pomona Basin and the San Gabriel Valley portion of the Live Oak Basin.

In FY 2003-04, the City pumped a total of 1,116 acre-ft from the Claremont Heights Basin. This was much lower (about half) of the average production over the past five fiscal years due to declining groundwater levels. When there is substantial rainfall in the area, both Pomona and PVPA are able to spread significant portions of water in the Six Basins aquifer. Under these conditions, the water levels in this area respond favorably thus facilitating more prolonged pumping in this basin. The four active wells in the basin have a combined capacity of 1,335 gpm or 2,153 acre-ft/yr.

Spadra Basin

The Spadra Basin occupies about 6.5 square miles and is bounded on the north by the San Jose Hills and the San Jose fault, on the west by subsurface constriction called the Spadra Narrows, on the south by Puente Hills, and on the east by a groundwater flow divide with the Chino Basin. The Spadra Basin is naturally recharged by subsurface flow from the Chino and Pomona Basins during high-water level conditions, surface inflow and direct precipitation. Groundwater outflow from the basin occurs through the Spadra Narrows to the Puente Basin.

In FY 2003-04, the City pumped a total of 956 acre-ft from the Spadra Basin. This was about 20 percent higher than the average production over the past six fiscal years. Of this total, 470 acre-ft/yr of Spadra Basin groundwater was delivered to Pomona's recycled water system. The sole active potable well in the basin has a capacity of 435 gpm or 702 acre-ft/yr if pumped continuously.

The Spadra Basin is neither adjudicated nor formally managed. Historically, the basin had three pumping entities, the City, Cal Poly Pomona, and a mobile home park. Due to poor water quality, the mobile home park's well was shut down. The City has one potable and two recycled water wells pumping from the basin. The Walnut Valley Water District has developed a non-potable well near the Puente Narrows.

Water Rights

In some California groundwater basins, the amount of water that different parties can pump from a basin are defined in an agreement that has been approved by the courts. These basins are referred to as adjudicated basins. The primary reasons for adjudication of a groundwater basin are to formalize an entity's annual right to a portion of the groundwater and to protect the basin from overpumpage. In adjudicated basins, the court appoints a watermaster to oversee the court judgment. In most basins, the judgments limit the amount of groundwater that can be extracted by all parties. The City pumps water from two adjudicated groundwater basins, the Chino Basin and the Six Basins. The Chino Basin adjudication was originally filed as a stipulated decree on January 27, 1978. This judgment was revised with the adoption of the *Chino Basin Peace Agreement* on June 29, 2000. The adjudication of the Six Basins, which covers the Upper and Lower Claremont Heights Basins and the Pomona Basin as well as three other adjacent groundwater basins, was established on December 18, 1998 and is referred to as the *Six Basin Judgment*. Spadra Basin is the only basin that is used by the city for groundwater pumping that is not adjudicated. The adjudication and water rights allocation of the Chino Basin and Six Basins are discussed below.

Chino Basin Judgment

Groundwater rights are defined by the 1978 judgment in the case *Chino Basin MWD v. City of Chino, et al.* The judgment is administered by a watermaster and is subject to the on-going court jurisdiction. The original watermaster, the Chino Basin Municipal Water District, was replaced in 1998 by a nine-member board made up of representatives of the basin pumpers, designated the Chino Basin Watermaster. The judgment defined the safe yield of the basin to be 140,000 acre-ft/yr. Water rights are divided between three pools:

- The Overlying (Agricultural) Pool – 82,800 acre-ft/yr
- The Overlying (Non-agricultural) Pool – 7,366 acre-ft/yr
- The Appropriative Pool – 49,834 acre-ft/yr.

The rights of the Overlying (Non-agricultural) Pool and the Appropriative Pool parties are explicitly defined in the judgment; whereas, Overlying (Agricultural) Pool parties have common rights. The judgment includes a physical solution that defines the Operating Safe Yield for the Appropriative Pool as 54,834 acre-ft/yr. This includes an allowed overdraft of 5,000 acre-ft/yr up to a total of 200,000 acre-ft/yr. This allowed overdraft is expected to end in FY 2017 after which the Operating Safe Yield (OSY) will return to 49,834 acre-ft/yr. It is expected that Pomona's increase in groundwater production capacity in the Spadra and Six Basins will more than offset this expected decrease. The OSY is divided among the Appropriative Pool parties according to their assigned shares of the OSY. The judgment provides that the Safe Yield may need to be adjusted periodically based on more accurate and updated data and on evidence of increased capture of native water and increased return flow from the use of replenishment or stored water. New yield will be allocated to the Appropriative Pool.

Production in excess of the pumper's defined rights must be replaced with replenishment water. The Chino Basin Watermaster purchases imported untreated water for replenishment from the Inland Empire Utilities Agency (IEUA). In the future, supplemental replenishment water is expected to include recycled water. The cost of replenishment water required to replace overpumping by pumpers in the IEUA and Western Municipal Water District (except Norco) service areas is subject to the "85-15 Formula" where 85 percent of the replenishment water cost is paid by the responsible party and the remaining 15 percent is paid by all of the "85-15" pumpers as an assessment on total pumping. Pumpers in the Three Valleys MWD and the San Bernardino Valley MWD service areas pay for replenishment water only if they overpump. Pumpers can avoid incurring a replenishment assessment by leasing or purchasing water rights from other pumpers who do not use their entire allocation. Appropriative Pool pumpers can carry over unpumped water rights to the following year up to their share of the Operating Safe Yield. Any carryover water beyond one year's amount must be retained through a written storage agreement with the Watermaster.

Water rights are transferred from the Overlying (Agricultural) Pool to the Appropriative Pool on a permanent or a temporary basis. Permanent transfers are accomplished through the permanent conversion of agricultural land to urban uses. In the past, conversions were based on 2.6 acre-ft/yr/acre with one-half going to the appropriator who undertook service of the converted land and the remaining half going to all parties in the Appropriative Pool. Temporary conversions occur annually when the Overlying (Agricultural) Pool produces less water than its rights during the prior year. Previously, unpumped Overlying (Agricultural) Pool water was transferred to the Appropriative Pool in the following year. The mechanism for both permanent and temporary transfers have changed as a result of the *Peace Agreement* signed in June 2000 to implement Optimum Basin Management Plan (OBMP).

Optimum Basin Management Program

In 1998, the Superior Court appointed a nine-member board as Interim Watermaster and directed the Watermaster to prepare an Optimum Basin Management Program (OBMP) by September 30, 1999. The OBMP is intended to formulate and implement a groundwater management plan having the goal of preserving and enhancing the safe yield and water quality of the basin. Development of the OBMP involved two phases. Phase I consisted of defining the current state of the Basin, establishing goals associated with the major issues facing the stakeholders, and developing a management plan to achieve the goals. Phase II of the OBMP involves the development of specific implementation plans that will allow the physical construction, operation, management and monitoring of OBMP facilities. This phase includes development of a series of agreements, technical memoranda, facilities reports, policy documents and plans to implement the OBMP.

Phase I of the OBMP included a detailed assessment of the conditions of the basin including groundwater levels and storage, groundwater production, historical and current groundwater quality, safe yield, water demands and agency supply plans, wastewater flows, treatment and disposal plans (CBWM, 1999). During Phase I, the stakeholders

developed a mission statement, goals, and potential management actions to achieve these goals. The Phase I Report was submitted to the Court in September 1999.

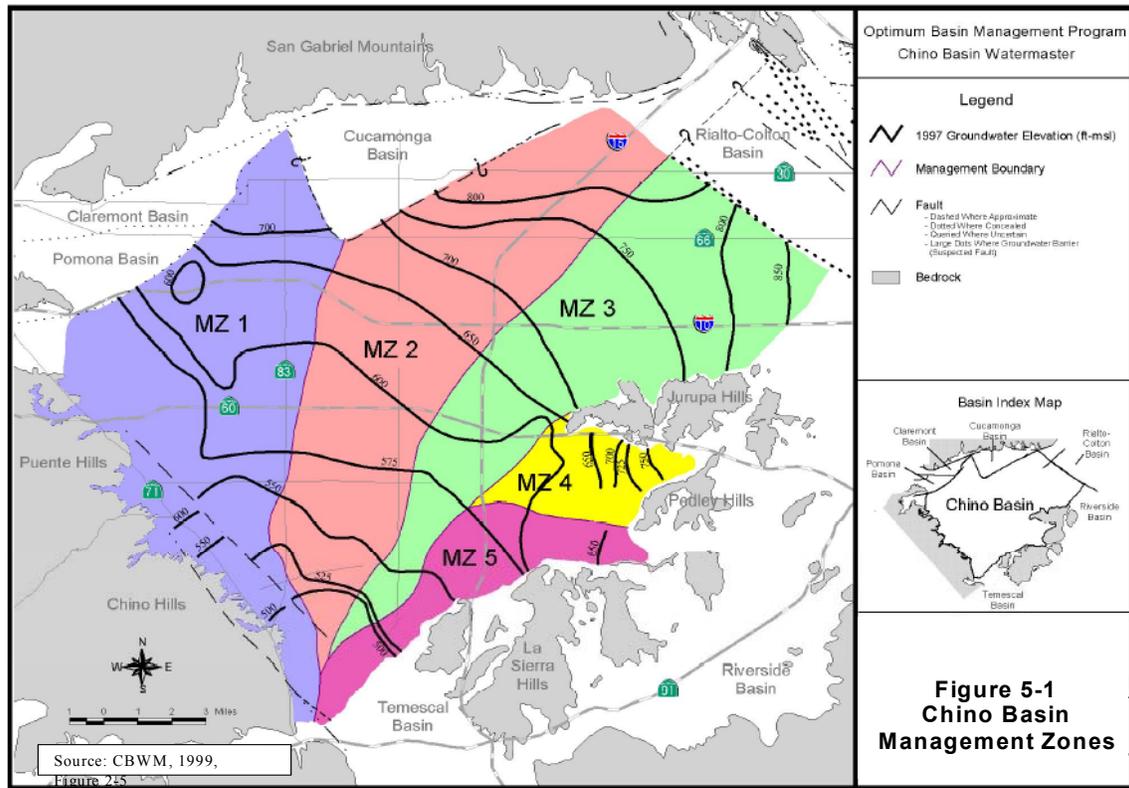
A major accomplishment of Phase II of the OBMP was the signing of the Chino Basin *Peace Agreement* on June 29, 2000. The purpose of this agreement is to facilitate implementation of the OBMP and to resolve many of the significant outstanding basin management issues. The agreement has a 30-year term and may be extended for an additional 30 years. Key elements of the Peace Agreement include:

- Watermaster Performance – administration of basin recharge and replenishment activities, regulation of storage capacity and groundwater recovery, management of water transfers and leases between judgment parties, computation of assessments and salt credits, and management of well metering
- Land Use Conversions – The amount of water rights converted for agricultural land to urban use is changed from 2.6 acre-ft/yr per acre split between the appropriator providing water service and all Appropriative Pool members to 2.0 acre-ft/yr per acre to the appropriator providing water service. The purveyor is required to pledge the use of the converted water to serve the converted land.
- Assignment of Overlying Rights – Overlying rights may be assigned by agreement to an appropriator to the extent necessary to provide water service to the overlying agricultural lands.
- OBMP Credits and Reimbursement – Watermaster is required to adopt procedures to evaluate requests for credits against future OBMP assessments or reimbursement of producer expenses incurred to implement any program or project that carries out the purposes of the OBMP including facilities related to subsidence prevention.
- Covenants by Ag Pool Members – support for storage and recovery projects, agreement of good faith and fair dealing relative to storage and recovery projects, and waiver of compensation from a storage and recovery project
- Desalters – conditions regarding the ownership, funding, design, construction, operation, replenishment water and sale of water for existing and new desalters
- Conflicts – remedies for default by parties to the agreement and dispute resolution procedures
- Replenishment by Watermaster – as part of its recharge and replenishment activities, Watermaster is required to purchase and recharge 6,500 acre-ft/yr of imported water in Management Zone 1 over a five-year period (total of 32,500 acre-ft). The cost of recharged water and rights to pump this water is allocated the Appropriative Pool according to each member's share of the Initial Operating Safe Yield (OSY). Watermaster has assigned this water to each Appropriative Pool member's local storage account. The Watermaster will evaluate the need for continued recharge after FY 2004-05.
- New Yield – The Watermaster is developing a program to enhance replenishment of stormwater in the basin. This program is initially estimated to develop an average

yield of 12,000 acre-ft/yr. This new yield is being distributed among the Appropriative Pool parties according to their share of the OSY.

For management purposes, the Chino Basin has been divided into five management zones. These zones are depicted in **Figure 5**. These zones are based on the observation of five distinct groundwater flow systems having similar hydrogeological characteristics. Water management activities occurring in one zone have little or no impact on the other zones. Hence, recharge and pumping activities in Management Zone 1 (MZ-1) have little effect on the adjacent MZ-2, and vice versa. The City of Pomona falls within Z-1.

Figure 5
Chino Basin Management Zones



Chino Basin Water Rights

The City of Pomona has water rights based on 20.454 percent of the initial OSY of Chino Basin, temporary transfers of unpumped water from the Appropriative Pool, and the safe yield reallocation of the Agricultural Pool. The City does not own any water rights in the Non Ag Pool.

For Fiscal Year (FY) 2003-04, the City had a total right to pump 18,258 acre-ft. This amount consists of 11,216 acre-ft of the Initial OSY, 446 acre-ft from agricultural pool transfers (unpumped water), and 5,903 acre-ft of reallocation of the Ag Pool. Details of the water right allocation are presented in **Table 13**.

**Table 13
Chino Basin Water Rights Allocation FY 2003-04**

Description	Appropriative Pool (acre-ft)	Pomona's Share (acre-ft)
Operating Safe Yield	54,834.000	11,215.746
Carry-over from FY 2002-03	18,656.476	0
Prior Year Storage Account Adjustments	0.000	225.413
Appropriative Pool - Water Transaction Activity		
Leases and Transfers - to/(from)	0.000	(3,000.000)
Supplemental Water	48.400	0
Transfer from storage	19,207.658	2,594.765
New Yield – Stormwater Recharge	12,000.000	2,454.480
Total	31,256.058	2,049.245
Ag Pool – Operating Safe Yield Reallocation		
Early transfers	32,800.000	6,708.912
Land use conversions	17,510.388	0
Net Ag Pool Overproduction FY 2003-04	-9,488.570	-1,940.792
Total available Ag Pool Reallocation	40,821.818	4,768.120
Annual Production Right	145,568.352	18,258.524

As shown in **Table 13**, the OSY of Chino Basin is 54,834 acre-ft. Hence, the City's share of the OSY at 20.545 percent is 11,215.746 acre-feet. The City transferred 2,595 acre-ft from its storage account to its active rights and leased 3,000 acre-ft of this amount to the Monte Vista Water District and Fontana Water Company. In FY 2003-04, the Chino Basin Watermaster commenced an enhanced stormwater recharge program that is estimated to increase the operating safe yield by 12,000 acre-ft/yr. Pomona's share of this new yield is 2,454 acre-ft/yr, resulting in a total water transaction water activity of 2,049 acre-ft. The FY 2003-04 agricultural pool safe yield transfers of 4,768 acre-ft consist of an early transfer of 6,709 acre-ft/yr from the Overlying Ag Pool (20.545 percent of 32,800 acre-ft/yr as defined in the Peace Agreement) less a 1,941 acre-ft/yr adjustment based on actual agricultural pool overproduction during FY 2003-04 (20.545 percent of 9,489 acre-ft). The Watermaster also increased Pomona's water rights with a one-time adjustment to storage accounts of 225 acre-ft in FY 2003-04. Based on these transactions, Pomona had rights to produce 18,259 acre-ft in FY 2003-04. Since actual production in FY 2003-04 was 16,110.509 acre-ft, Pomona carried over 2,148.015 acre-ft to FY 2004-05.

The City's available Chino Basin storage at the end of FY 2003-04 was 13,555 acre-ft. This storage amount is based on the initial storage at the beginning of FY 2003-04 of 15,422 acre-feet, a 728 acre-ft credit to its local storage account based on water recharged in Management Zone 1, and a transfer of 2,595 acre-ft of stored groundwater. Over the past five years, Pomona has reduced its storage account by 10,114 acre-ft. Pomona has leased this stored water plus an additional 14,286 acre-ft of annual production rights to other Chino Basin producers in the past five years. These water transactions generated about \$5 million in revenue for the City. It is the City's intent to reserve a quantity of water, one year allocation of OSY, for drought protection purposes.

In addition to the allocated water production right, the City is participating in the Chino Basin Dry Year Yield (DYY) Storage Program. The objective of this program is to improve the reliability of imported water supplies during dry periods. The program is intended to store up to 100,000 acre-ft in the Basin and generate 33,000 acre-ft/yr of dry year yield for Metropolitan. During wet periods, Metropolitan would deliver SWP water to program participants in-lieu of Chino Basin groundwater production. In these years, the unpumped water would be credited to the DYY storage account. When imported water supplies are inadequate to meet Metropolitan's requirements, the stored water would be pumped out by the participating agencies and used locally instead of taking imported water deliveries from the Metropolitan system. Pomona has committed to developing 2,000 acre-ft/yr of DYY yield by reactivating three Chino Basin wells and expanding the capacity of the Anion Exchange Plant by 1.8 mgd. The City can use these wells in normal years to meet its demands but must reduce its imported water use in dry years when production from the DYY is required.

Six Basins Judgment

Groundwater rights are defined by the 1998 judgment in the case *Southern California Water Company v. City of La Verne, City of Claremont, City of Pomona, City of Upland, Pomona College, Pomona Valley Protective Association, San Antonio Water Company, Simpson Paper Company, Three Valleys Municipal Water District, West End Consolidated Water Company, et al.* The judgment is administered by a watermaster, which is the committee with the powers and duties defined in Article V of the Judgment.

The judgment defined the safe yield of the basin to be 19,300 acre-ft/yr. The Six Basins are divided into two areas, the Two Basins (Live Oak and Ganesha Basins) and the Four Basins (Canyon, Upper Claremont Heights, Lower Claremont Heights, and Pomona Basins). The Judgment defines the following, but is not limited to:

- The rights of the parties to produce groundwater in the Two Basins
- The rights of the parties to produce groundwater in the Four Basins
- The rights of the parties to store groundwater in the Two Basins
- Responsibilities of the PVPA regarding spreading

The Base Annual Production Rights of the Party's within the Two Basins and Four Basins areas are described in the next subsection. The Watermaster may enter a Storage and Recovery agreement with any party holding a Base Annual Production Right or TVMWD as long as the storage and recovery of groundwater will not cause an unreasonably high groundwater table and physical damage.

Groundwater extracted from the Six Basins area will be replenished by PVPA pursuant to Exhibit E of the Judgment, or under any other replenishment program or activity. Exhibit E of the Judgment outlines four spreading programs at the San Antonio Spreading Grounds, Thompson Creek Spreading Grounds, Pomona Spreading Grounds, and Live Oak Spreading Grounds. The Pomona Spreading Grounds are owned and operated by the City of Pomona and comprise eight acres of spreading grounds adjacent

to the Pedley WTP, where surface water from the San Antonio Creek and Evey Canyon is spread, along with some local runoff. The City is not obligated to spread these surface waters and these diversions are excluded from the operation of the Judgment.

Six Basins Water Rights

The Watermaster annually (before September 15) establishes the OSY for the following year, taking into consideration the amount of water in storage and the need to control water table elevations. The conditions of the basin are reviewed at least quarterly and the Watermaster makes appropriate adjustments of the OSY, if necessary.

The Judgment allows the carryover of rights from one year to the following year, as well as transfer of rights among parties, as long as these transfers are in compliance with the limitations set forth in the Judgment. Transfers of rights among Parties are limited to rights within the Four Basin Area or within the Two Basin area. A party's right to produce, store, or recover groundwater accruing under the Judgment may not be transferred between the Four Basin Area and the Two Basin Area, and vice versa.

The City of Pomona has a base annual right to produce 4,014 acre-ft/yr from the Six Basins, which is 20.798 percent of the OSY of 19,300 acre-ft/yr. This amount includes 691 acre-ft/yr of water rights the City acquired from Simpson Paper Company. In addition, the City has the right to produce an additional 109 acre-ft/yr subject to provisions defined under items a, b, and c of Exhibit D of the Judgment. The water rights are divided over the Upper Claremont Heights, Lower Claremont Heights, and the Pomona Basins as summarized in **Table 14**. The Operating Safe Yield is adjusted annually by the Six Basin Watermaster based on water levels in the basin. For 2005, the OSY is 16,500 acre-ft/yr.

**Table 14
Six Basins Water Rights Summary**

Groundwater Basin	Six Basin Annual Water Right (acre-ft/yr)	Pomona's Base Water Right (acre-ft/yr)	Pomona's 2005 Annual Water Rights (acre-ft/yr)
Canyon Basin	464	0	0
Upper Claremont Heights Basin	10,542	1,234	1,055
Lower Claremont Heights Basin	1,068	961	822
Pomona Basin	7,226	1,819	1,555
Total	19,300	4,014	3,432

Source: Exhibit D from the Six Basin Judgment (December, 1998) and Table 4 of Preliminary Determination of Operating Safe Yield for Calendar Year 2005.

The City has pumped an average of 2,034 from the Six Basins over the period 1998 through 2004, which is lower than the allocated water rights. It should be noted that reports demonstrate that the cumulative groundwater production of the parties of the Six Basins has been greater than 20,000 acre-ft in each of the five years immediately

preceding the filing of the Judgment, exceeding the available safe yield. According to the Judgment, the native safe yield has been continuously exceeded for at least two decades.

The OSY for the Six Basins is reviewed and adjusted each year. For the most part, it has seen a downward trend due to the lack of pumping from the water purveyors. However, given Pomona increasing well production in the Six Basins, it is expected that OSY will be set at a high level.

3.2.3 Surface Water

The City through ownership of stock in the Canon Water Company (CWC) and other surface water rights makes use of water from San Antonio Canyon and Evey Canyon. This water is diverted from San Antonio Canyon through a diversion structure downstream of the Southern California Edison Company (SCE) Ontario Hydroelectric Plant and transported through a pipeline to the City's Pedley Water Treatment Plant. The original pipeline is a 14 and 16-inch diameter unreinforced concrete pipe. Portions of the pipeline were relocated for housing developments and have been replaced with steel pipe. Currently, the steel pipe extends northeasterly through the residential areas to the Pomona Valley Protective Association (PVPA) boundary. Any future replacements would be at the cost of the Canon Water Company or the City of Pomona as the PVPA spreading grounds will not be developed for residential use. The Pedley Water Treatment Plant is located in the City of Claremont, west of Mills Avenue and south of Baseline Road. It was constructed in 1960 and was upgraded in 1998.

The City's surface supplies can produce up to 4 mgd and during wet years have annually produced up to 3,300 acre-ft of water. The average annual yield over the past 10 years has been 3,000 acre-ft (2.7 mgd). The City's surface water production was only 974 in FY 2002-03 due to low precipitation. The current surface water production is 2,000 acre-ft for 2005. The decrease in water production is the result of two items: rainfall precipitation and treatment capacity. When the rain is scarce, surface water is not plentiful and therefore cannot be diverted to the plant. Second, when the plant was modified, the treatment rating on the plant went from 5 MGD to 4MGD. This was primarily due to an aged treatment process; namely Hardinge Filter Technology. There are substantial amounts of testing and monitoring that takes place to ensure that the plant effluent meets all DHS requirements.

3.2.4 Imported Water

The City obtains imported water from MWD via TVMWD. These agencies treat water received from the Colorado River via the Colorado River Aqueduct and from the State Water Project via the California Aqueduct. The amount of water delivered to Pomona by MWD and TVMWD currently accounts for about 21 percent of the total water used in the City; however, the City's contracted capacity with MWD exceeds its current maximum day demand.

The City's imported water supply has four connections with a total capacity of 53.3 mgd. The two major connections are located on the Pomona-Walnut-Rowland (PWR) Joint Water Line. The connection at E Street and Arrow Highway provides water to Reservoir No. 5 and has a capacity of 25 mgd. The other connection at Reservoir No. 8 has a capacity of 20 mgd.

The other two connections are located at Booster Station No. 7. One is connected to the Orange County Feeder (PM-11) at 6.5 mgd capacity; its delivery rate is limited to 1.8 mgd by the capacity of the booster. The other is connected to the PWR line at 1.8 mgd capacity.

The total water imported for the City decreased by 24 percent (1,298 acre-ft lower) from 6,763 acre-ft in FY 2000-01 to 5,465 acre-ft in FY 2004-05. As we continue to develop well production facilities all three Basins, it is expected that the TVMWD water purchases will begin to decrease over time to a level of about 6,000 acre-ft per year.

3.2.5 Recycled Water

The City is a pioneer in the distribution of recycled wastewater for non-potable use. In 1966, the City contracted with the Los Angeles County Sanitation Districts (LACSD) for the right to purchase and resell a portion of the effluent from Pomona Water Reclamation Plant (WRP). This facility is an advanced wastewater treatment plant using primary sedimentation, activated sludge aeration, final sedimentation, activated carbon absorption, filtration, and chlorination. It has a nominal capacity of 11 mgd and is capable of producing high quality tertiary effluent for a variety of industrial and irrigation purposes. The current recycled water system consists of "pressure" customers served by water that is pumped. These pressure customers include Frank G. Bonelli Regional County Park (Bonelli Park, Mountain Meadows Golf Course, and East Shore R.V. Park), CalTrans 71 Freeway, CalTrans 57 Freeway, Smurfit (now Blue Heron) Newsprint Company, California State University Polytechnic Pomona-Kellogg Campus, and South Campus Drive Parkway (Pomona City Parks).

The paper company uses water on a year round basis. Recycled water sales are limited by availability of water during the peak summer months. In 1988-89 there was a small decrease in recycled water sales due to a treatment plant expansion and limited availability. The City recycled water production was 6,000 acre-ft during FY 2004-05. This includes about 5,400 acre-ft of recycled water purchased from the LACSD and 600 acre-ft from non-domestic wells in the Pomona Basin.

The average total yearly recycled water production in the latest five year period (FY 2000-01 through FY 2004-05) was about 6,700 acre-ft and included the Northside (Gravity) Line. Recycled water accounted for 23 percent of the total water production in FY 2004-05, which has slightly decreased for the past 10 years. Once the Northside Line was sold to the Los Angeles County Sanitation District, the amount of recycled water that Pomona had available was reduced to a total of about 6,000 acre-feet per year.

TABLE 15 - Past, Current and Projected Water Deliveries										
Fiscal Year		Water Use Sectors	Single Family	Multi-family	Commercial	Industrial	Instit/gov	Landscape	Agic	Total
2000	metered	# of Accounts	23,587	2,443	2,583	150	749	304	0	29,816
		Deliveries AF/Y	14,203	5,503	5,824	705	75	1,127	0	27,438
2005	metered	# of Accounts	24,790	2,568	2,715	158	787	320	0	31,337
		Deliveries AF/Y	14,927	5,784	6,121	741	79	1,185	0	28,837
2010	metered	# of Accounts	26,055	2,699	2,853	166	827	336	0	32,935
		Deliveries AF/Y	15,263	6,079	6,433	778	83	1,245	0	29,882
2015	metered	# of Accounts	27,384	2,836	2,999	174	870	353	0	34,615
		Deliveries AF/Y	15,816	6,389	6,761	818	88	1,309	0	31,181
2020	metered	# of Accounts	28,781	2,981	3,152	183	914	371	0	36,381
		Deliveries AF/Y	16,566	6,715	7,106	860	92	1,375	0	32,715
2025	metered	# of Accounts	30,249	3,133	3,313	192	961	390	0	38,237
		Deliveries AF/Y	17,310	7,058	7,469	904	97	1,446	0	34,283
2030	metered	# of Accounts	31,013	3,212	3,396	197	985	400	0	39,203
		Deliveries AF/Y	18,349	7,236	7,657	926	99	1,482	0	35,750

The City provided approximately 454 acre-ft of supplemental domestic water to the recycled water customers in FY 2004-05, compared to an annual range of 300 to 700 acre-ft for the previous 5 years.

3.3 Water Use

Law

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

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

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

10631 (e) (2) Water use projections shall be in the same five-year increments

3.3.1 Past, Current and Projected Water Use

The projected annual water use for the City of Pomona along with the current and projected number of connections for 2005-2030 is shown in **Table 15**. This table shows water use projections from 2005 to 2030 for each category assuming normal demand and growth in the city population.

The potable water demand for the City has increased 5 percent over the past five years. However, based on the City’s water production projections, we continue to assume an annual growth rate of 5 percent in potable water usage for years 2005 through 2030.

Table 16 presents the unaccounted-for water, the difference between the volume of water delivered to the distribution system and the metered sales. The annual unaccounted-for water ranges from 7 to 10 percent of domestic production during 2000 to 2005, which is within a 5 to 10 percent range found in many water systems. Excluding approximately three percent of the potable water production delivered by the Utility Services Department to the other City departments at no charge; the net unaccounted-for water is 4 to 7 percent.

Table 16 Additional Water Uses and Losses - AF/Fiscal Year						
Water Use	2000	2005	2010	2015	2020	2025
Groundwater Recharge (Basin Loss)	0	0	0	0	0	0
Conjunctive Use	0	0	2,000	2,000	2,000	2,000
Recycled	0	0	1,000	1,000	1,000	1,000
Unaccounted-For System Losses	2,148	2,148	2,035	1,922	1,809	1,696
Total	2,148	2,148	5,035	4,922	4,809	4,696

WATER CONSUMPTION

The City’s water consumption data is evaluated to assess the seasonal variation in demands, the distribution of water demands by land use category, the location and consumption of large water users, and the amount of indoor and outdoor demands for residential land uses. These analyses are based on data obtained from billing records over the three-year period January 2001 through December 2003.

Historical Water Consumption

The City provided meter-billing information for every service connection from January 2001 to December 2003. The City reads its water meters on a bimonthly basis. The consumption data are summarized by month in **Table 17** and are graphically illustrated in **Figure 6**. Since metering is bimonthly and lags behind actual use of the water, the actual monthly water consumption is estimated by averaging the two subsequent months billed consumption. This adjusted value can then be compared with the monthly water production.

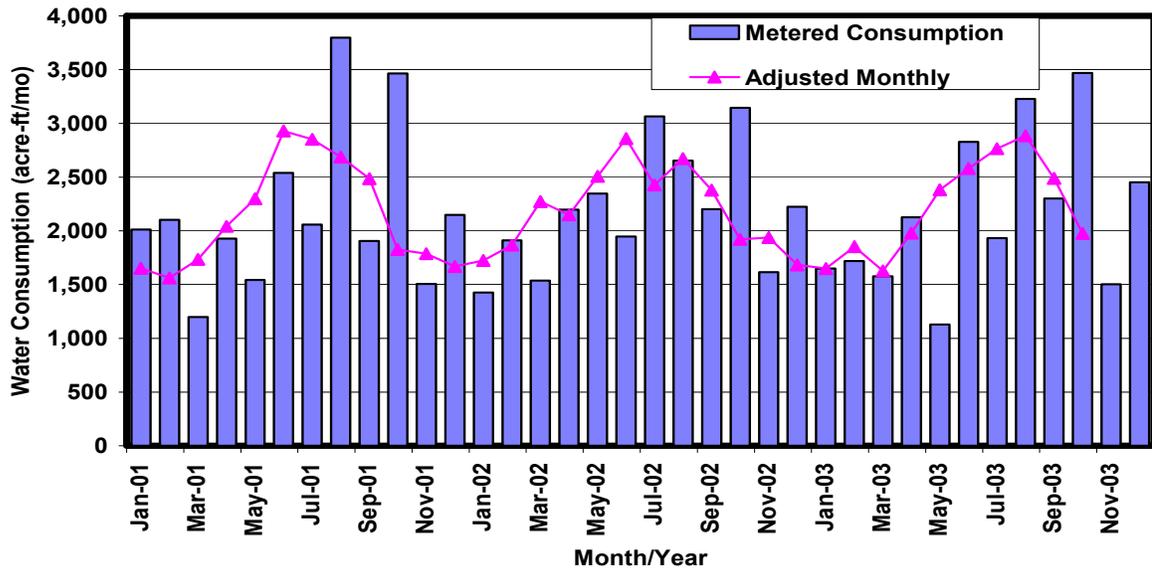
Water consumption increased by approximately 0.2 percent in 2002 and decreased by about 1.4 percent in 2003. **Figure 6** shows that metered water usage is high from June to October. August is generally the month with the highest water demand and reflects water use from June through August. The large variation in monthly consumption can be explained by variations in weather conditions and the unequal distribution of meter reads per month due to the bi-monthly meter reading. For example, meter readings of 36 of the 40 highest water users (contributing to 13 percent of the total water demand) are all read in the same month, while the remaining four meters are read in the next or previous month. If meter readings would take place monthly, the monthly consumption shown in **Figure 6** would most likely show a smoother seasonal pattern comparable to the production data.

Table 17
Monthly Water Consumption (2001 to 2003)

Month	2001 Water Consumption (acre-ft)	2002 Water Consumption (acre-ft)	2003 Water Consumption (acre-ft)
January	2,013	1,425	1,648
February	2,103	1,910	1,719
March	1,197	1,537	1,577
April	1,927	2,196	2,126
May	1,541	2,347	1,128
June	2,539	1,947	2,827
July	2,059	3,065	1,933
August	3,796	2,651	3,226
September	1,905	2,201	2,300
October	3,465	3,143	3,469
November	1,505	1,614	1,504
December	2,148	2,224	2,450
Total Water Usage	26,198	26,262	25,906

Source: Data obtained from 2001 to 2003 Billing Data provided by City staff.

**Figure 6
Water Consumption (2001 to 2003)**



Water Consumption by User Classification

The water consumption by user classification from 2001 to 2003 is presented in **Table 18**. Fifteen water user classifications are used in the City’s billing data. As shown in **Table 18**, residential customers, including single-family dwelling, multi-family dwelling and trailer parks, consumed approximately 66.9 percent of the water. Other water user categories include commercial (15.7 percent), industrial (6.0 percent), governmental (6.3 percent), irrigation (4.9 percent), and other categories (0.2 percent). Fire service and sanitation meters show no consumption in the last three years.

**Table 18
Water Consumption by User Classification (2001 to 2003)**

User Classification	2001 (acre-ft/yr)	2002 (acre-ft/yr)	2003 (acre-ft/yr)	Average 2001-2003 (acre-ft/yr)	Percent of Total	Percent of Total
Residential Dwelling	12,196	12,720	12,168	12,361	47.3	66.9
Multiple Residential Dwelling	4,691	4,628	4,910	4,743	18.2	
Trailer Park (Residential)	349	348	375	358	1.4	
Commercial	4,117	4,145	4,058	4,106	15.7	15.7
Industrial	1,722	1,393	1,555	1,557	6.0	6.0
Government	1,300	1,075	1,094	1,157	4.4	6.3
City Local Government	47	43	39	43	0.2	
City of Pomona Account	471	482	405	452	1.7	
Irrigation	36	19	22	26	0.1	4.9
Irrigation – Commercial	322	317	306	315	1.2	

Irrigation – City Local Gov.	471	518	436	475	1.8	
Irrigation – Residential Dwelling	444	472	513	476	1.8	
Temporary Service	32	103	23	53	0.2	0.2
Sanitation Only	0	0	0	0	0.0	
Fire Service	0	0	0	0	0.0	
Total Water Consumption	26,198	26,262	25,906	26,122	100.0	100.0

Source: Data obtained from 2001 to 2003 Billing Data provided by City staff.

Indoor and Outdoor Usage

Water demands have base and seasonal components that can be used to estimate the amount of indoor and outdoor water usage. The base component represents non-seasonal consumption and remains relatively constant throughout the year. Much of this base component is indoor water use (i.e, toilet flushing, showers/baths, washing machines, faucets and dishwashers). Because much of the indoor water use ultimately ends up in the sewer system, the estimated indoor usage can be used to estimate the base sewer load. Water usage that varies with weather conditions is known as seasonal consumption and typically includes landscape irrigation, swimming pools, car-washing and cooling. It is assumed that the total consumption during the lowest demand period yields the non-seasonal percentage, while the remaining percentage is seasonal.

Billing data from the City’s 2003 billing records is used to analyze the seasonal variation in water demands to estimate the amount of indoor versus outdoor usage. The disaggregation of non-seasonal and seasonal water use are calculated with billing records of single-family and multi-family residential billing classifications. **Table 19** summarizes the seasonal disaggregation for single-family and multi-family residential land uses.

Table 19
Seasonal Disaggregation of Residential Water Use (2003)

Description	Single-Family Residential	Multi-Family Residential
No. of People ¹	104,589	46,612
Lowest Demand Period	Jan - Feb	May – Jun
Water Consumption during Lowest Demand Period (acre-ft/month)	1,575	701
Total Water Consumption in 2003 (acre-ft)	12,168	5,285
Water Consumption/person during Lowest Demand Period (gpcd) ²	83	80
Total Water Consumption in 2003/person (gpcd)	104	101
Non-seasonal/Base water use or Indoor demand (percent)	80	79
Seasonal/Peak water use or outdoor demand (percent)	20	21

1 – Calculated based on 2003 population estimates for single-family and multi-family residential, density per unit (3.96 people per unit), and vacancy rate (4.4 percent) as reported by the California Department of Finance.

2 – gpcd = gallons per capita per day

As shown in **Table 19**, the average water consumption during the lowest demand period is about 80 to 83 gallons per capita per day (gpcd). Assuming that no irrigation takes place during the lowest demand period, this amount equals to approximately 79 to 80 percent of the total demand (101 to 104 gpcd). Hence, about 80 percent of water usage may be indoor demand, while 20 percent is identified as outdoor demand.

With the knowledge that there will always be users that irrigate during the lowest demand period, it is not realistic to assume that no outdoor demand occurs during the lowest demand period. In addition, the bimonthly billing periods tend to raise the actual minimum month consumption by averaging with an earlier or later month having a higher consumption. However, it is difficult to estimate how much outdoor usage will take place during low demand periods (wet months). To refine the indoor use estimates, the calculated values presented in **Table 20** are compared with indoor and outdoor water use estimates published in MWD’s 1995 Regional Urban Water Management Plan (UWMP) (MWD, 1995). According to this report, 70 percent of the total residential water usage in MWD’s service area is indoor use, which includes toilets, showers/baths, washing machines, faucets, and dishwashers. The other 30 percent is allocated as outdoor use, which includes lawn/garden irrigation, swimming pools, car washing, and air conditioning. **Table 20** presents a revised estimate of indoor use based on the Metropolitan information.

Based on MWD’s reference values, the indoor and outdoor demand values calculated and presented in **Table 20**, are adjusted to 70 percent indoor use and 30 percent outdoor use to account for outdoor demand that takes place during the lowest demand period. With this adjustment, the estimated average indoor use is 73 gpcd (70 percent of 104 gpcd) for single-family residential and 71 gpcd (70 percent of 101 gpcd) for multi-family residential land uses. With this information, a base sewer load of 72 gpcd is selected for sewer load projections. These values compare closely to other published information for residential sewage flows.

Table 20
Estimate of Indoor Usage or Sewer Load

Description	Single-Family Residential	Multi-Family Residential
Total Water Consumption in 2003/person (gpcd)	104	101
Non-seasonal/Base water use/Indoor demand (percent) ¹	70	70
Seasonal/Peak water use/Outdoor demand (percent) ¹	30	30
Non-seasonal/Base water use/Indoor demand = Sewer Load cal'd (gpcd)	73	71
Sewer Load (gpcd)	72	

¹ – Based on 1995 Regional Urban Water Management Plan (MWD, 1995)

These seasonal disaggregation of indoor and outdoor demand for single-family and multi-family residential land use classifications are presented in **Figure 7** and **Figure 8**. It should be noted that the analyses of other billing classifications do not show a clear seasonal trend that could separate the total demand between seasonal and non-seasonal water use, which can be explained with less uniform water usage patterns amongst other land use categories such as commercial and industrial.

Figure 7
Indoor and Outdoor Use for Single-Family Residential (Year 2003)

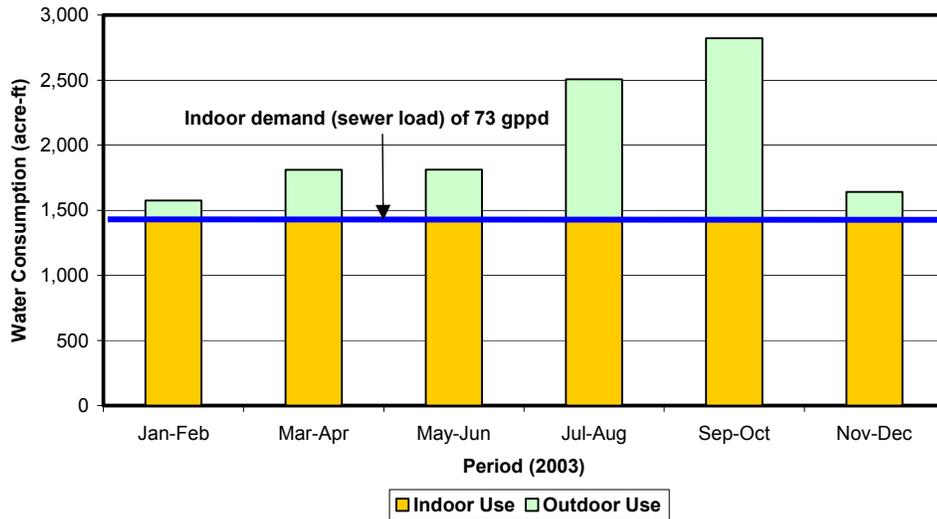
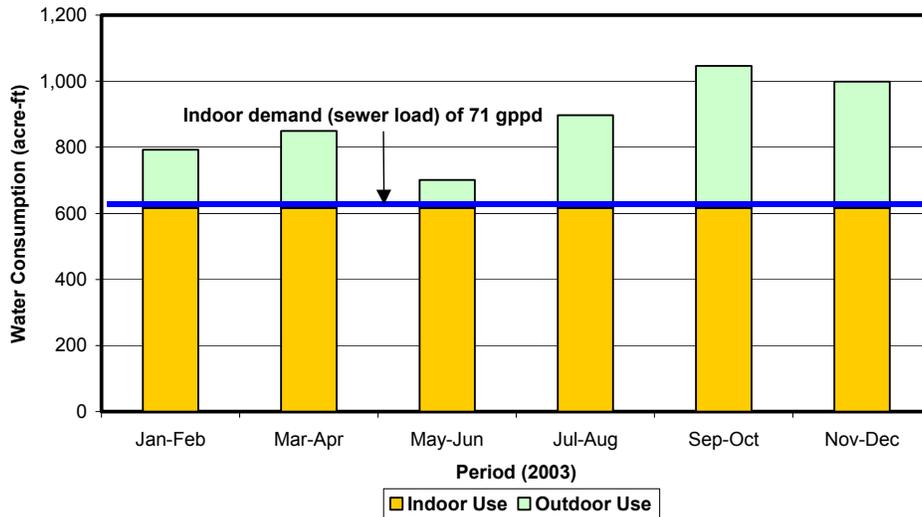


Figure 8
Indoor and Outdoor Use for Multi-Family Residential (Year 2003)



Large Water Users

The City’s major water users have been identified based on the 2003 consumption records to determine high demand locations in the water service area. The top 20 billing accounts are listed in **Table 21**. In 2003, the average demands of these users varied between 30 gallons per minute (gpm) (48 acre-ft/yr) and 288 gpm (465 acre-ft/yr). The aggregate demand is approximately 1,654 gpm (2,667 acre-ft/yr), which is approximately 10.3 percent of the total water consumption. Smurfit (now Blue Heron) Newsprint

Company is the largest water user in the service area, which has two accounts in the top 20 billing accounts, contributing to 2 percent of the City’s total water demand.

**Table 21
Major Water Users**

Name of Water User	Service Address	Service Type	2003 Consumption (gpm)
Smurfit (now Blue Heron) Newsprint Company. ¹	2200 Mount Vernon Ave	Industrial	288
San Gabriel Cogeneration	102 Erie St	Industrial	232
Lanterman Developmental Center ¹	3530 Pomona Blvd	Government	222
Los Angeles County Fairgrounds/Simpson ¹ Dave Alexander	990 Paige Dr	Commercial	121
Allan Company	100 Erie St	Industrial	120
Los Angeles County Fairgrounds	1443 W Mckinley Ave	Commercial	93
Westland Estates – Pomona	1460 W Mission Blvd	Trailer Park (Residential)	64
Los Angeles County Fairgrounds	1900 E St	Commercial	54
Smurfit (now Blue Heron) Newsprint Company. ¹	2200 Mount Vernon Ave	Industrial	48
A1 Pomona Laundry/A1 Linen Service	396 La Mesa St	Commercial	47
Wu Shi Wei	635 Delrosa Pl	Multiple (Residential) Dwelling	44
Interstate Brands Corp.	2801 S Towne Ave	Industrial	44
Congregational Homes	900 E Harrison Ave	Commercial	42
Pomona Valley Community Hospital	1798 N Garey Ave	Commercial	40
Hamilton House	980 S Hamilton Blvd	Multiple (Residential) Dwelling	40
PUSD ²	475 Bangor St	Government	32
Bigs Mobile Home Park	1461 W Mission Blvd	Trailer Park (Residential)	32
City of Pomona Parks Department (McKinley & Ganesha Park)	550 W Mckinley Ave	COPA - City of Pomona Account	30
PUSD	725 W Franklin Ave	Government	30
PUSD (Ganesha High School)	1201 Fairplex Dr	Government	30

¹ – These users are also recycled water users.

² – PUSD = Pomona Unified School District

Table 22 below indicates the water sales that were made to outside agencies:

Table 22							
Sales to Other Agencies - AF/Y							
Water Distributed	2000	2005	2010	2015	2020	2025	2030
Reliance Energy	2,500	0	0	0	0	0	0
Monte Vista Water District	0	2,500	0	0	0	0	0
Fontana Water District	0	500	0	0	0	0	0
Total	2,500	3,000	0	0	0	0	0

3.3.2 Residential Sector

The City of Pomona, Single-Family Residential category uses 79 percent of the total potable water produced with an annual average of 291,000 gallons water used per connection. Multi-Family Residential category uses 8 percent of the total potable water produced with an annual average of 102,000 gallons water per household unit.

Table 23					
Total Water Use - AF/Y					
Water Use	2005	2010	2015	2020	2025
Total of Tables 8 & 16	27,611	30,405	30,530	30,643	29,685

3.3.3 Commercial Sector

The City has a complex mix of commercial customers, ranging from markets, restaurants, antique stores, insurance offices, beauty shops, and gas stations to multi-story office buildings. The Los Angeles County Fairgrounds is the major water user of the sector. The commercial sector uses 9 percent of the potable water supplies and it is growing at about 4 percent per year based on the year 2000 and 2005 comparison, driven by the need for services by the increasing permanent population. This trend is expected to continue through 2030.

3.3.4 Industrial Sector

The industrial sector of the City has not grown much in the last decade. Smurfit (now Blue Heron) Paper Company is the City's most intensive industrial recycled water user. The industrial sector only uses 0.5 percent of the potable water supplies and it is expected not to increase significantly.

3.3.5 Institutional/Governmental Sector

The City's institutional/governmental sector includes the Pomona Unified School District and local governments which use 2.5 percent of the potable water supplies and is estimated to increase at 5 percent per year through 2030.

3.3.6 Landscape/Recreational/Fire Sector

The Los Angeles Fairplex and the Frank G. Bonelli Regional County Park are the largest recreational users of the Pomona Water System.

Wholesaler	2010	2015	2020	2025
Three Valleys Municipal Water District	6,000	6,000	6,000	6,000

CHAPTER 4

RELIABILITY PLANNING

4.1 Reliability

Law

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

10631 (d) 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 replace that source with alternative sources or water demand management measures, to the extent possible.

10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent possible.

10631 (c) Provide data for each of the following:

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

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

10632 (b) An estimate of the minimum water supply available during each of the next three (3) water years based on the driest three-year historic sequence for the agency's water supply.

4.1.1 Reliability

Reliability is a measure of a water service system's expected success in managing water shortage. The ability to manage water supplies in times of drought or other emergency is an important part of water resource management in a community. The community must have a program in place prior to the occurrence of these events rather than implement one in times of shortage.

The City of Pomona (City) has indicated that due to its existing water rights and groundwater storage agreements, an adequate supply of water should be available, with normal conservation efforts, for the projected demands.

4.1.2 Reliability Comparison

Table 25 shows estimated water supply projections associated with several water supply reliability scenarios. **Table 26** indicates the water year types and the corresponding year(s) water supply are based on. For further information on the data, see Three-Year Minimum Water Supply (Section 4.1.3) and Water Shortage Contingency Plan (Section 7.1.3).

Table 25 Supply Reliability - AF/Y					
		Multiple Dry Water Years			
Average / Normal Water Year	Single Dry Water Year	Year 1	Year 2	Year 3	Year 4
36,102	32,977	33,590	33,175	33,609	32,977
% of Normal	91.3%	93.0%	91.9%	93.1%	91.3%

Table 26 Basis of Water Year Data		
Water Year Type	Base Year(s)	Hist. Sequence
Normal Water Year	2003/2004	3
Single-Dry Water Year	1993/1994	2
Multiple-Dry Water Years	1990/1991, 1991/1992, 1992/1993, 1993/1994	1

4.1.3 Three-Year Minimum Water Supply

It is projected that the City’s surface water supply may be affected by any long-term drought. Sufficient groundwater and conservation efforts on a consistent basis and based on MWD Integrated Resources Plan (IRP), MWD would be able to meet all demands without the need for mandatory cutbacks, even under a worst-case drought.

Based on experiences during the drought years of 1989-1992, the City forecasts three-year minimum water supply availability for the next three consecutive years in the following table, assuming the worst-case scenario of 50-100 percent reductions in local surface water production.

Table 27 Wholesale Supply Reliability - % of normal Supply - AF/Y					
		Multiple Dry Water Years			
Wholesaler sources	Single Dry	Year 1	Year 2	Year 3	Year 4
Three Valleys Municipal Water District	1,484.59	1,484.59	4,211.15	4,258.41	5,424.95
	21%	21%	58%	59%	75%

Table 28 Factors Resulting in Inconsistency of Wholesaler’s Supply				
Name of supply	Legal	Environment	Water Quality	Climatic
Imported Water from Three Valleys Municipal Water District				Drought

The estimated minimum water supply availability for the City projected in **Table 29** assumes all of the City’s facilities are operational and there are small changes in imported water availability.

Table 29				
Three-Year Estimated Minimum Water Supply - AF/Y				
Source	Normal	Year 1	Year 2	Year 3
Groundwater Supply	18,579	18,579	18,579	18,579
Treated Surface Water	1,482	741	370	0
Three Valleys Municipal Water District (Imported)	7,000	6,750	6,500	6,250
Recycled Water	6,000	6,000	6,000	6,000
Total	33,061	32,070	31,449	30,829

4.1.4 Plans to Assure Reliable Water Supply

The future supply projections assume normal operational status for all of the City’s production facilities. However, the City continues to encounter water quality issues in its groundwater supplies with nitrates, perchlorate, VOCs, etc. These constituents are addressed by the City’s various groundwater treatment plants (Anion Exchange Plant, Well 3, 10 and Towne Groundwater Treatment Facility, Well 29), or plans to build additional facilities for treatment of groundwater sources currently not being used due to water quality problems.

The Pedley Water Treatment Plant production can be affected by climate and operational difficulties. In this case, more treated water is imported into the system to replace the loss of Pedley production. There is a future plan to build direct connections for importing untreated water from MWD and TVMWD into the Pedley Water Treatment Plant to maximize the usage of this plant in case of low or zero surface water flow. There is also discussion of conducting a feasibility study to explore the modification of the existing filtration system. For example, if the plant was retrofitted with microfiltration technology, then Plant capacity could be upgraded to 5 MGD and we could treat more turbid water.

In light of the other sources of supply as shown in **Table 30**, recycled water is a reliable water source because it is consistently available.

Table 30				
Factors Resulting in Inconsistency of Supply				
Name of Supply	Legal	Environmental	Water Quality	Climatic
Groundwater			Nitrate, VOC's, Perchlorate	Drought
Recycled Water				
Surface Water from San Antonio Canyon Watershed			Turbidity	Drought
Imported Water from Three Valleys Municipal Water District				Drought

4.2 Transfer or Exchange Opportunities

Law

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

10631 (d) Describe the opportunities for exchanges or transfers of water on a short-term basis.

The City of Pomona obtains its water supplies from local groundwater sources and through purchased water from MWD and the TVMWD Miramar Plant. The City has a number of means of meeting short-term supply deficiencies. These include excess well capacity, emergency reservoir storage, and use of water stored in Chino Basin and Six Basins. The City's emergency interconnections are with the Walnut Valley Water District.

The City has not experienced a water supply deficiency during the past 20-year history, even during the periods of drought. In fact, in 2004, the City was able to come to the aid of Monte Vista Water District, Claremont, and Southern California Water Company when the MWD's Rialto feeder was shut down for emergency pipeline repairs. Temporary water connections were established to supplement their supply connection lost for over two weeks. **Table 31** lists some of the short-term water connection opportunities.

Table 31					
Transfer and Exchange Opportunities - AF/Y					
Transfer Agency	Transfer or Exchange	Short Term	Proposed Quantities	Long Term	Proposed Quantities
		(MGD)		(MGD)	
Pomona to Monte Vista WD (Zone 5)	4" Tie-In	X	0.48 MGD		
Pomona to Monte Vista WD (Zone 5)	4" Tie-In	X	0.48 MGD		
Pomona to Monte Vista WD (Zone 5)	4" Tie-In	X	0.48 MGD		
Southern California Water Co.(Zone 2)	4" Tie-In	X	0.48 MGD		
Total			1.92		

CHAPTER 5 SUPPLY AND DEMAND

5.1 Supply and Demand Provision

Law

10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from the state, regional or local agency population projections within the service area of the urban water supplier.

10635 (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.

10635 (c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

10635 (d) Nothing in this article is intended to change existing law concerning an urban water suppliers' obligation to provide water service to its existing customers or to any potential future customers.

Section 5.1.1 Supply and Demand Comparison

Table 32 represents a supply projection and **Table 33** provides demand projections at 5-year intervals.

Table 32					
Projected Normal Water Supply - AF/Y					
	2010	2015	2020	2025	2030
Supply	34,576	34,850	34,850	34,850	34,850
% of Normal Year	96%	97%	97%	97%	97%

Table 33					
Projected Normal Water Demand - AF/Y					
	2010	2015	2020	2025	2030
Demand	29,882	31,181	32,715	34,283	35,750
% of year 2005	96%	100%	105%	110%	115%

Table 34 represents a supply and demand comparison where demand does not fluctuate in conjunction with a change in supply. This table also indicates that in the average precipitation years, the City of Pomona has sufficient water to meet the needs of its

customers through 2025. This is based upon imported water rights and groundwater storage agreements, an adequate supply of well water, and continued commitment to conservation programs. By 2030, it appears that the demand will exceed supply by about 900 acre-feet. What the 2030 supply value does not reflect is that there are additional well facilities currently being planned to increase pumping in the Six Basins, planning for increased usage of recycled water, and other efforts to increase other sources of supply.

Table 34					
Projected Supply and Demand Comparison - AF/Y					
	2010	2015	2020	2025	2030
Supply Totals	34,576	34,850	34,850	34,850	34,850
Demand Totals	29,882	31,181	32,715	34,283	35,750
Difference	4,694	3,669	2,135	567	(900)
Difference as % of Supply	14%	11%	6%	2%	-3%
Difference as % of Demand	16%	12%	7%	2%	-3%

Table 35 and **Table 36** are reflective of the worst case scenarios, the City's water production is not affected significantly and this small shortage can be eliminated by increasing groundwater production in the Six Basins, increasing recycled water use, and implementing conservation measures. **Table 37** offers a comparison of the estimates.

Table 35					
Projected Single Dry Year Water Supply - AF/Y					
	2010	2015	2020	2025	2030
Supply	31,724	33,178	34,698	36,288	37,950
% of Projected Normal	84%	84%	84%	84%	84%

Table 36					
Projected Single Dry Year Water Demand - AF/Y					
	2010	2015	2020	2025	2030
Demand	29,882	31,181	32,715	34,283	35,750
% of Projected Normal	79%	79%	79%	79%	79%

Table 37					
Projected Single Dry Year Supply and Demand Comparison - AF/Y					
	2010	2015	2020	2025	2030
Supply Totals	31,724	33,178	34,698	36,288	37,950
Demand Totals	29,882	31,181	32,715	34,283	35,750
Difference	1,842	1,997	1,983	2,005	2,200
Difference as % of Supply	6%	6%	6%	6%	6%
Difference as % of Demand	6%	6%	6%	6%	6%

Table 38 through **Table 49** provides dry year supply and demand projections as well as comparisons at yearly intervals. These tables indicate that should the dry years continue into the future, the gap between water supply and demand come closer together. As one can see, the shortage created by such an environment justifies a water shortage plan.

Table 38					
Projected Supply During Multiple Dry Year Period Ending in 2010 - AF/Y					
	2006	2007	2008	2009	2010
Supply	33,590	33,175	33,609	32,977	33,181
% of Projected Normal	92%	90%	91%	88.1%	87.9%

Table 39					
Projected Demand Multiple Dry Year Period Ending in 2010 - AF/Y					
	2006	2007	2008	2009	2010
Demand	31,148	31,466	31,784	32,102	32,420
% of Projected Normal	86%	86%	86%	86%	86%

Table 40					
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2010- AF/Y					
	2006	2007	2008	2009	2010
Supply Totals	33,590	33,175	33,609	32,977	33,181
Demand Totals	31,148	31,466	31,784	32,102	32,420
Difference	2,442	1,709	1,825	875	761
Difference as % of Supply	7.3%	5.2%	5.4%	2.7%	2.3%
Difference as % of Demand	7.8%	5.4%	5.7%	2.7%	2.3%

Table 41					
Projected Supply During Multiple Dry Year Period Ending in 2015 - AF/Y					
	2011	2012	2013	2014	2015
Supply	33,480	33,781	34,085	34,392	34,701
% of Projected Normal	92%	92%	92%	92%	92%

Table 42					
Projected Demand Multiple Dry Year Period Ending in 2015 - AF/Y					
	2011	2012	2013	2014	2015
Demand	32,702	32,984	33,266	33,548	33,830
% of Projected Normal	86%	86%	86%	86%	86%

Table 43					
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2015- AF/Y					
	2011	2012	2013	2014	2015
Supply Totals	33,480	33,781	34,085	34,392	34,701
Demand Totals	32,702	32,984	33,266	33,548	33,830
Difference	778	797	819	844	871
Difference as % of Supply	2%	2%	2%	2%	3%
Difference as % of Demand	2%	2%	2%	3%	3%

Table 44					
Projected Supply During Multiple Dry Year Period Ending in 2020 - AF/Y					
	2016	2017	2018	2019	2020
Supply	35,014	35,329	35,647	35,967	36,291
% of Projected Normal	92%	92%	92%	92%	92%

Table 45					
Projected Demand Multiple Dry Year Period Ending in 2020 - AF/Y					
	2016	2017	2018	2019	2020
Demand	34,164	34,498	34,832	35,166	35,500
% of Projected Normal	86%	86%	86%	86%	86%

Table 46					
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2020 - AF/Y					
	2016	2017	2018	2019	2020
Supply Totals	35,014	35,329	35,647	35,967	36,291
Demand Totals	34,164	34,498	34,832	35,166	35,500
Difference	850	831	815	801	791
Difference as % of Supply	2%	2%	2%	2%	2%
Difference as % of Demand	2%	2%	2%	2%	2%

Table 47					
Projected Supply During Multiple Dry Year Period Ending in 2025 - AF/Y					
	2021	2022	2023	2024	2025
Supply	36,618	36,947	37,280	37,615	37,954
% of Projected Normal	92%	92%	92%	92%	92%

Table 48					
Projected Demand Multiple Dry Year Period Ending in 2025 - AF/Y					
	2021	2022	2023	2024	2025
Demand	35,840	36,180	36,520	36,860	37,200
% of Projected Normal	86%	86%	86%	86%	86%

Table 49					
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2025- AF/Y					
	2021	2022	2023	2024	2025
Supply Totals	36,618	36,947	37,280	37,615	37,954
Dem and Totals	35,840	36,180	36,520	36,860	37,200
Difference	778	767	760	755	754
Difference as % of Supply	2%	2%	2%	2%	2%
Difference as % of Demand	2%	2%	2%	2%	2%

CHAPTER 6 WATER RECYCLING

6.1 Water Recycling

Law

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

10633 (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.

10633 (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.

10633 (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.

6.1.1 Recycled Water System Description

Table 50 Participating Agencies	
Participating Agencies	Role in Development
Water Agencies	Three Valleys Municipal Water District
Wastewater Agencies	Los Angeles County Sanitation District
Groundwater Agencies	Six Basins Watermaster
Planning Agencies	City of Pomona Community Development Department: Planning Division

The City of Pomona (City) is a pioneer when it comes to the distribution of recycled water for non-potable use. In 1966, the City contracted with the Los Angeles County Sanitation District (LACSD) for the right to purchase and resale the majority of the effluent from the Pomona Water Reclamation Plant (WRP). The current agreement with LACSD was finalized in April 2004.

The Pomona WRP is located at 295 Humane Way, Pomona, CA 91766. This facility was completed in 1966 and was most recently expanded in June 1991. The City of Pomona began using recycled water from the District's current treatment facility in December 1973 when agricultural irrigation at California Polytech University, Pomona and its satellite farming operation at the Lanterman State Hospital, and landscape irrigation along South Campus Drive Parkway were connected to the recycled water distribution system. In later years, two freeway interchanges, two paper mills, a county regional park and the District's Spadra Landfill were added.

The distribution system consists of a 490 HP, 9,000 GPM pump station that feeds two 21-inch transmission lines. The twenty-inch line runs east along Pomona Boulevard and Mount Vernon Avenue to serve the Smurfit (now Blue Heron) Newsprint Company and Pomona Paper Mills (no longer occupied). The other 21-inch line runs north along Ridgeway Street to a T-section at South Campus Drive and the 71 freeway. From this point an 18-inch line continues north along Ridgeway, then east along Murchison Avenue for a short distance before it terminates at a 4.5 million gallon storage reservoir in Bonelli Park that is owned by the Los Angeles County Parks and Recreation Department. At the T-Section, a 16-inch line runs west along South Campus Drive, serving the parkway, Cal Poly, and the 57 freeway. A 21-inch unreinforced concrete gravity line, now owned by LACSD, from the WRP serves the Spadra Landfill, Lanterman hospital and the WWWD system.

The Pomona WRP facility is operated by the LACSD and it is advanced wastewater treatment plant using primary sedimentation, activated sludge aeration, final sedimentation, activated carbon absorption, filtration, and chlorination. It has a nominal capacity of 13 MGD (may be expanded to 15 MGD in the future) and is capable of producing high quality tertiary effluent for a variety of industrial and irrigation purposes.

Existing Recycled Water Customers

Originally, the City delivered recycled water to ten users, three were classified as “gravity” system (Zone 1) customers and seven were classified as “pressure” system (Zone 2) customers. **Table 51** lists the original customers and their recycled water use. **Figure 9** shows the location of the original recycled water customers.

Table 51
Original Recycled Water Users

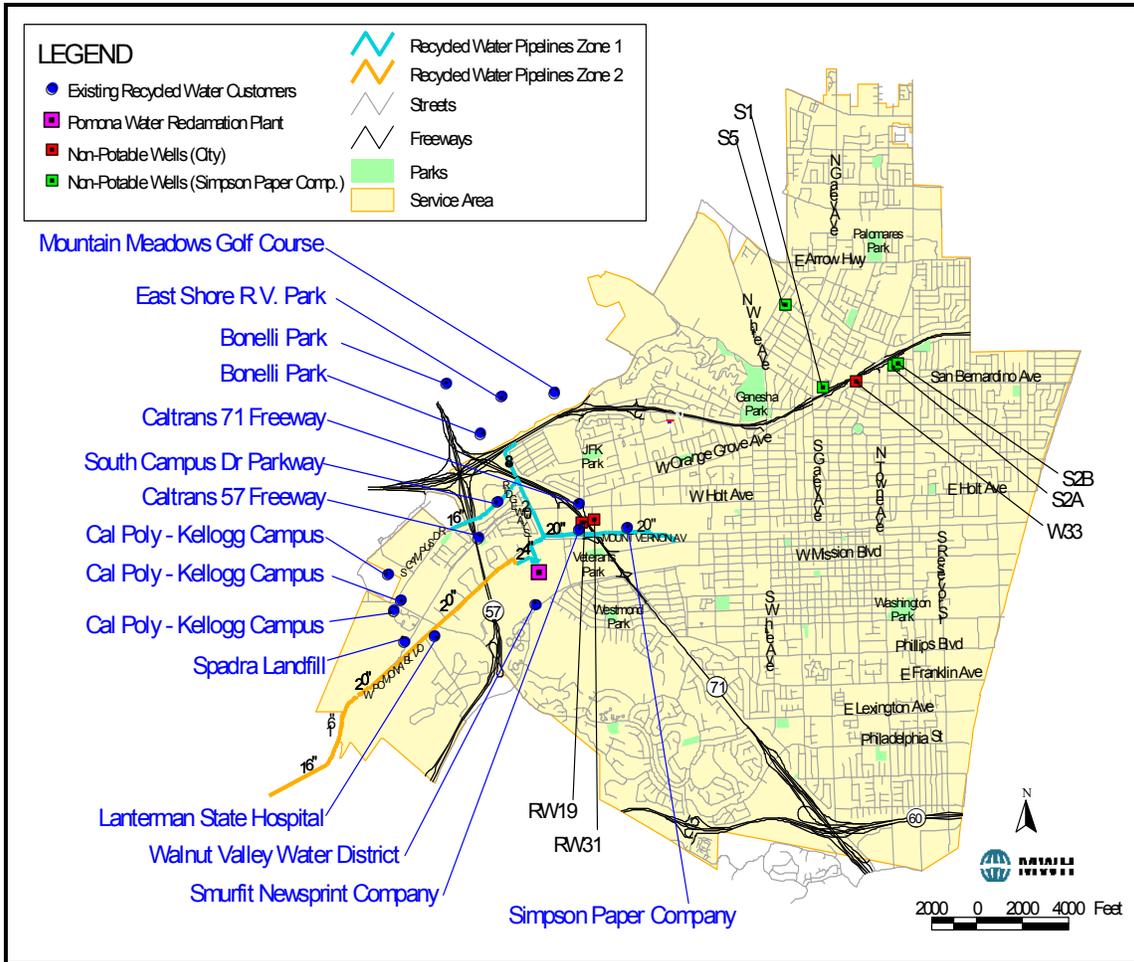
Customer	Zone	Recycled Water Use
Cal Poly Pomona (Kellogg Campus)	Pressure Zone 2	Irrigation, livestock
Frank Bonelli Regional County Park ¹	Pressure Zone 2	Irrigation
City of Pomona Parks Department	Pressure Zone 2	Irrigation
Cal Trans – 71 Freeway	Pressure Zone 2	Irrigation
Cal Trans – 57 Freeway	Pressure Zone 2	Irrigation
Smurfit (now Blue Heron) Paper Company	Pressure Zone 2	Industrial
Simpson Paper Company	Pressure Zone 2	Industrial
Lanterman State Hospital	Gravity Zone 1	Irrigation
Los Angeles County Spadra Landfill	Gravity Zone 1	Irrigation
Walnut Valley Water District	Gravity Zone 1	Irrigation

¹ - Bonelli Park, Mountain Meadows Golf Course, and East Shore R.V. Park

Recycled water for the pressurized recycled water system is supplemented by water pumped from Wells 19 and 31. These customers include Frank Bonelli Regional County Park (Bonelli Park, Mountain Meadows Golf Course, and East Shore R.V. Park), Cal Poly Pomona (Kellogg Campus), Cal Trans (71 Freeway and 57 Freeway), Smurfit (now

Blue Heron) Newsprint Company, and Pomona Parks Department. The other recycled water system, served by water that flows by gravity through a 21-inch pipeline (Northside Waterline), which was sold to the LACSD as of April 2004. When the City did have responsibility for Gravity Line, customers included Lanterman State Hospital (Spadra Farm), Los Angeles County's Spadra Landfill, and Walnut Valley Water District (WVWD). **Figure 9** illustrates the locations of the original recycled water users.

Figure 9
Original Recycled Water Customers and System



The City's policy is to provide recycled water to any potential user who could presumably utilize the water. Service is provided on an as-available basis and the users are required to have backup potable water service to meet their requirements.

Existing Recycled Water Supply

The City currently has two recycled water supply sources, the Los Angeles County Sanitation District (LACSD) Pomona Water Reclamation Plant (WRP) and three non-potable water wells (Wells 19, 31, and 33). Both Wells 19 and 31 take water from the Spadra Basin. Well 33, on the other hand, is in the Pomona Sub-Basin while Well 33, at the current time, is out of service.

In 1966, the City contracted with the LACSD for the right to purchase and resell the majority of the effluent from the Pomona WRP for non-potable uses. This agreement expired in February 2001. The current contract stipulates that the City has rights to approximately two-thirds of the plant's production. The Northside Line, which receives the remaining one-third of the WRP effluent, no longer belongs to the City. Hence, the City will no longer supply recycled water to the Spadra Landfill and the WVWD.

6.2 Wastewater Generation, Collection and Treatment

Law

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

10633 (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.

6.2.1 Wastewater Generation, Collection and Treatment

The Pomona WRP was completed in 1966 and was most recently expanded in June 1991, bringing the plant up to 13 MGD. In FY 1999-2000, the City of Pomona portion of the collection system contributed 6.4 MGD (7,290 acre-feet) of the total 8.63 MGD (9,695 acre-feet) water discharged to the Pomona WRP, compared to 2,405 acre-feet discharged by the Cities of La Verne and Claremont.



Two agencies, the City of Pomona and the Walnut Valley Water District (WVWD) together used 7,142 acre-feet or 80% of the total plant production. This was 12% lower than the preceding fiscal year's usage of 8,117 acre-ft. The remaining effluent is

discharged to the San Jose Creek channel where it makes its way to the unlined San Gabriel River. Therefore, nearly 100% of the plant's effluent is reused, since most of the river discharge percolates into the groundwater. The primary reason for the lower recycled water usage in FY 1999-2000 was pipeline shutdown due to repairs.

Table 52 compares the wastewater generated and collected for the Pomona WRP. Because the Pomona WRP treats water collected from sources other than the City, the exact volume of the wastewater collected from City customers is not available. Previous tables indicate that the expected recycled water supply will average around 6,000 per year. Although the total recycled water produced at the plant exceeds this amount, when Pomona sold the Northside Recycled Water line, the water being delivered through this line was transferred back to the Los Angeles County Sanitation District. However, City staff will be investigating the addition of customers to recapture water that is currently being discharged in to the San Jose Creek during periods of low demand (winter months). During the summer months, unfortunately, the amount of recycled water available is fully subscribed.

Table 52						
Wastewater Collection and Treated - AF/Y						
Type of Wastewater	2000	2005	2010	2015	2020	2025
Wastewater Collected and Treated in Service Area	13,442	12,322	12,322	12,322	12,322	12,322
Quantity that Meets Recycled Water Standard*	12,904	11,829	11,829	11,829	11,829	11,829

WASTEWATER SERVICE AREA

The City provides sewer service throughout the City, approximately 14,680 acres, and to a limited area outside the City limits, approximately 6 acres. Approximately 2,000 acres in the City drain to other serving entities or currently produce no sewage. **Figure10** shows the City's sewer system and service area.

The City collects and transports wastewater from the service area for treatment by the Los Angeles County Sanitation Districts (LACSD). LACSD trunk sewers cross the City in several locations. The City's collection system connects to these trunk sewers at multiple locations. None of the City's connection points are metered to determine the volume of wastewater being transported to the LACSD system.

The service area for the sewers owned and maintained by the City is primarily within city limits, with the exception of approximately 300 accounts within the City of Claremont that discharge to an 8-inch City line at the northern edge of city. This 8-inch sewer discharge directly into an LACSD trunk and the quantity of flow coming from this area has never been monitored.

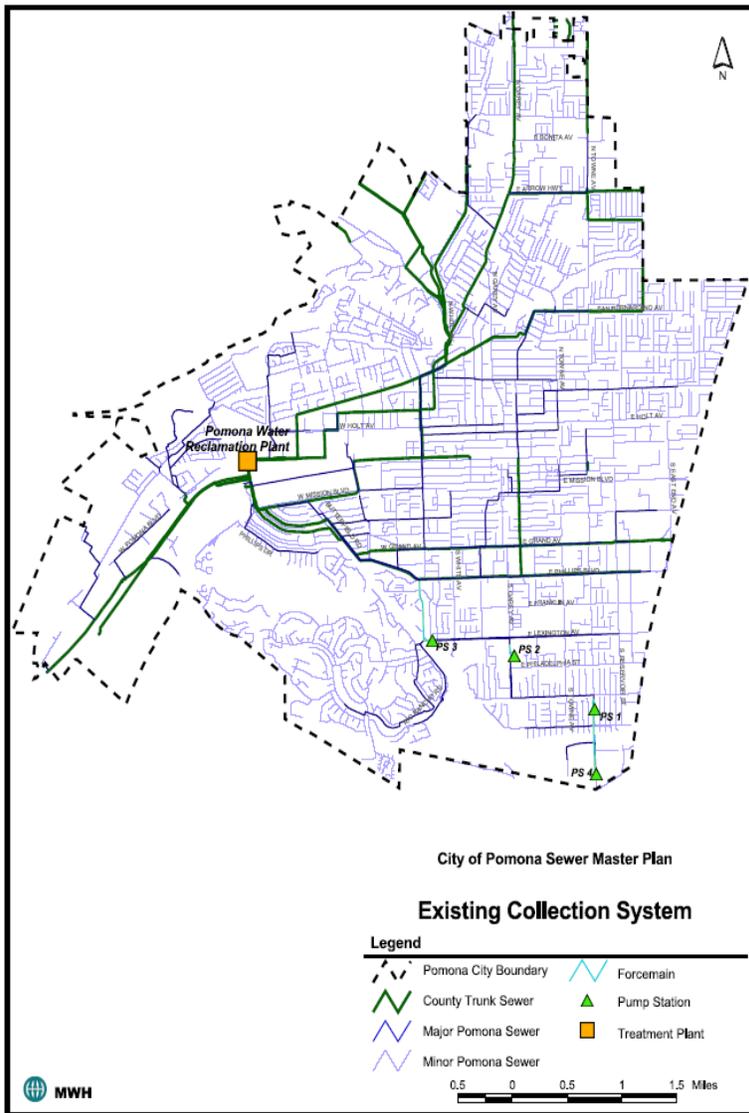
Flow in the central, eastern, and northern sections of the City travels generally south and west to LACSD gravity lines. Flow on the western side of the city travels south and east and discharges into LACSD gravity trunk lines. Four pump stations pump flow in the southern section of the City, below Phillips Blvd., northwest into a 42-inch LACSD line.

This 42-inch line was constructed in 1999 and relieves flow from several City lines located on Butterfield Rd. and Phillips Blvd.

Wastewater collected by the City’s sewer system is treated and disposed of by the LACSD at their Pomona Water Reclamation Plant (PWRP). The PWRP is located at 295 Humane Way near the western edge of the City, just east of State Route 57 and just north of the Phillips Ranch development area. Wastewater from the neighboring cities of La Verne and Claremont is also treated at PWRP.

CITY FACILITIES

The City’s sewer system (**Figure 10**) consists of approximately 300 miles of gravity sewer, four pump stations, 1.4 miles of forcemains, and 4,600 manholes. The capacity analysis performed in this Master Plan applies to the major sewers, primarily those 10-inches in diameter and greater, which is approximately 45 miles of the gravity sewer, plus the pump stations and force mains.



The City’s gravity sewer lines range in size from 4 inches to 42 inches in diameter. The most common pipe diameter is 8 inches, comprising approximately 76% of the total length of pipe. The diameter of approximately 7% of the system is unknown. The predominate pipe material is vitrified clay, which accounts for roughly 87% of the system. The material for approximately 10% of the system is unknown.

Portions of the City’s sewer system date back to the early part of the 1900’s. Colors are used to indicate the average construction year of the sewers within each census block group. As can be seen from the figure, most of the City’s sewers were built in the 1950’s and 1960’s and are now approximately 35 to 55 years old. There also appear to be significant areas that are over 75 years old.

Figure 10 Existing Collection System

In terms of useful life, vitrified clay pipe used in this manner is unbelievably strong and durable. Studies have shown that the pipe is capable of being an effective transmission for up to 50 years. Given this fact, it would take another 20 years and then the system would require an overhaul. With this fact, it would make sense to prepare to replace at least 10% of the system each year so that the change out is complete in ten years.

To maintain a high level of reliability, the City has some specialized equipment at its disposal. One such utensil is the vactor truck. With the acquisition of this unit, City staff is able to remove spills on and off site. The unit can also be used to perform potholes and does so in a relatively safe manner. It has been used in emergency situations where neighboring agencies have been affected by mudslides and other such disasters.

The other maintenance vehicle is the Closed Circuit TeleVision (CCTV) truck. The purchase of the CCTV Sewer Truck allows City staff to inspect and record the pipeline conditions without excavation of the street. Video pipeline inspection is very prevalent in the industry, and it helps develop plans for routine maintenance by identifying damaged or ineffective pipe. To enhance an existing asset database, as well as prepare the City for the upcoming cMOM regulations, the City plans to ideally inspect or video record every pipeline at least every five years, but ideally every two years for proper maintenance and control.

The pump stations conveying flow from the southern portion of the City are owned by the City but are maintained and operated by the LACSD. These pump stations are numbered 1 through 4. Pump stations 1 and 4 are upstream of pump station 2, which is upstream of pump station 3. Both pump stations 1 and 4 pump local flow only. Pump station 2 pumps local flow in addition to relieving flow from pump stations 1 and 4. Pump station 3 likewise pumps local flow and relifts flow from pump station 2. Some general characteristics of the pump stations are listed in **Table 53**.

Table 53
Pump Station Characteristics

	PS #1	PS #2	PS #3	PS #4
Location	2394 S. San Antonio Ave.	North of Philadelphia St. on the east side of Garey Ave.	1017 W. Lexington Ave.	2800 Ficus St.
Year Built or Upgraded	1993 (originally built in 1953)	1993	2002	1967
Number of Pumps	2	2	3	2
Pump Type	variable speed	variable speed	variable speed	fixed speed
Approximate Capacity of One Pump	1,260 gpm	2,400 gpm	4,040 gpm	500 gpm
Approximate Area Served	190 net acres, primarily residential	400 net acres, primarily residential, plus flow from PS #4 and PS #1	1,680 net acres, primarily residential, plus flow from PS #2	150 net acres, primarily industrial
Comments		replaced station at the intersection of Garey and Philadelphia (1953)	replaced station at 1600 S. Hamilton (1953)	Also has a natural gas powered emergency stand-by pump

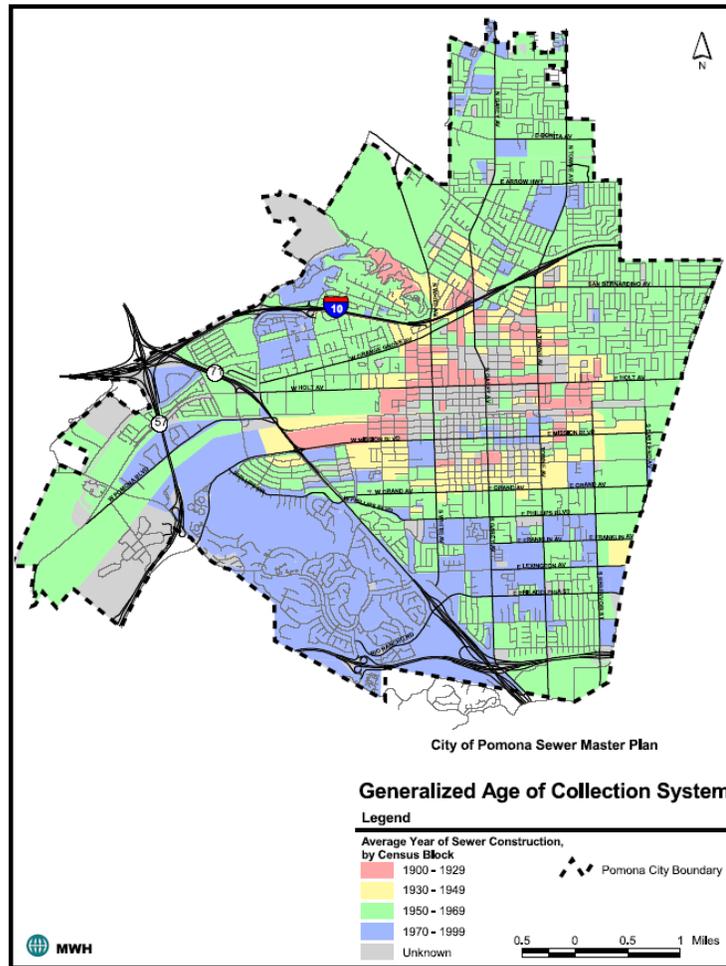


Figure 11 Generalized Age of Collection System

LOS ANGELES COUNTY SANITATION DISTRICTS FACILITIES

The City is one of 72 cities located in Los Angeles County that is served by LACSD. LACSD consists of 26 separate districts, of which the City is located in District No. 21. Wastewater collected by the City's sewer system discharges to LACSD trunks at multiple locations. Much of this flow is treated and disposed of by LACSD at their Pomona Water Reclamation Plant (PWRP), located at 295 Humane Way near the western edge of the City, just east of State Route 57 and just north of the Phillips Ranch development area. Wastewater from the neighboring cities of La Verne and Claremont is also treated at PWRP. However, flow exceeding 11 mgd is routinely diverted to the LACSD Joint Water Pollution Control Plant in Carson.

6.3 Wastewater Disposal and Recycled Water Uses

Law

6.3.1 Recycled Water Users

Table 54						
Disposal of Wastewater (Non-Recycled) AF/Y						
Method of Disposal	Treatment Level	2005	2010	2015	2020	2025
Discharge to Joint Water Pollution Control Plant in Carson*	Raw Water	493	493	493	493	493
Total		493	493	493	493	493

The City's policy is to provide recycled water to any potential user who could presumably utilize the water. Service is provided on an as-available basis and users are required to have backup potable water service to meet their requirements.

Current recycled water users are divided into two categories: Category A and B. The City has an agreement to provide potable water to Category A users if the recycled water is not available. Users in Category B receive recycled water only if it is available. Category A includes Frank G Bonelli Regional Park, Cal Poly, Pomona Paper Company, and Smurfit Paper Company. Category B includes CalTrans 71 and 57 freeways.

The largest user of recycled water is Smurfit (now Blue Heron) Paper Company, which has an average annual recycled water demand of approximately 3,700 acre-ft, which has remained almost unchanged since 1992.

The projected demand for recycled water from their Pomona WRP is estimated to be about 6,000 acre-ft per year for the next 20 years, which is approximately unchanged since 1995.

Table 55 presents acre-feet of recycled water used in each category and their level of treatment from 2005 to 2025.

Table 55						
Recycled Water Uses - Actual and Potential - AF/Y						
User type	Treatment Level	2005	2010	2015	2020	2025
Agriculture*	Tertiary	1,011	1,031	1,052	1,073	1,094
Landscape	Tertiary	827	844	860	878	895
Wildlife Habitat	NA	0	0	0	0	0
Wetlands	NA	0	0	0	0	0
Industrial	Tertiary	3,700	3,774	3,849	3,926	4,005
Groundwater Recharge	Tertiary	0	0	0	0	0
Walnut Valley Water District	Tertiary	0	0	0	0	0
Total		5,538	5,649	5,762	5,877	5,995

Type of Use	2010	2015	2020	2025
Agriculture	1,031	1,052	1,073	1,094
Landscape	844	860	878	895
Wildlife Habitat	0	0	0	0
Wetlands	0	0	0	0
Industrial	3,774	3,849	3,926	4,005
Groundwater Recharge	0	0	0	0
Walnut Valley Water District	0	0	0	0
Cal Poly University, Pomona	0	0	0	0
Total projected use of Recycled Water	5,649	5,762	5,877	5,995

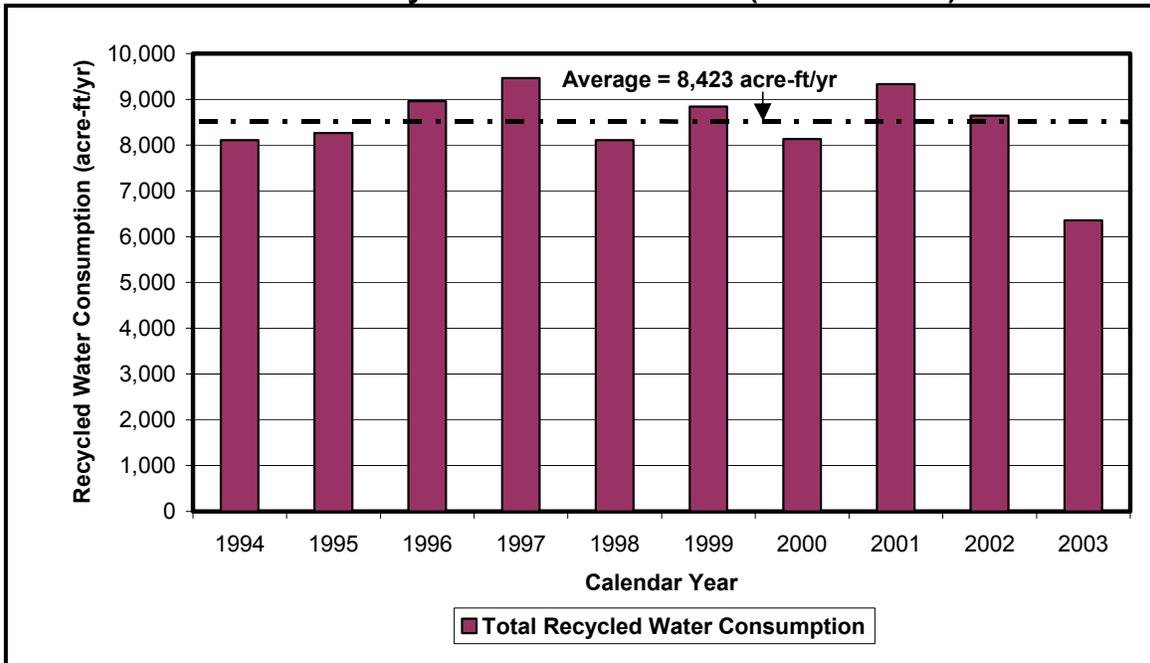
User type	2000 Projection for 2005	2005 Actual Use
Agriculture*	1,280	1,011
Landscape	960	827
Wildlife Habitat	0	0
Wetlands	0	0
Industrial	4,160	3,672
Groundwater Recharge	0	0
Walnut Valley Water District	1,600	1,002
Total	8,000	6,512

Historical Recycled Water Demands

The City's historical recycled water demands from 1994 to 2003 are presented in **Figure 12 and Table 58**. The average demands during this ten year period were approximately 8,423 acre-ft/yr. Total demands increased by about 17 percent from 1994 to 1997 and they fluctuated between 1998 and 2001. There was a significant drop of approximately 32 percent from 9,335 acre-ft/yr in 2001 to 6,357 acre-ft/yr in 2003.

The average day demand (ADD) and maximum day demand (MDD) of the existing customers are summarized in **Figure 12**. Data presented in this table is based on historical data from calendar year (CY) 1999 through CY 2003. The average recycled water demands for the gravity and the pressure systems are approximately 1,590 acre-ft/yr and 6,682 acre-ft/yr, respectively. Maximum day demands are determined using maximum to average day demand ratios, which are obtained from the City's 1992 WMP. **Table 58** shows that the maximum day demands total approximately 14.6 mgd.

**Figure 12
Historical Recycled Water Demands (1996 to 2003)**



**Table 58
Recycled Water Demands of Existing Users**

User	MDD/ADD Ratio ¹	ADD (acre-ft/yr) ²	MDD (mgd)
Zone I – Gravity System			
Walnut Valley Water District	4.2	1,086	4.1
Los Angeles County Spadra Landfill	2.6	494	1.1
Lanterman State Hospital	2.6	10	0.02
Subtotal	--	1,590	5.2
Zone II – Pressure System			
Cal Poly Pomona	2.5	1,140	2.5
Bonelli Park	2.6	894	2.1
Cal Trans – 71 Freeway	2.6	26	0.1
Cal Trans – 57 Freeway	2.6	35	0.1
City of Pomona Parks Department	2.6	25	0.1
Smurfit (now Blue Heron) Paper Company	1.1	3,875	3.8
Simpson Paper Company	1.1	687	0.7
Subtotal	--	6,682	9.4
Total Recycled Water Demands	--	8,272	14.6

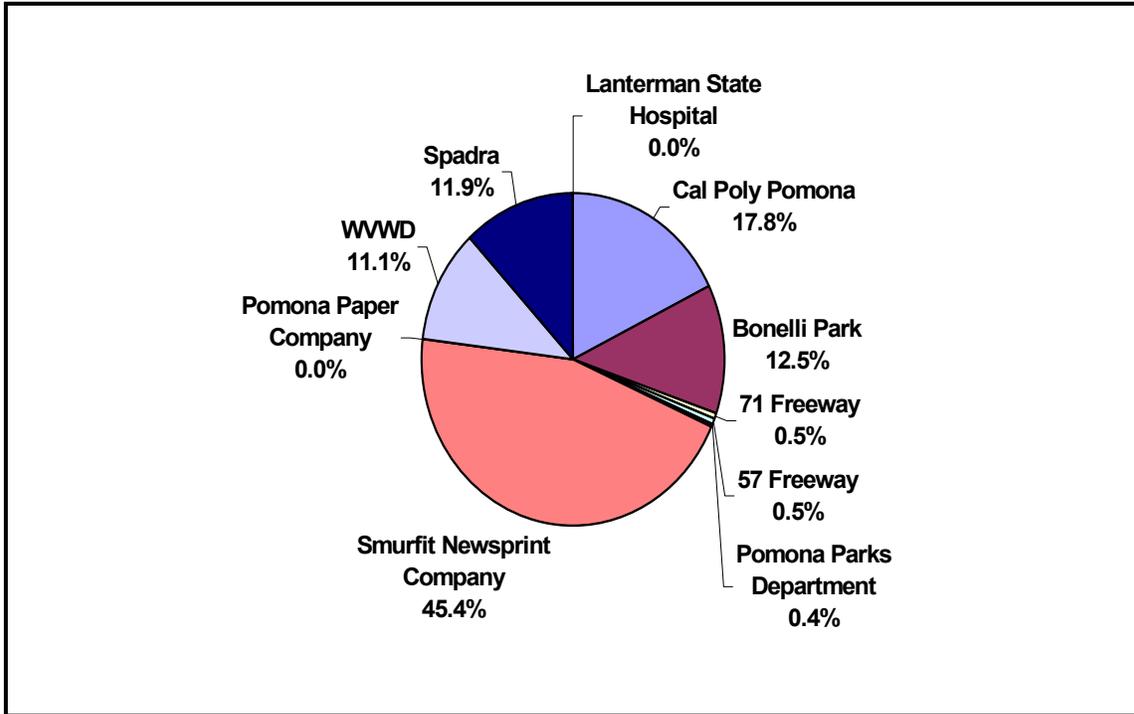
1 – Based on the 1992 Water Master Plan (MWH, 1992).

2 – Average demands from CY 1999 to CY 2003.

3 – According to City staff, the Lanterman State Hospital will be converted to residential and commercial areas in the future.

The recycled water demand distribution of the existing users based on year 2003 data is graphically presented in **Figure 13**.

Figure 13
Percent of Total Recycled Water Demand per User (CY 2003)



As shown **Figure 13**, the largest user is Smurfit (now Blue Heron) Paper Company (45.4 percent) followed by Cal Poly Pomona (17.8 percent). Smurfit (now Blue Heron) Paper Company has an average annual demand of approximately 3,960 acre-ft/yr. Lanterman State Hospital and Pomona Paper Company (previously known as Simpson Paper Company) did not use recycled water in 2003. The hospital has historically been one of the City’s smallest recycled water users, with an average usage of about 10.3 acre-feet/yr. It is expected that the Spadra Farm will be converted to commercial and residential areas. Although Pomona Paper Company’s recycled water consumption in 2003 is zero, it has varied from two percent to twelve percent of the City’s annual consumption in previous years.

As of April 2004, the Northside Reclaimed Water Line was purchased by the LACSD. Hence, the City no longer serves reclaimed water to the Spadra Farm and Walnut Valley Water District.

6.4 Encouraging Recycled Water Use

Law

10633. The plan shall provide, to the extent available, the information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the

preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (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.

10633 (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.

10633 (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.

6.4.1 Plan for Optimizing the Use of Recycled Water

The current arrangement for the recycled water delivery to the City's customers includes the 13 MGD Pomona WRP effluent and discharges from three local groundwater wells. Currently, Pomona WRP is fully subscribed. During the summer months or other periods of peak use, the supply from the plant is often unable to meet the recycled water demand from uses. In such situation, "make-up" water is added to the recycled water system from potable water supplies. Unfortunately, LACSD has no plans to expand the Pomona WRP because of the Plant's age and location. The San Jose Creek WRP, on the other hand, boasts more than adequate capacity and expansion is planned in the near future. Its current 100 MGD capacity could easily supply the area's existing needs and provide for future expansion.

The City of Industry owns an existing 36-inch line that delivers recycled water from the San Jose Creek WRP. The pipeline has excess capacity, which could be used to supply the City of Pomona and other surrounding communities with more recycled water. A proposed regional project involves the interconnection of Industry's line with the existing recycled water systems in the City of Pomona, Walnut Valley Water District, and Rowland Water District. An expanded system would be capable of delivering nearly 20,000 acre-feet per year of recycled water throughout the area. Currently, the City of Industry is proceeding with a project to extend its existing pipeline easterly into RWD and WWD's service area.

In addition to the possible easterly expansion of the San Jose Creek WRP distribution system, additional wells in Pomona and Spadra Basins with water quality constraints can be utilized to augment recycled water supplies. Pomona is currently considering connecting several wells to the recycled water system. This has the potential of providing an additional 2,000 AFY to the recycled water system. **Table 59** summarizes actions used to encourage recycled water use.

Future Recycled Water Supply Needs

The projected recycled water demands for existing and future users (both Pomona and LACSD customers) on a maximum day basis total approximately 14.5 mgd and 16.6

mgd, respectively. To meet Pomona's portion of the demand, the City can use three recycled water supply sources, which are shown on **Figure 14**. These sources are:

- Pomona WRP
- Non-potable wells drilled by the City (Wells 19, 31, and 33)
- Non-potable wells acquired from Simpson Paper Company (S-1, S-2A, S-2B, and S5)

The Pomona WRP's design capacity is 15 mgd; however, the plant's current capacity only varies between 11.5 to 12 mgd. As the City has water rights for two thirds of the plant effluent, the City's recycled water supply capacity is limited to about 8 mgd. It should be noted that there are no plans to increase the flows to the WRP (LACSD, 2004). Due to a tributary located upstream of the plant, the plant can only receive flows from upstream users. It is not economically feasible to produce additional recycled water effluent from the plant because water would need to be pumped, which requires more energy and capital. LACSD's San Jose Creek WRP (100 mgd) and the Joint Water Pollution Control Plant (320 mgd) have adequate capacities to treat these downstream flows. Hence, the capacity from this source is assumed to remain at 8 mgd.

As mentioned under the existing supply, the combined capacity of the three existing non-potable water wells (Wells 19, 31, and 33) is 818 gpm or 1.0 mgd.

The City purchased four non-potable water wells and the associated distribution system from Simpson Paper Company in 1999. It is assumed that these four non-potable wells have an average production capacity of 400 gpm per well, resulting in a combined capacity of 1,600 gpm or 2.3 mgd. Unfortunately, the quality and construction of the wells do not meet current health standards and are not in a useable condition.

The combined recycled water supply capacity of the Pomona WRP (8 mgd allocated for the City), the three existing recycled water wells (1.0 mgd) and the four Simpson Paper Wells (2.3 mgd) is 11.3 mgd. It should be noted that the Simpson Paper wells are currently not used; hence the existing recycled water supply capacity is 9.0 mgd. With a current maximum daily demand (MDD) of 14.6 mgd, the available recycled water is often insufficient to meet the demands during the summer peak months. The supply shortfall is currently met by "make-up" water from potable water supplies.

The City has sufficient capacity to meet the projected average daily demand (ADD) of 8.1 mgd without the addition of the Simpson Paper wells. However, even with the addition of the Simpson Paper wells, the City has insufficient supply capacity to meet the projected MDD of 16.6 mgd. The City can serve up to 11.3 mgd from the Pomona WRP and the seven non-potable wells, while the remaining 5.3 mgd would need to be supplied from "make-up" water assuming that all identified potential recycled water customers would be served in the future. The cost-effectiveness of expanding the recycled water system with new recycled water pipelines and connecting the Simpson Paper wells is discussed in the next subsection.

Based on this analysis (discussed below), it is cost-effective to add seven of the users identified in **Table 60**, which have a combined demand of 563 acre-ft/yr (0.5 mgd under ADD conditions and 0.9 mgd under MDD conditions). Addition of these users would increase the existing MDD from 14.6 mgd to 15.5 mgd. The three Simpson Paper wells

are used to serve six of these seven potential customers, with a MDD of 0.34 mgd. The San Gabriel Co-generation plant (414 acre-ft/yr or 0.37 mgd) is the only customer that is added to recycled water system. Assuming a MDD peaking factor of 1.5 for this customer, the MDD of the existing system increases to from 14.6 mgd to 15.1 mgd. Hence, the supply deficit during summer months increases to about 6.1 mgd.

Table 59				
Methods to Encourage Recycled Water Use				
Actions	AF of Use Projected to Result From this Action			
	2010	2015	2020	2025
Financial Incentives:				
Recycled Water Rate Differential	5,649	5,762	5,877	5,995
Total	5,649	5,762	5,877	5,995

Recycled Water Demand Projections

The future recycled water demands of current users, those on the pressure system, are assumed to remain the same as their existing demands, with the exception of the Lanterman Hospital Spadra Farm which is planned to be converted to a commercial and residential area in the future. As the demand of this customer is negligible, the total future ADD and MDD of the existing customers is 7.4 mgd and 16.4 mgd, respectively.

To assess the feasibility of converting some of the existing potable users to recycled water, windshield surveys to the locations of the top 50 potable water users were conducted on April 30, 2004 and May 6, 2004. The top 50 potable water users were obtained from the 2003 billing data. These users and their respective water demands are listed in **Table 60**. As shown in **Table 60**, the user with the highest potable water demand is Smurfit (now Blue Heron) Paper Company. It should be noted this paper company is also the City's top recycled water user.

During the field visits, each customer is specified as a potential or a non-potential recycled water user. As shown in **Table 60**, 15 of the top 50 potable users are identified as potential recycled water users. These potential users include parks, schools, cemeteries, and car washes. Nine additional potential users, which are referred to as "pick-up" users, are also identified based on their locations relative to the existing customers and the top 50 users.

Future demands are estimated based on an assumed recycled water use percentage and multiplying this with the existing potable water demand. The estimated recycled water demand of these users and observations made during the field visits are summarized in **Table 60**, while the location of these users are identified as customers that could (partially) convert to recycled water are depicted on **Table 60**. The potential users' current potable demand is 671 gpm or 1,082 acre-ft/yr. Approximately 524 gpm or 845 acre-ft/yr of this demand could be supplied by recycled water in the future.

With the conversion of these 24 potable water users, the recycled water demand could increase from 8,272 acre-ft/yr (7.4 mgd) with 846 acre-ft/yr to 9,118 acre-ft/yr (8.1 mgd).

The MDD is estimated to increase from 14.6 mgd to 16.6 mgd, assuming that all potential recycled water users would convert and that the MDD peaking factor for these users is 2.6. This is a potential increase of 13 percent. The feasibility of converting these potable water users is discussed in the following subsections. First the availability of recycled water supplies is evaluated, followed by an evaluation of the cost-effectiveness to expand the recycled water distribution system to serve these customers.

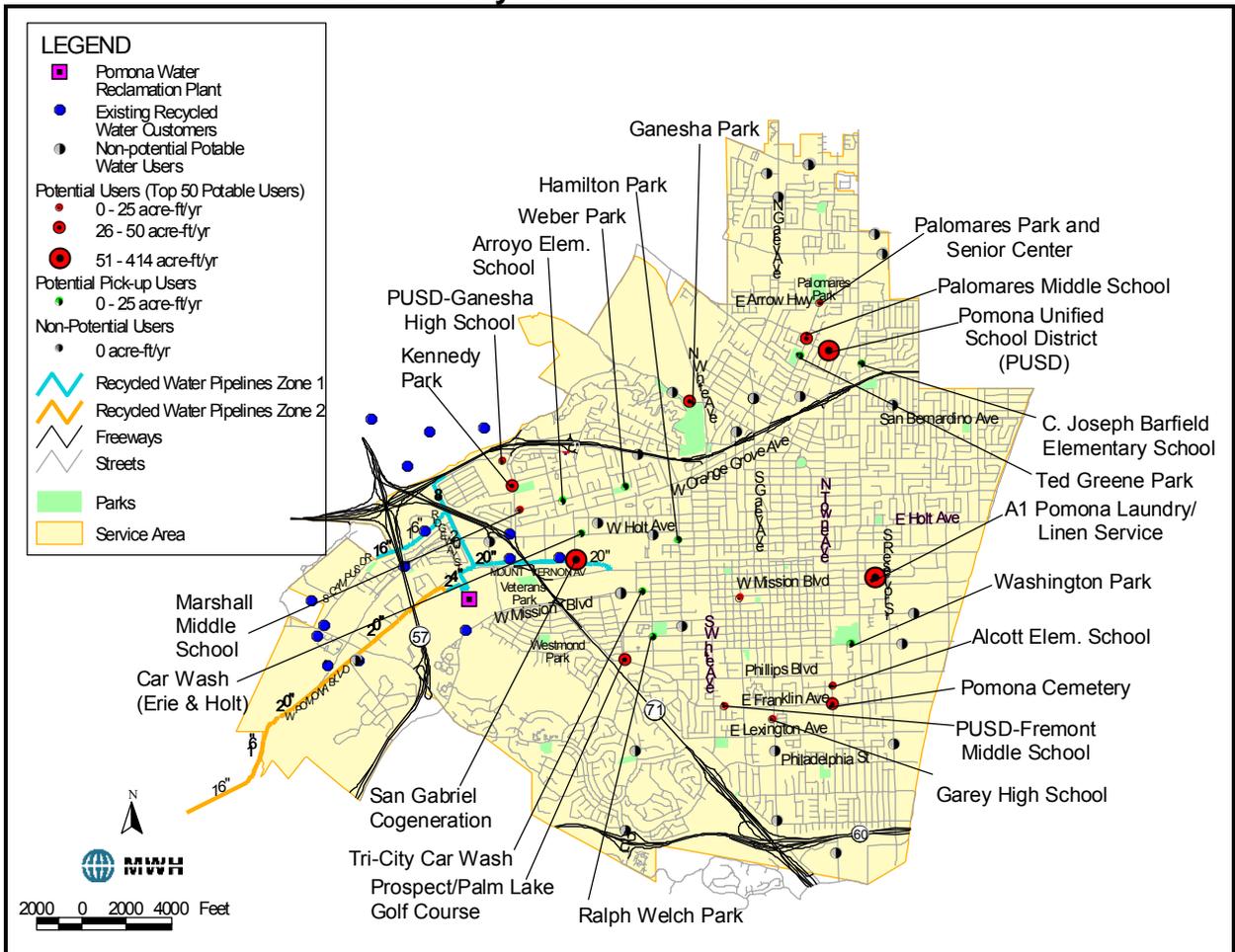
**Table 60
Additional Potential Recycled Water Demands**

Name	Service Address	Existing Average Day Demand (gpm)	Assumed Recycled Water Use Percentage (percent)	Potential Recycled Water Demand (gpm)	Potential Recycled Water Demand (acre-ft/yr)	Comments
San Gabriel Co-generation Plant	102 Erie St.	257	100	257	414	Assumed that 100 percent of current potable demand could be supplied by recycled water.
Pomona Unified School District (PUSD)	475 Bangor St.	46	70	32	52	About 70 percent irrigated areas and 30 percent buildings. Irrigated areas include baseball, football, and soccer fields.
Ganesha High School (PUSD)	1201 Fairplex Dr.	32	30	9	15	About 30 percent irrigated areas, which include big sports field, and track and field with bleachers.
Prospect/Palm Lake Golf Course	1300 W Phillips Blvd.	31	95	30	48	Big golf course with approximately 95 percent irrigated areas.
Palomares Middle School	2211 N Orange Grove Ave.	31	60	18	30	School has a big ball field, with approximately 60 percent irrigated areas and 40 percent buildings.
Fremont Middle School (PUSD)	725 W Franklin Ave.	26	50	13	21	School has a big ball field, with approximately 50 percent irrigated areas and 50 percent buildings.
Marshall Middle School	2017 Arroyo Ave.	25	50	12	20	Good size ballfield and track and field. About 50 percent irrigated areas.
Palomares Park and Senior Center	499 E Arrow Hwy.	21	50	10	17	Park has a playground, two onsite reservoirs, and a soccer field. There is quite a bit of irrigation in front.
Pomona Cemetery	800 E Franklin Ave.	20	95	19	30	Approximately 95 to 100 percent are irrigated areas.
Pomona Civic Center	400 Civic Center Plaza	19	10	2	3	Mostly government buildings (Superior Court, Library, City Hall). Water use is mostly indoor use. Some irrigation outside of the library (approximately 10 percent).
Alcott Elementary School	1600 S Towne Ave.	18	30	5	9	Approximately 30 percent irrigated areas and 70 percent buildings.
Ganesha Park	550 W McKinley Ave.	18	100	18	29	The entire park is irrigated.
Garey High School (PUSD)	1800 S Garey Ave.	18	50	9	14	About 50 percent of the high school is irrigated. Irrigated area includes ball fields.

**Table 60
Additional Potential Recycled Water Demands (Continued)**

Name	Service Address	Existing Average Day Demand (gpm)	Assumed Recycled Water Use Percentage (percent)	Potential Recycled Water Demand (gpm)	Potential Recycled Water Demand (acre-ft/yr)	Comments
Kennedy Park	1151 1/2 Fairplex Dr.	17	95	16	26	About 95 percent of the park is irrigated.
A1 Pomona Laundry/A1 Linen Service	396 La Mesa St.	44	95	42	67	Assumed a recycled water percentage of 95 percent.
Ted Greene Park	2147 N. Orange Grove Ave.	7	100	7	11	Irrigated areas include ballfield, playground, green field with tall palm trees.
Weber Park	1001 Corinthian Wy.	7	95	7	11	Estimated as 95 percent irrigated areas.
C. Joseph Barfield Elementary School	2181 San Antonio Ave.	12	50	6	10	Approximately 50 percent irrigated areas and 50 percent buildings.
Washington Park	935 E. Grand Ave.	5	80	4	6	A recreation park with a baseball field, tennis courts, basketball courts, soccer field, parking, and park hall. About 80 percent irrigation.
Car Wash	1650 W. Holt Ave.	4	80	3	5	Car wash located on Erie St. and Holt Ave.
Arroyo Elementary School	1607 Arroyo Ave.	7	20	1	2	Very little irrigation (approximately 20%). The City could pick up some of the irrigation here if pipeline goes to this location.
Tri-City Car Wash	1344 W. Mission Blvd.	4	80	3	5	Located on Mission Blvd. And Buena Vista Ave. (across from Mobile Home Park).
Hamilton Park	395 N. Hamilton Blvd.	2	40	1	1	About 40 percent irrigation.
Ralph Welch Park	1098 Buena Vista Ave.	0	100	0	0	Assumed 100 percent irrigation, which includes a baseball field. Current potable demand is very small.
Total		671	1,625	524	846	

**Figure 14
Potential Recycled Water Customers**



The WRP has a design capacity of 15 mgd, with typical flows from 11.5 mgd to 12 mgd. The plant produces high quality tertiary effluent that can be used for a variety of industrial and irrigation purposes. The effluent is delivered to three contact chambers that store the water until it enters the recycled water distribution system. The recycled water is provided on an interruptible basis and the available water is rationed during peak summer months. When recycled water is unavailable, demands are met with domestic make-up water from Reservoir 8 and/or water from non-domestic wells in the Pomona and Spadra Basins. Based on historical consumption data from 1998 to 2003, approximately 93 percent of the recycled water demands are supplied by recycled water from the WRP, three percent of the demands are supplied by non-potable wells, and about four percent is supplemented by domestic (potable) make-up water.

The capacity of Well 31 and Well 33 are 240 gpm and 178 gpm, respectively. Although the capacity of Well 19 is about 400 gpm, it has a similar depth and the same casing diameter. Hence, the combined capacity of these three existing non-potable water wells is 818 gpm or 1.0 mgd.

The combined recycled water supply capacity of the Pomona WRP (8 mgd allocated for the City) and the three existing recycled water wells (1.0 mgd) is 9 mgd.

CHAPTER 7 WATER SHORTAGE

7.1 WATER SHORTAGE CONTINGENCY PLAN

Law

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

10632 (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

10632 (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.

10632 (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

10632 (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.

10632 (f) Penalties or charges for excessive use, where applicable.

10632 (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 the proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

10632 (h) A draft water shortage contingency resolution or ordinance.

10632 (i) A mechanism for determining actual reduction in water use pursuant to the urban water shortage contingency analyses.

7.1.1 ORDINANCE TO ADOPT A WATER CONSERVATION PROGRAM

The City of Pomona has adopted certain initiatives to optimize management efficiency of its available supplies, in situations of water shortage such as might be caused during a drought.

The ability to manage water supplies in times of drought or other emergencies is an important part of water resource management in a community. The community must have a program in place prior to the occurrence of these events rather than implement one in times of shortage. The City of Pomona has developed and implemented a series of both water conservation measures and distribution management programs.

The City's four water sources are local groundwater, surface water, imported water, and recycled water. Rationing phases may be triggered by a shortage in one source or a combination of sources, and shortages may trigger a phase at any time.

In June 1990, the Pomona City Council adopted Ordinance No. 3546 amending Chapter 62 (Water) (previously Chapter 34) the Pomona City Code, by amending certain sections of Articles IV, Municipal Water Utility, Division 4 “Water Conservation”, Section 62-351 “Penalty”. This ordinance established a phased approach to water conservation enforcement, consisting of four conservation phases, in increasing order of severity. Phase 1 is a phase of voluntary compliance Water Watch. During Phase 1, all elements of Phase 2 shall apply on a voluntary basis only. Phases 2 through 4 are all mandatory compliance phases; Phase 2 issues a Water Alert, Phase 3 issues a Water Warning, and Phase 4 issues a Water Emergency. A copy of the 1990 water conservation ordinance is included in Appendix C. A copy of the current water conservation program is detailed in the Pomona City Code – Article IV, Municipal Water Utility, Section 62-351 thru Section 62-356, included in Appendix D.

7.1.2 MANDATORY PROHIBITIONS ON WATER USE

Beginning at Phase 2 of the Water Conservation Program, certain measures of water conservation are placed into effect. The details of these conservation measures and details of the penalties for failure to comply are outlined in Appendix D. Tables 61 and 62 list examples of prohibitions and corresponding effective stages which are detailed in Appendix D.

Table 61		
Mandatory Prohibitions		
Examples of Prohibitions	Stage When Prohibition is Voluntarily Requested	Stage When Prohibition Becomes Mandatory
Street/sidewalk cleaning	1	2,3,4
Washing Cars	1	2,3,4
Watering Lawns/Landscapes	1	2,3,4
Agricultural/Chemical/Nurseries	1	2,3,4
Uncorrected Plumbing Leaks	1	2,3,4
Gutter Flooding	1	2,3,4

Table 62	
Penalties and Charges	
Penalties or Charges	Stage When Penalty Takes Effect
Penalties for not Reducing Consumption	2
Charges for Excess Use	2
Flat Fine	2
Flow Restriction	3
Termination of Service	3

7.1.3. SUPPLY SHORTAGE TRIGGERING LEVELS

The City of Pomona has a legal responsibility to provide safe water to the community. In order to minimize the social and economic impact of water shortages, the City will manage water supplies prudently. This Plan is designed to provide a minimum of 50 percent of normal supply during a severe or extended water shortage. The rationing program triggering levels in Table 63 were established to ensure that these policy

statements are implemented. The normal supply is considered to be 36,102 ac-ft, which is the City’s average annual water supply over the past 10 years.

The specific criteria for triggering the City’s rationing phases are presented in Table 63. The City’s average annual water supply for the past 10 years is 36,102 ac-ft per year (AF/Y)

Table 63		
Water Supply Shortage Stages and Conditions		
Stage No.	Water Supply Conditions	% Shortage
1 (Voluntary)	Combined supply reductions up to 7,000 AF/Y	0-20%
2 (Mandatory)	Combined supply reductions totaling between 7,000 and 10,500 AF/Y	20-30%
3 (Mandatory)	Combined supply reductions totaling between 10,500 and 14,000 AF/Y	30-40%
4 (Mandatory)	Combined supply reductions totaling between 14,000 and 17,500 AF/Y	40-50%

7.1.4 EMERGENCY RESPONSE PLAN

In December 2003, The City of Pomona with the assistance of Black and Veatch Consultants put into operation an Emergency Response Plan for the purposes of responding to catastrophic events. Specifically the Emergency Response Plan has been developed to provide multi-use emergency operations guidance for the City’s Water Operations Division. It has as its objective the mitigation of the effects of hazards, execution of measures to preserve life and minimize damage, enhanced response during emergencies and provision of necessary assistance, and establishment of a recovery system to return the City water system to its normal state.

Emergency contacts, staff responsibilities and emergency procedures and protocols have been established to ensure the most efficient and effective use of staff resources. The following tables outline actions to be taken in the event the City of Pomona faces a catastrophe to the water system.

**Table 64, Natural Hazards
Earthquake, Severe Storms, Flooding and Erosion**

Event Description: Earthquake, severe storm or flooding of a magnitude that the operation of water system facilities may be threatened or other factors that result in damage to system components or an inability to gain access to them.			
Response Team: 911, Supervisor, Water Operations Section Chief, Engineering, Water Quality Control, Water Production, Water Distribution, Department of Health Services, Public Information Officer, Utility Services Director, Finance Department, Civil Defense Office, Los Angeles County Health Department, Office of Drinking Water.			
Initial Notifications:	• Police Dept.	• Water Quality Control	• Water Supply
System Damage	• Fire Dept.	• Engineering	• Water Production
First Responder			
	<ul style="list-style-type: none"> • Perform initial damage assessment. • For earthquake or flooding, contact 911 who will coordinate evacuation and traffic control. • Advise first responders (Police, Fire) of potential impacts to water supply. • Await Supervisor/Water Operations Section Chief. 		
Supervisor			
	<ul style="list-style-type: none"> • Control loss of water to the extent possible. • Coordinate with the Water Production Supervisor to isolate sections of storage reservoir. • Direct operations to minimize impact of extended service outage. 		
Water Quality Control			
	<ul style="list-style-type: none"> • Coordinate with Water Production and Water Distribution to determine impacts to all Water Operations Division assets. • Monitor repair and restoration projects to insure their completion in a safe and efficient manner. • Direct total safety and health programs for the Water Division. • In conjunction with Water Operations Section Chief, act as liaison with the state and Los Angeles County Health Departments of other water agencies. 		
Water Production			
	<ul style="list-style-type: none"> • Control loss of water to the extent possible. • Assess damage to treatment plant, reservoirs, wells, pump stations, and other water system components. • Isolate affected systems, consider manual operation of reservoirs and pump stations. • Ensure critical treatment plant processes are operable. • Assess damage to treatment chemical storage and delivery equipment. • Assess damage to affected processes. 		
Water Distribution			
	<ul style="list-style-type: none"> • Assess damage to interconnects with MWD, pumping stations, transmission and distribution systems, fire hydrants and valves. • Contact MWD to determine potential impacts to MWD Supply. • Coordinate with Water Production Supervisor to isolate reservoirs and other water system components as appropriate. • Contact department personnel and assign for staffing, maintenance or observation as needed. • Monitor, copy and coordinate incoming assessment reports. • Assist acquisition of materials, supplies and rental equipment. • Assist in acquisition of materials and equipment as part of any mutual aid agreement. • In the event that need to increase water demand from MWD, provide call to Walnut-Valley Water District. 		

**Table 64, Natural Hazards
Earthquake, Severe Storms, Flooding and Erosion (Continued)**

Engineering	<ul style="list-style-type: none"> • Provide engineering assistance in civil engineering support, surveying assistance, system alterations, and priorities scheduling. • Prepare cost estimates for system repairs and replacements. • Furnish Finance Department cost input to substantiate requests for emergency disaster funds.
Public Information Officer (or Designee)	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief on Public Notices. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • If appropriate, activate Emergency Control Center. • Responsible for operation changes to the City's water distribution system. • Provide Technical Information to City's EOC Liaison.
City EOC Liaison	<ul style="list-style-type: none"> • Liaison with County/City Emergency Managers - Primary Participant in City of Pomona EOC.
Recovery Actions:	<ul style="list-style-type: none"> • <i>To be implemented as determined by Water Operations Section Chief.</i>
	<ul style="list-style-type: none"> • Begin temporary and/or permanent repairs to damaged system components. If system flush of contaminated water is required, coordinate with Department of Health Services. Notify Utility Services of date and time when full service recovery is anticipated. Until then, notify the Department of Health Services if boil order will be needed.
Notes:	

**Table 64, Accidents and Intentional Acts
Fire or Explosion**

Event Description: This event is based on the report of discovery of a fire or explosion at one or more water interconnects treatment plants, reservoirs or distribution system facilities.			
Response Team: 911, Supervisor, Water Operations Section Chief, Public Information Officer, Water Quality Control, Water Distribution, Water Production, Engineering, Other Mission Critical Staff			
Initial Notifications:	• Call 911	• Supervisor	• Water
First Discovery	• Request for Fire and Police assistance	• Water Operations Section Chief	• Distribution • Water Quality Control
First Responder			
	<ul style="list-style-type: none"> • Report immediately by telephone or radio to Fire Department. • Do not put employees at risk until fire is under control and area is cleared for entry. If fire cannot be safely extinguished, evacuate anyone that may be affected by the fire. • Notify Supervisor. 		
Supervisor			
	<ul style="list-style-type: none"> • Mobilize Maintenance Personnel for damage assessment and equipment repairs. • Do not put employees at risk until fire is under control and area is cleared for entry. If fire cannot be safely extinguished, evacuate anyone that may be affected by the fire. • Notify all Section Supervisors (Water Quality Control, Distribution, Production) • Notify Utility Services Engineer. • Notify Water Operations Section Chief. 		
Water Quality Control			
	<ul style="list-style-type: none"> • Ensure critical treatment plant processes are operable. • Complete Damage Assessment Form (Annex C) • Assess damage to affected processes. • Assess damage to treatment chemical storage and delivery equipment 		
Water Production			
	<ul style="list-style-type: none"> • Determine if site(s) is readily serviceable or will be down for some time. • Determine if Plant needs to be evacuated of personnel and if immediate neighbors should be evacuated. Support Police in their efforts to manage orderly evacuations. • Assess damage to reservoirs, pump stations, and other water system components. • Consider whether to continue normal operations. • In the event that need to increase water demand from MWD, provide call to Walnut-Valley Water District. • Complete Damage Assessment Form (Annex C) 		
Water Distribution			
	<ul style="list-style-type: none"> • Assess damage to interconnect with MWD, pumping stations, transmission and distribution systems. • Contact MWD to determine potential impacts to MWD Supply. • Coordinate with Water Production Supervisor to isolate reservoirs and other water system components as appropriate. • Contact department personnel and assign for staffing, maintenance or observation as needed. • Isolate affected systems. • Consider whether to continue normal operations. • Make plans for alternative Water Distribution. • Complete Damage Assessment Form (Annex C) 		

Table 64, Accidents and Intentional Acts

Engineering	<ul style="list-style-type: none"> • Work with Operations to prepare cost estimates for system repairs and replacements. • Provide engineering assistance in civil engineering support, surveying assistance, system alterations, and priorities scheduling.
Public Information Officer (or Designee)	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief on Public Notices. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • If appropriate, activate Emergency Control Center. • Direct efforts of Operations personnel. • Notify Utility Services Director.
City EOC Liaison	<ul style="list-style-type: none"> • Liaison with County/City Emergency Managers - Primary Participant in City of Pomona SEMS.
Recovery Actions:	<i>To be implemented as determined by Water Operations Section Chief.</i>
	<ul style="list-style-type: none"> • Begin temporary and/or permanent repairs to damaged system components. If system flush of contaminated water is required, coordinate with Department of Health Services. • Notify Utility Services of date and time when full service recovery is anticipated. Until then, notify the Department of Health Services if boil order will be needed. • Complete After Action Report (Annex D).
Notes:	

**Table 64, Accident or Intentional Acts
Chemical Release or Spill**

Event Description: This event is based on discovery of a chemical release that may create an immediate health hazard for Water Operations Division staff and/or the public and may result in contamination of finished water. Discovery by identification of evidence, sampling and analysis, or report by outside agency.			
Response Team: Supervisor, Water Operations Section Chief, Public Information Officer, Water Quality Control, Water Distribution, Water Production, Engineering, Other Mission Critical Staff			
Initial Notifications:	<ul style="list-style-type: none"> • Supervisor • If chemical spill or bulk container evident: call 911 	<ul style="list-style-type: none"> • Request HazMat • Water Operations Section Chief 	<ul style="list-style-type: none"> • Water Production • Water Distribution • Water Quality Control
First Discovery			
First Responder	<ul style="list-style-type: none"> • Control area, do not approach or handle potentially contaminated containers or process areas unless trained. Advise first responders (Police, Fire) of potential impacts to Water Distribution. Evacuate all personnel from the area. • If necessary, call 911 and request their remedial and medical assistance. • Consult the Material Safety Data Sheet for first aid procedures. • Notify Supervisor and record pertinent information on an emergency log form. • Stand-by to assist emergency response team when they arrive. Advise emergency response team of any repair kits already available at the site. 		
Water Production Supervisor	<ul style="list-style-type: none"> • Evacuate all personnel from the area. If spill is within the treatment plant, production should be discontinued. • Direct spill containment and neutralization. • If necessary, call 911 and request their remedial and medical assistance. • Assist fire department personnel as needed. • Notify Water Operations Section Chief. • Notify Water Quality Control Supervisor. • Implement procedures to isolate potentially contaminated systems. • Consider whether to continue normal operations or arrange for alternative means of treatment. • For a non-visible chlorine gas release, direct actions to discontinue leak. Assure that proper PPE is used and training has been provided. • In the event that need to increase water demand from MWD, provide call to Walnut-Valley Water District. 		
Water Quality Control	<ul style="list-style-type: none"> • Perform initial assessment of situation. • Initiate following sampling plans and actions: <ul style="list-style-type: none"> - Finished water reservoirs and clear wells, - Finished water transmission and distribution lines, - Provide information to Department of Health Services. • Work with Department of Health Services and Contract Labs to develop sampling and analysis plans – expedite analysis – request estimate of turnaround time. • Assure Compliance with Environmental and Department of Health Services Regulations. • Assume any notification of chemical contamination of Water Distribution will result in law enforcement notification of FBI. 		

Table 64, Accident or Intentional Acts

Water Distribution	<ul style="list-style-type: none"> • Coordinate with supervisor to implement procedures to isolate potentially contaminated systems. • Coordinate with supervisor to implement a plan to work around isolated systems. • Determine supply duration of finished water in tanks and reservoirs. • Coordinate with supervisor to consider whether to continue normal operations or arrange for alternative means of treatment. • Make plans for alternative Water Distribution. • Complete Damage Assessment (Annex C). • Coordinate with Health Services to implement distribution line flush. If water is contaminated, may need permit or written permission to flush to sewer via fire lines.
Public Information Officer	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief on Public Notices. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • If appropriate, activate Water Operations Division Emergency Control Center. • Provide Technical Information. • Work with Water Quality Control to notify Department of Health Services. • Assume any notification of chemical contamination of Water Distribution will result in notification of law enforcement, environmental agencies, and FBI. • Notify Utility Services Director.
Recovery Actions:	<i>To be implemented as determined by Water operations Section Chief.</i>
	<ul style="list-style-type: none"> • Begin temporary and/or permanent repairs to damaged system components. If system-flush of contaminated water is required, coordinate with Department of Health Services. • Notify Utility Services of date and time when full service recovery is anticipated. Until then, notify the Department of Health Services if boil order will be needed. • Notify all customers of date and time when full recovery/full service is anticipated and when it is achieved. Use Department of Health Services, media. • Complete After Action Report (Annex D).
Notes:	

**Table 64, Accident or Intentional Acts
Loss of Power**

Event Description: This event is based on the loss of power to City of Pomona, Utility Services Department system components from all causes known or unknown.			
Response Team: Supervisor, Water Quality Control, Water Distribution, Water Production, Engineering Southern California Edison, Other Mission Critical Staff			
Initial Notifications:	<ul style="list-style-type: none"> • Supervisor • Water Distribution 	<ul style="list-style-type: none"> • If appears to be intentional, call 911 • Request Police 	<ul style="list-style-type: none"> • Water Production • Water Quality Control • Engineering
First Discovery	<ul style="list-style-type: none"> • Southern California Edison 		
First Responder	<ul style="list-style-type: none"> • Control area, do not approach or handle potentially energized equipment. • Discontinue the application of Water Production chemicals that may accumulate to unsafe quantities in affected effluents. Ensure that all chemical feed stations to confirm that effected systems are off. • Depending on the location of the outage, notify the Water Production Plant and/or Administration of the occurrence. • Notify Supervisor and begin recording pertinent information. 		
Water Production Supervisor	<ul style="list-style-type: none"> • Control area, do not approach or handle potentially energized equipment. • Determine if outage might be long enough to lead to Water Distribution deficiencies. • Coordinate with Water Operations Section Chief to reevaluate pumping/ treatment schedules in accordance with projected outage duration. • Coordinate with the Water Distribution and Water Operations Section Chief to modify pumping rates to maximize system storage. • Disconnect non-essential and sensitive equipment and inspect and/or start up generation equipment to see that it is operating properly. • Contact consulting engineer services, electrical contractors and/or equipment or parts services if necessary. • In the event that need to increase water demand from MWD, provide call to Walnut-Valley Water District. 		
Water Quality Control	<ul style="list-style-type: none"> • If necessary, work with Water Operations Section Chief to notify Department of Health Services engineer to evaluate the need for public notice. 		
Water Distribution	<ul style="list-style-type: none"> • Mobilize maintenance personnel to determine source of outage, assess damage, and take remedial action. • Coordinate with Water Operations Section Chief to reevaluate pumping/ treatment schedules in accordance with projected outage duration. • Coordinate with Water Production and Water Operations Section Chief to modify pumping rates to maximize system storage. • Determine if emergency power (generators) should be used. • If appropriate, complete Damage Assessment (Annex C). 		
Engineering	<ul style="list-style-type: none"> • If necessary, work with Operations to prepare cost estimates for system repairs and replacements. • Provide engineering assistance in civil engineering support, system alterations, and priorities scheduling. 		

Table 64, Accident or Intentional Acts Loss of Power (Continued)	
Public Information Officer	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief on Public Notices. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • If appropriate, activate Water Operations Division Emergency Control Center. • Provide Technical Information. • Work with Water Quality Control to notify Department of Health Services. Assume any notification of any intentional act will result in notification of law enforcement, environmental agencies, and FBI. • Notify Utility Services Director.
Recovery Actions:	<i>To be implemented as determined by Water Operations Section Chief.</i>
	<ul style="list-style-type: none"> • Obtain permission to begin repairs from Police Department. • Begin temporary and/or permanent repairs to damaged system components. • Notify Utility Services of date and time when full service recovery is anticipated. • Notify all customers of date and time when full recovery/full service is anticipated and when it is achieved. • Complete After Action Report (Annex D)
Notes:	

Table 64, Intentional Acts	
Raw Water Contamination (Chemical/Biological/Radiological)	
Event Description:	This event is based on discovery of a raw water contamination in a well head, pumped groundwater transmission line, or raw water transmission system. Discovery by identification of evidence, sampling and analysis, or report by outside agency.
Response Team:	911, Supervisor, Water Quality Control, Water Distribution, Water Production, Public Department of Health Services, Engineering, Water Operations Section Chief, Other Mission Critical Staff
Initial Notifications:	<ul style="list-style-type: none"> • Supervisor • Water Quality Control • Water Distribution • If chemical spill or bulk container evident: Call 911 • Request HazMat and Law Enforcement • Water Production • Engineering
First Discovery	
First Responder	<ul style="list-style-type: none"> • Notify supervisor. • Coordinate with the Water Production Supervisor to discontinue pumping source water until it can be determined that contaminated water cannot be drawn into Pomona facilities. (Isolate the system) • For Water Production interruption or chemical overfeed, discontinue effected effluent, shut off pumps at Water Production Plant. • Obtain emergency log form and begin recording pertinent information.
Water Production Supervisor	<ul style="list-style-type: none"> • Notify authorities (911) and make direct actions to minimize the immediate effects or to isolate the system. • Make a determination as to the severity and extent of the problem and the degree of public hazard. • Notify Water Quality Control. Coordinate with Water Quality Control to collect samples to determine the presence/absence of contamination at points within the system. • In the event that need to increase water demand from MWD, provide call to Walnut-Valley Water District. • Notify Water Operations Section Chief.
Water Quality Control	<ul style="list-style-type: none"> • Perform initial assessment of situation, if appropriate, notify Water Operations Section Chief. • Notify QA Laboratory Staff, initiate following sampling plans: <ul style="list-style-type: none"> - Raw water transmission lines - Well heads. • Notify the local Department of Health Services engineer. • Based on information obtained form the local Department of Health Services engineer, a determination will be made as to the length of time necessary to be out of production. Notify appropriate customers based on this information. • Work with Contract Labs to develop sampling and analysis plans – expedite analysis. • Interpret lab data.
Water Distribution	<ul style="list-style-type: none"> • Contact maintenance personnel to repair failed equipment. • Follow up notification to customers with a notice that the emergency has been eliminated. • Implement plan to work around isolated systems. • Determine supply duration of finished water in tanks and reservoirs. • Consider whether to continue normal operations or arrange for alternative means of treatment. • Make plans for alternative Water Distribution. • Complete Damage Assessment (Annex C).

Table 64, Intentional Acts Raw Water Contamination (Chemical/Biological/Radiological) (Continued)	
Engineering	<ul style="list-style-type: none"> • Provide engineering assistance in civil engineering support, system alterations, and priorities scheduling.
Public Information Officer	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief on Public Notices. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • Notify the local emergency management office. • If appropriate, activate Water Operations Division Emergency Control Center (ECC). • Provide Technical Information. • Work with Water Quality Control Supervisor to notify Department of Health Services. Assume any notification of any intentional act will result in notification of law enforcement, environmental agencies, and FBI. • Based on information obtained from the local Department of Health Services engineer, a determination will be made as to the length of time necessary to be out of production. Work with Public Information Officer to notify appropriate customers based on this information.
Recovery Actions:	<i>To be implemented as determined by Water Operations Section Chief.</i>
	<ul style="list-style-type: none"> • Begin temporary and/or permanent repairs to damaged system components. If system flush of contaminated water is required, coordinate with Department of Health Services. • Notify all customers of date and time when full recovery/full service is anticipated and when it is achieved. Use Department of Health Services and media. • Complete After Action Report (Annex D).
Notes:	

**Table 64, Intentional Acts
Finished Water Contamination (Chemical/Biological/Radiological)**

Event Description: This event is based on discovery of intentional contamination of finished water in the distribution and storage system that may create an immediate health hazard for Water Operations Division staff and/or the public. Discovery by identification of evidence, sampling and analysis, medical reports, or by outside agency.	
Response Team: 911, Supervisor, Water Operations Section Chief, Water Quality Control, Water Distribution, Water Production, Engineering, Public Department of Health Services, Other Mission Critical Staff	
Initial Notifications:	<ul style="list-style-type: none"> • Supervisor • Water Quality Control Supervisor • Water Distribution • Water Production • If chemical spill or bulk container evident: Call 911, Request HazMat and Law Enforcement • Water Operations Section Chief • Engineering
First Discovery	
First Responder	<ul style="list-style-type: none"> • Record all factors leading to the suspicion of the emergency on an Emergency Log Form. • Notify supervisor.
Water Production Supervisor	<ul style="list-style-type: none"> • If “Reasonable Judgment” indicates serious threat, implement shut down. • Notify Water Operations Section Chief and other section supervisors. • Coordinate with MWD and TVMWD to determine if contamination has affected their systems. • Direct actions that may be taken to minimize the effects. (i.e. open/close valves, start/stop pumps, adjust chlorination, etc.) • Based on information obtained from the local Department of Health Services engineer, a determination will be made as to the length of time necessary to be out of production. • In the event that need to increase water demand from MWD, provide call to Walnut-Valley Water District.
Water Quality Control	<ul style="list-style-type: none"> • Have samples for bacterial examination collected at appropriate locations and forward them to the Contract Labs for analysis. • Notify QA Laboratory Staff, initiate following sampling plans: <ul style="list-style-type: none"> - Finished water storage reservoirs, - Distribution systems. • Work with Contract Labs to develop sampling and analysis plans – expedite analysis – request estimate of analysis turnaround time. • Interpret lab data. • Perform initial assessment of situation, if appropriate, notify Water Operations Section Chief. • Notify the local Department of Health Services engineer. • Based on information obtained from the local Department of Health Services engineer, a determination will be made as to the length of time necessary to be out of production. Work with Public Information Officer to notify appropriate customers based on this information.
Water Distribution	<ul style="list-style-type: none"> • Determine supply duration of finished water in tanks and reservoirs. • Consider whether to continue normal operations or arrange for alternative means of treatment. • Notify the appropriate local Department of Health Services engineer to ensure and system flush activities being considered are in compliance with California sanitary and environmental regulations. • Complete Damage Assessment (Annex C).

Table 64, Intentional Acts	
Finished Water Contamination (Chemical/Biological/Radiological) (Continued)	
Engineering	<ul style="list-style-type: none"> • Provide engineering assistance in civil engineering support, system alterations, and priorities scheduling.
Public Information Officer	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief and Water Quality Control Supervisor on Public Notices. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • Notify the local emergency management office. • If appropriate, activate Water Operations Division Emergency Control Center. • Provide Technical Information. • Work with Water Quality Control Supervisor to notify Department of Health Services. Assume any notification of any intentional act will result in notification of law enforcement, environmental agencies, and FBI. • Based on information obtained from the local Department of Health Services engineer, a determination will be made as to the length of time necessary to be out of production. • Coordinate with the Department of Health Services to determine the need for contacting the public. If public notification is made, follow up with a notice that emergency has been discontinued. • Work with Public Information Officer to notify affected customers.
Recovery Actions:	<i>To be implemented as determined by Manager.</i>
	<ul style="list-style-type: none"> • Begin temporary and/or permanent repairs to damaged system components. If system flushes of contaminated water is required, coordinate with Department of Health Services. • Notify Utility Services of date and time when full service recovery is anticipated. Until then, notify the Department of Health Services if boil order will be needed. • Notify all customers of date and time when full recovery/full service is anticipated and when it is achieved. Use Department of Health Services and local media. • Complete After Action Report (Annex D).
Notes:	

Table 64, Intentional Acts

Event Description: This event is based on the discovery of intentional physical or structural damage to water system components sufficient to disrupt normal system operations.			
Response Team: 911, Supervisor, Water Operations Section Chief, Water Quality Control, Water Distribution, Water Production, Engineering, Public Department of Health Services, Other Mission Critical Staff			
Initial Notifications:	<ul style="list-style-type: none"> • Supervisor • Call 911 	<ul style="list-style-type: none"> • Water Operations Section Chief • Water Distribution • Water Production 	<ul style="list-style-type: none"> • Water Quality Control • Engineering
First Discovery	<ul style="list-style-type: none"> • Request Police assistance 		
First Responder			
	<ul style="list-style-type: none"> • Control Area, Contact Supervisor. • Call Pomona Police Department. • Before taking action that might disturb evidence needed for a criminal investigation, get clearance from Police commander on site. • Record all information relating to the damage. 		
Supervisor			
	<ul style="list-style-type: none"> • Contact maintenance personnel to investigate and verify the reported damage is within the system. • Make a determination as to the severity and extent of the damage and degree of public hazard. • Direct actions to be taken to minimize immediate effects. • Contact 911 for traffic control or public evacuation. • Work with Public Information Officer to notify affected customers. 		
Water Quality Control			
	<ul style="list-style-type: none"> • Notify the Public Department of Health Services. • If appropriate, work with Water Distribution Supervisor to initiate system isolation. • If appropriate, implement sampling plan for downstream systems. • Prepare recommendations for Water Operations Section Chief and Department of Health Services. • Assure Compliance with Environmental and Department of Health Services Regulations. 		
Water Production			
	<ul style="list-style-type: none"> • Isolate affected systems and assess damage to affected systems. • Determine if site(s) is readily serviceable or will be down for some time. • Ensure critical treatment plant processes are operable. • In the event that need to increase water demand from MWD, provide call to Walnut-Valley Water District. 		
Water Distribution			
	<ul style="list-style-type: none"> • Determine duration of service from finished water in tanks and reservoirs. • Consider whether to continue normal operations. • Make plans for alternative Water Distribution. • Assess damage to affected processes/systems. • Develop plan for recovery of systems. • Complete Damage Assessment Form (Annex C). • Contact a pipeline repair contractor to excavate failed sections so that an assessment of necessary repairs and materials can be made. • Coordinate with Utility Services Engineer to obtain an emergency purchase requisition number to provide for payment of services. • Complete an Emergency Closure Report. 		

Table 64, Intentional Acts

Table 64, Intentional Acts	
Engineering	<ul style="list-style-type: none"> • Provide engineering assistance in civil engineering support, system alterations, and priorities scheduling. • Work with Water Distribution Supervisor and Water Operations Section Chief to obtain an emergency purchase requisition number to provide for payment of services.
Public Information Officer	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief on Public Notices. Public notices should be followed up with a notice that the emergency has been corrected. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • If appropriate, activate Water Operations Division Emergency Control Center. • Provide Technical Information. • Work with Water Quality Control Supervisor to notify Department of Health Services. Assume any notification of any intentional act will result in notification of law enforcement, environmental agencies, and FBI. • Work with Public Information Officer to notify affected customers.
Recovery Actions:	<i>To be implemented as determined by Manager.</i>
	<ul style="list-style-type: none"> • Begin temporary and/or permanent repairs to damaged system components. If system flush of contaminated water is required, coordinate Department of Health Services. • Notify Utility Services of date and time when full service recovery is anticipated. • Notify all customers of date and time when full recovery/full service is anticipated and when it is achieved. • Complete After Action Report (Annex D).
Notes:	

Table 64, Threats

Event Description: This event is based on the threat of intentional damage to the water system or harm to the water itself, at any point within the system. This threat may be specific as to type of damage or contaminant or deliberately vague and unspecified.

Response Team: 911, Supervisor, Water Operations Section Chief, Public Information Officer, Water Quality Control, Water Distribution, Water Production, Engineering, Public Department of Health Services, Other Mission Critical Staff

Initial Notifications:

<ul style="list-style-type: none"> • Call 911 to notify Police. They will notify other agencies, including the local FBI Field Office, if necessary. 	<ul style="list-style-type: none"> • Supervisor • Water Quality Control • Water Operations Section Chief 	<ul style="list-style-type: none"> • Water Distribution • Water Production • Engineering
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First Responder

- Control area, do not approach or handle potentially contaminated containers or water unless properly trained and equipped. Advise first responders (Police, Fire) of potential impacts to Water Distribution System.

Supervisor

- Notify Water Operations Section Chief.
- Control area, do not approach or handle potentially contaminated containers or water unless properly trained and equipped. Advise first responders (Police, Fire) of potential impacts to Water Distribution.

Water Quality Control

- Increase sampling at Water Distribution locations.
- Compare results to latest sample at same site.
- Increase security at Water Distribution locations.
- Notify the Public Department of Health Services.
- Work with Contract Labs to develop sampling and analysis plans – expedite analysis – request estimate of analysis turnaround time.
- If appropriate, work with Water Distribution Supervisor to initiate system isolation.
- Interpret lab data.
- Prepare recommendations for Managers and Department of Health Services.
- Assure Compliance with Environmental and Department of Health Services Regulations.

Water Production

- Implement procedures to isolate potentially contaminated systems.
- Implement plan to work around isolated systems.
- Consider whether to continue normal operations or arrange for alternative means of treatment.
- Consider implementing plant shut down procedures.
- If evacuation is advised by the Emergency Broadcast System, secure the facilities on the way out.
- Complete Damage Assessment (Annex C).

Table 64, Threats
All Credible Threats of Damage to or Contamination of the Water System
(Continued)

Water Distribution	<ul style="list-style-type: none"> • Contact Office of Emergency Management for assistance and exchange of information. • Coordinate with Water Quality Control to collect samples to determine the presence/absence of contamination within the system. • Notify local Department of Health Services engineer to determine the appropriate method of disposal of contaminated water if required. • Contact Water Operation Section Chief to evaluate the need for public notification. • Complete Damage Assessment (Annex C).
Engineering	<ul style="list-style-type: none"> • Provide engineering assistance in civil engineering support, system alterations, and priorities scheduling.
Public Information Officer	<ul style="list-style-type: none"> • Consult with Water Operations Section Chief on Public Notices. • Contact customers. • Coordinate Media Contacts.
Water Operations Section Chief	<ul style="list-style-type: none"> • If appropriate, activate Water/Wastewater Operations Division Emergency Control Center. • Provide Technical Information. • Coordinate with Water Quality Control Supervisor to notify Department of Health Services. Assume any notification of any threat of intentional act will result in notification of law enforcement, environmental agencies, and FBI. • Work with Public Information Officer to contact customers. • Notify Utility Services Director.
Recovery Actions:	<i>To be implemented as determined by Water Operations Section Chief.</i>
	<ul style="list-style-type: none"> • Begin temporary and/or permanent repairs to damaged system components. If system flush of contaminated water is required, coordinate with California Department of Health Services. • Notify Utility Services of date and time when full service recovery is anticipated. Notify all customers of date and time when full recovery/full service is anticipated and when it is achieved. Use Department of Health Services, media, web site, and phone message. • Complete After Action Report (Annex D).
Notes:	

7.1.5 WATER RATES

The City's water rates for residential customers residing inside the City limits, for the first twelve (12) units in a two month billing cycle, are \$0.68 per hundred cubic feet, and for thirteen (13) units or more the rate is \$1.20 per unit. For residential customers residing outside the City limits, the first twelve (12) units in a two month billing cycle, are \$0.84 per hundred cubic feet, and for thirteen (13) units or more the rate is \$1.50 per unit. In addition to the consumption charge, there is a bi-monthly availability charge which is based on the size of a customer's service line/meter. This charge is \$32.62 for every two months for a residential customer inside the City's limits with a 5/8's inch meter, or \$40.63 for every two months for a residential customer outside the City's limits with a 5/8's inch meter/line. These rates as listed above were effective for the calendar year January 1 through December 31, 2005. All water and sewer rates are adjusted annually by the Consumers Price Index for All Urban Users (CPIU) for Los Angeles, Riverside, and Orange Counties of Southern, California, and by "other extraordinary operating expenses which exceed the CPI", as described in Pomona, California City Code Sections 65-271(c) and 65-400(c).

In general the City prohibits the wasting of water, as defined by City Ordinance 62-354, and employs penalties to enforce these conservation requirements as outlined in City Code 62-351. If for any reason the City determines that a possibility exist where the City may not be able to meet the demands of its customers it may invoke the "Phase I: voluntary compliance - water watch; or when it is probable that the City will not be able to meet the demands of its customers, then the "Phase 2: mandatory compliance - water alert" can be invoked. These measures include watering at even numbered addresses on even numbered dates, and watering at odd numbered addresses on odd numbered dates. Several other measures and exemptions are described completely in the Pomona, California City Code Section 62-354, including "Phase 3: mandatory; water warning" and "Phase 4; mandatory compliance; water emergency."

7.1.6 ANALYSIS OF REVENUE AND EXPENDITURE IMPACTS

The City of Pomona water revenues are derived from two primary sources. They are a water meter availability charge and a water consumption rate. The water meter availability charge is primarily used for maintaining the water system and service connections to the customer, whether or not water is sold. The water consumption rate is based on the amount of water used. As water consumption by the City's water customers decreases, due to water conservation efforts or water shortages, the water sales component of the revenue generated through sales also decreases. Fortunately, due to the way the rate is structured, operational expenses to produce water nearly equal the loss in revenue from cutbacks in production, and the revenue lost does not significantly impact the Department's daily operations. In this respect, Pomona is fortunate; however, there would be an immediate and significant impact on the City's capital improvement program if such an event were to occur. Many cities have gone to a rate structure similar to Pomona's base meter fee to cover "hard" costs, and lifeline rate with an increasing step rate to insure that the customers do not feel that they are being penalized for their conservation efforts.

The City of Pomona's 2005 Water Master Plan (WMP), as adopted by the City Council on July 11, 2005, provides the City with an evaluation of its existing water system, an evaluation of the future system requirements through 2025, and water supply strategies to meet the future system needs. The WMP includes a prioritized listing of needed capital improvement projects, and outlines funding requirements needed to complete the projects, while maintaining required operational revenues. The financial section of the WMP calls for a flexible plan utilizing a combination of revenue bonds, grants and existing fund balances to accomplish the City's goals and objectives.

Subsequent to the completion of the City's water master plan, the City contracted with Foresight Consulting Services of Davis, California to conduct a comprehensive rate study, in order to calculate the appropriate revenue requirements and subsequent water rates, to include a multi-year rate adjustment scenario. The overall goal of the review is to develop appropriate individual rate structure for the City's water utility that:

- 1) Reflects the City policies regarding effective and efficient use of water services;
- 2) Generates sufficient and stable revenues to pay for current and future water services and related expenses;
- 3) Encourages reduction in water consumption through appropriate pricing strategies;
- 4) Provides an overview of the City's water capital and infrastructure programs and proposes funding mechanisms to fund replacement of aging infrastructure;
- 5) Proposes rate options that allow for the full funding (100%) or partial funding (50%) of the annual depreciation expense, to be accumulated in a capital and infrastructure replacement fund; and
- 6) Provides for an emergency rate structure to address loss of water supply through disaster, infrastructure failure, or drought.

It is anticipated that this study will be concluded by January of 2006, with recommendations being submitted to the Pomona City Council shortly thereafter.

7.1.7 OPTION TO OVERCOME REVENUE IMPACTS

In the event of drought generated revenue shortfall, several measures will be reviewed and explored to meet the fiscal challenge.

1. Reduce the current operation and maintenance expenses.
2. Reduce future projected operation and maintenance expenses.
3. Prioritize and defer selected capital construction projects.
4. Increase the base rate to meet new demand and to establish a substantial revenue base.
5. Increase commodity charge and water adjustment rate to cover revenue requirements.

A combination of the above measures could be used to offset or diminish the effects of lost revenue due to water shortage. Capital construction projects could be deferred, depending on revenue availability at the time. Other capital programs could be prioritized. However, with the worst scenario of drought and the inability to produce

groundwater, the City would have to postpone capital projects that would not affect the health and safety of residents until a later date. The base water rate and the water meter availability charge could be increased to establish a substantial firm revenue base. The water meter availability charge would cover the general operation, maintenance, system upgrades and capital expenditures. With declining water sales, an increase in the base rate and the water meter availability rate could be recommended during water shortage and could be returned to pre-shortage levels when conditions improve. Table 65 lists the consumption reduction methods discussed in Appendix D.

Table 65					
FINANCIAL PROJECTIONS AT VARIOUS LEVELS OF DEMAND REDUCTIONS					
(No Water Rate Increase)					
	2004-2005 Base Year	10% Reduction	20% Reduction	30% Reduction	50% Reduction
Usage (AF)	25,640	23,076	20,512	17,948	12,820
WATER REVENUE					
Water Meter Availability Charges	\$7,005,800	\$7,005,800	\$7,005,800	\$7,005,800	\$7,005,800
Water Sales and Misc.	\$15,480,600	\$13,231,960	\$10,983,320	\$8,734,680	\$4,237,400
Total Revenue	\$22,486,400	\$20,237,760	\$17,989,120	\$15,740,480	\$11,243,200
OPERATING EXPENSE					
Water Maintenance and Operation	\$17,508,640	\$15,757,780	\$14,006,910	\$12,256,050	\$8,754,320
Water Revenue Bond Fund	\$3,687,320	\$3,687,320	\$3,687,320	\$3,687,320	\$3,687,320
Water Improvement/ Replacement	\$0	\$0	\$0	\$0	\$0
Total Expense	\$21,195,960	\$19,445,100	\$17,694,230	\$15,943,370	\$12,441,640
Revenue Surplus/ (Shortfall)	\$1,290,440	\$792,660	\$294,890	(\$202,890)	(\$1,198,440)
Percent	5.74%	3.92%	1.64%	-1.29%	-10.66%

Table 66		
Consumption Reduction Methods		
Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Demand Reduction Program	2	20 - 30
Restrict Building Permits	4	40 - 50
Restrict for Only Priority Use	3	30 - 40
Use Prohibitions	2,3,4	20 - 50
Water Shortage Pricing	2	20 - 30
Voluntary Rationing	1	0 - 20
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Education Program	1,2,3,4	0 - 50

CHAPTER 8 CONSERVATION, PUBLIC AFFAIRS, AND BEST MANAGEMENT PRACTICES

8.1 CURRENT WATER CONSERVATION MEASURES

Water conservation is a vital concern to the City of Pomona. The City has employed several water conservation measures to discourage water waste and over-use. In addition to the efforts set forth by the City, the City also participates in the promotion of water conservation programs of MWD and their member agency TVMWD.

The following are a list of the conservation measures the City currently employs or plans to implement:

A. Educational and Public Information

1. Public information
2. Water conservation literature
3. Bill inserts
4. Speakers' bureau
5. Exhibits/events programs
6. Tours of water facilities/water conservation practices.
7. Notice letters of excessive water usage.

B. Promotional

1. Coordination with developers
2. Water audits/inspections

C. Water Management and Policy Measures

1. Water conservation program/urban water shortage contingency plan
2. Ultra-low-flow toilet ordinance for all new construction and ULF fixture replacement program.
3. Distribution system water audits, leak detection and repair
4. Water metering and rates
5. Large landscape water audits and incentives
6. Landscape water conservation requirements for new and existing commercial, industrial, governmental, and multi-family developments
7. Commercial and industrial water conservation
8. Conservation pricing
9. Landscape water conservation for new and existing single family homes
10. Water conservation coordinator
11. Financial incentives
12. Capital improvement plan

13. Recycled water
14. Water management
15. Xeriscape street medians

8.2 Educational and Public Information

1. **Public Information:** The City participates in public information programs sponsored by TVMWD such as press releases and newspaper advertising. The City is also independently active in creating public awareness and conservation programs relative to the need to conserve water.
2. **Water Conservation Literature:** Literature is used by the City to inform citizens on water conservation measures. The literature that the City employs consists of pamphlets which are mailed out with customer water bills or are made available at the City's public counter and public events.
3. **Bill Inserts:** Similar to water conservation literature, the City periodically includes general informational messages or "stuffers" in its monthly water bills discussing water conservation, water reclamation, rates, how to read a meter, etc...

Since 1991, Customer Service Statements have included, along with current water usage, a section that indicates the previous year water consumption for the same billing period (in thousands of gallons). This allows customers to easily see and evaluate how their water-use patterns compare to last year.

4. **Speakers' Bureau:** The City has a speaker program whereby the City makes staff available for presentations. The speakers are made available upon request to schools, clubs and civic organizations.
5. **Exhibits/Events Programs:** Pomona has exhibits, which are periodically displayed at the Civic Center and the City's public libraries. The displays depict water conservation and supply management activities and also have attached literature holders, which contain brochures on these subjects. The City sets up a water conservation booth on Earth Day in April of every year to distribute information and educate the public.
6. **Tours of the Water Facilities/Water Conservation Practices:** The City plans to conduct tours of water facilities for civic groups and school field trips. The tour conductor will discuss water conservation practices with the hope that the attendees will actively participate in water awareness conservation techniques and further pass this information to their friends and family members.
7. **Notice of Overwatering:** The City of Pomona has the capability to prepare and deliver notices advising residents and business regarding their water usage, particularly during times of drought conditions. This notice intends to bring attention

to the customer regarding their water usage in hopes of them voluntarily changing or altering their behavior.

8.3 Promotional

1. **Coordination with Developers:** Current planning regulations mandate that developers use low-water-use plumbing fixtures and appliances. In addition, developers are strongly encouraged to plant drought resistant/low water use gardens. Literature on “Xeriscape” type gardening is distributed to developers at their initial contacts with the Planning Department.
2. **Water Audits/Inspections:** Whenever unusually high bills are detected or when a customer’s complaint is registered regarding usage, the Utility Services Department offers to perform an on-site inspection to determine if there is a leak on the premises. The customer is provided with relevant information on methods for reducing water use

8.4 Water Management and Policy Measures

1. **Ultra-Low-Flow Toilet Ordinance for All New Construction and ULF Fixture Replacement in Existing Residences:** Distribution of Water Conservation Equipment and Kits. In conjunction with MWD, the City intends to institute an ongoing rebate program for installation of ULF toilets, both residential and commercial, throughout the City.
2. **Distribution Systems Water Audits, Leak Detection and Repair:** Leak detection is an important means of reducing the amount of unaccounted for water in the City. The Utility Services Department – Water/Wastewater Division maintains detailed records of all repaired leaks as they occur throughout the City. When City streets are scheduled for repaving, the Utility Services Department evaluates the water mains based on age, size, leakage history, condition of services, and the condition of the pipe itself to determine the need for replacement. The City has an ongoing program of replacing old and undersized water mains.
3. **Water Metering and Rates: Meter Calibration and Repair:** The City also has an on-going meter testing program. The meter replacement program proposes the replacement of all domestic meters on a 10 year cycle, annual testing of all compound meter, and verification of high or low consumption readings to identify potential leaks or meter inaccuracy. The City prefers a shorter rotation period of 10 years, versus 15 years previously, so as to improve meter accuracy and reduce unaccounted-for water.

Metering: All accounts served by the City are metered and read, either on a monthly or on a bi-monthly basis. Currently, all water production and consumption is metered. The City has standardized on a 5/8-inches residential meter which results in reduced consumption over a standard 3/4-inch meter. The City requires that all construction

water be metered and billed. In addition, all water used for street sweeping and sewer flushing is metered and billed.

Water Use Records: The City maintains water use records on all active accounts as was discussed under Educational and Public Information Bill Inserts. The billing system enables the City to provide instantaneous records and printouts of water consumption data of the past two years. Each bill shows the customer's current consumption as well as his previous month's consumption and previous year's consumption for the same period.

Water Management: Unaccounted-for water in the City system was approaching 13 percent in the early 1980's. It has now been reduced to below 7 percent due to an aggressive mainline replacement/repair program. The City's goal is to reduce the unaccounted-for water to below 4 percent.

Water Supplier Billing Records Broken Down by Customer Classification: The City breaks down its water billing records by customer classification. This enables the City to know where its water is being used, and provides an opportunity to target conservation efforts based on classification by water customer type. The breakdown of water use by customer classification is presented in Chapter 3.

4. **Large Landscape Water Audits and Incentives:** The City encourages customers to utilize MWD's program. The Protector Del Agua Program has been offered since 1994.
5. **Landscape Water Conservation Requirements for New and Existing Commercial, Industrial, Governmental, and Multi-Family Developments:**

A Landscape Ordinance for New Construction can positively impact landscape designs; reduce water, fertilizer, and pesticide use; and subtly encourage water consciousness. The California State Legislature has created the Water Conservation Landscaping Act. The Act requires cities to implement a water efficient landscape ordinance by January 1, 1993, or to utilize the act's requirements. The City utilizes the State Water Conservation Landscaping Act. The City has developed irrigation regulations in accordance with the requirements of the Water Conservation Landscaping Act in 1991.

Minimal impact has been realized since all new construction must be landscaped anyway. Therefore, there have not been any additional costs to customers who landscape within the water efficient landscape guidelines. Moderate staff time is utilized to meet with landscape and business representatives for review of development plans.

However, there have been and will continue to be a positive benefit to the environment. Less watering will be used for landscaping and less labor, fertilizers,

and pesticides will be required. This alternative will reduce future water supply deficiencies.

Less water used will reduce demand on future supplies. The community benefits because of improved efficiency of water use and lower water use in new development. The City of Pomona encourages the use of recycled water for park irrigation where feasible. This results in decreased demand for domestic water supplies within the City. In addition, the Parks Department is currently using soil moisture sensors, provided by the Water Division, to control the frequency of watering street medians and City parks.

Currently the City has 32 Irrigation Meters Undefined (miscellaneous ownership), 93 Irrigation Commercial Accounts, 35 Irrigation Local Government, 143 Irrigation Residential Accounts for a total for 303 Irrigation Meters.

6. **Commercial and Industrial Water Conservation:** Water conservation is discussed above under Promotional and is reported as a “Best Management Practice” in Appendix “D.”
7. **Conservation Pricing:** Financial Incentives are reported as a “Best Management Practice” in Appendix “D.”
8. **Landscape Water Conservation for New and Existing Single Family Homes:** Landscape Water Conservation is reported as a “Best Management Practice” in Appendix “D.”
9. **Water Waste Prohibition:** Water Waste is reported as a “Best Management Practice” in Appendix “D.”
10. **Water Conservation Coordinator:** The City has assigned the Water Conservation Coordinator duties to the current staff.
11. **Financial Incentives:** Financial Incentives is reported as a “Best Management Practice” in Appendix “D.”
12. **Capital Improvement Plan:** Since 1952, the City has engaged in an ongoing, long term capital improvement plan with three principle objectives:
 - First, to bring the system to meet current design criteria when improvements are proposed or contemplated.
 - Second, to correct any known deficiencies with regard to storage, fire flow, and Production requirements, when they are identified.
 - Third, to maintain capacities as required within the changing system by repair or replacement of existing water facilities when and if required.

In the light of this last item the City will achieve internal conservation by reducing leaks and the percentage of unaccounted-for water. The City's 2005 Water Master Plan addressed deficiencies and recommended improvements over both near term and long term periods. These ranged from a comprehensive 5-year program to mid range (5-15 year) and 20-year goals and objectives.

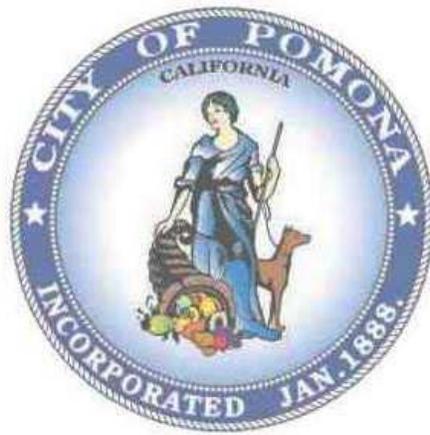
Each year, the Utility Services Department provides the City Council with a proposed five-year program for consideration and adoption as a part of the budget package. The Department's projects are, for the most part, based solely upon the Master Plan. However, as situations change, projects may be either added or deleted.

13. **Recycled Water:** The City of Pomona implemented one of the first major recycled water distribution systems within Southern California in the mid 1960's. This program involves the use of high quality tertiary effluent from Los Angeles County Sanitation Districts' Pomona Water Reclamation Plant. Recycled water is provided for a variety of industrial and irrigation purposes. The current recycled water usage in the City is presented in Chapter 6.
14. **Water Management:** The City of Pomona has an on-going program of replenishing the groundwater supplies.
15. **Xeriscape:** The City has retrofitted public landscaped areas such as street medians with Xeriscape plants, landscape, which require no, or less water. Approximately 2 miles of street medians are of low water use (high utilization of hardscape combined with low water requirement plants). Approximately 8,500 lineal feet of streets with two sides (16 feet parkways are fully landscaped with no sidewalks) irrigate with recycled water. State "57" and "71" freeways irrigated with recycled water.
16. **Best Management Practices:** Three Valleys Municipal Water District is one of the charter signatories of the 1992 Memorandum of Understanding Regarding Urban Water Conservation Best Management Practices (MOU), a document which established the California Urban Water Conservation Council (CUWCC), a self-regulating body composed of signatories. As a member agency, the City of Pomona also signed the MOU in November 1996, for the purpose of expediting implementation of reasonable urban conservation measures. Through the Three Valley's role as a wholesale water agency, responsible for providing financial and technical support, and when mutually agreeable and beneficial, direct management of conservation projects on behalf of a retail supplier; the City of Pomona participates in the various programs supported by Three Valleys. Such programs include:
 - Participation in Metropolitan Water District's regional conservation programs (e.g. energy efficient washing machine rebates, Solar Cup, etc.)
 - Protector Del Agua program courses offered to landscape maintenance personnel and the general public.

- Ultra-low flush toilet retrofits
- Education programs (e.g. involvement with a Water Education Water Awareness Committee (WEWAC), Project WET workshops, etc.)

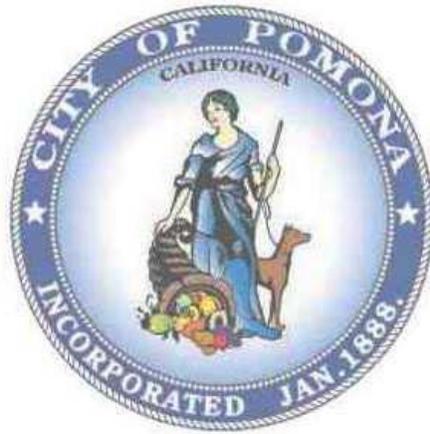
Included in Appendix “D” is the “Best Management Practices (BMP)” report for the year 2003-2004 which describes the City of Pomona’s existing or future programs or efforts to improve or supplement existing programs, as described in the State and CUWCC guidelines. Some of these programs have been fully implemented by the City; others are anticipated for implementation based on availability of funding and staffing resources.

Appendix A



Urban Water Management Planning Act

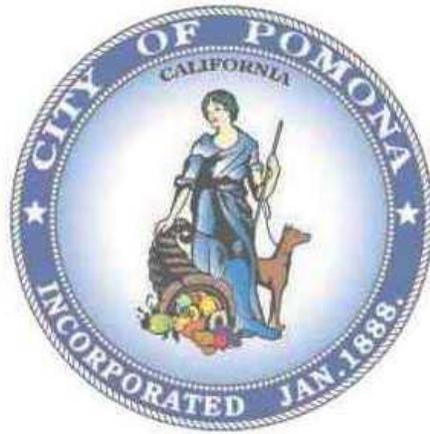
Appendix B



City Council Resolution Adopting

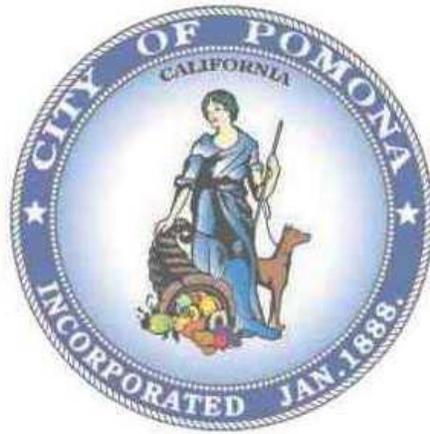
2005 Urban Water Management Plan Update

Appendix C



Water Conservation Ordinance No. 3546

Appendix D



Best Management Practice Report – 2004

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7 Attorneys for Plaintiff,
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FILED
LOS ANGELES SUPERIOR

DEC 18 1998

JOHN A. CLARKE, CLERK
John A. Clarke

9 SUPERIOR COURT OF THE STATE OF CALIFORNIA
10 FOR THE COUNTY OF LOS ANGELES

11 SOUTHERN CALIFORNIA WATER COMPANY)
12)
13 Plaintiff,)
14 vs.)
15 CITY OF LA VERNE, CITY OF CLAREMONT,)
16 CITY OF POMONA, CITY OF UPLAND,)
17 POMONA COLLEGE, POMONA VALLEY)
18 PROTECTIVE ASSOCIATION, SAN ANTONIO)
19 WATER COMPANY, SIMPSON PAPER)
20 COMPANY, THREE VALLEYS MUNICIPAL)
21 WATER DISTRICT, WEST END)
22 CONSOLIDATED WATER COMPANY, and)
23 DOES 1 through 1,000, Inclusive,)
24 Respondents and Defendants.)

CASE NO. KC029152

Assigned for All
Purposes to Judge
William O. McVittie

Department 0

(Complaint Filed, September 28,
1998)

JUDGMENT

25 THE DOCUMENT TO WHICH THIS CERTIFICATE IS
26 ATTACHED IS A FULL, TRUE, AND CORRECT COPY
27 OF THE ORIGINAL ON FILE AND OF RECORD IN
28 MY OFFICE.

DEC 18 1998

ATTEST _____

JOHN A. CLARKE

Executive Officer/Clerk of the
Superior Court of California, County of
Los Angeles.
By *John A. Clarke*, Deputy

C. MORALES

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1 PRELIMINARY FINDINGS

2 **A. Complaint.**

3 The Southern California Water Company ("SCWC"), (or "Plaintiff"), and the City of La Verne
4 ("La Verne"), City of Claremont ("Claremont"), City of Pomona ("Pomona"), City of Upland
5 ("Upland"), Pomona College ("Pomona College"), Pomona Valley Protective Association ("PVPA"),
6 San Antonio Water Company ("San Antonio"), Simpson Paper Company ("Simpson"), Three Valleys
7 Municipal Water District ("TVMWD"), West End Consolidated Water Company ("West End"),
8 collectively (Defendants) either:

- 9 i. account for essentially all of the current production of groundwater from or the
10 replenishment to the Canyon Basin, the Upper Claremont Heights Basin, the
11 Lower Claremont Heights Basin, the Pomona Basin, the Live Oak Basin and
12 the Ganesha Basin ("Six Basins Area"), located in Los Angeles and San
13 Bernardino Counties, and described in Exhibits "A," and "B" attached hereto,
14 and further defined in Judgment Section I(A) below; or
15 ii. are public agencies with an interest in the efficient and responsible
16 management of groundwater resources within the Six Basins.

17 On or about September 28, 1998 the Plaintiff filed a complaint against Defendants and Does 1
18 through 1,000 requesting a declaration of their individual and collective rights to groundwater and
19 a mandatory and prohibitory injunction requiring the reasonable use and equitable management of
20 groundwater within the Six Basins pursuant to *Article X, Section 2 of the California Constitution*.
21 The pleadings further allege that the Plaintiff and Defendants collectively claim substantially all
22 rights of groundwater use, replenishment and storage within the Six Basins Area, that the available
23 Safe Yield (as defined in Judgment Section I(A), below) is being exceeded and that the groundwater
24 supply to the Six Basins Area is inadequate to meet the current and long term demands of Plaintiff
25 and Defendants without the imposition of a physical solution. Plaintiff requests a determination of
26 all groundwater rights, including replenishment and storage rights, of whatever nature within the
27 boundaries of the Six Basins and request the imposition of an equitable physical solution.

1 **B. Answers and Cross-Complaints.** On or before November 13, 1998, Plaintiff and
2 Defendants filed a stipulation for entry of judgment.

3 **C. Jurisdiction.** This Court has jurisdiction to enter judgment declaring and adjudicating
4 the Plaintiff's and Defendants' ("the Parties") rights to the reasonable and beneficial use of
5 groundwater by the Parties in the Six Basins Area pursuant to *Article X, Section 2 of the California*
6 *Constitution* and to impose a complete physical solution. All pre-existing rights to groundwater
7 within the Basin held or claimed by any Party (as defined in Section I(A) of the Judgment below) are
8 hereby settled and defined as the production allocations and the other rights and obligations set forth
9 under this judgment ("Judgment"). The respective allocations for each Party are expressly set forth
10 in Exhibit "D."

11 **D. Parties.**

12 1. SCWC is an investor-owned public utility incorporated under the laws of the
13 State of California. (*See Public Utilities Code Section 1001 et seq. and 2701 et seq.*) SCWC produces
14 groundwater from the Six Basins and delivers it for use on land within its certificated service area
15 that predominantly overlies some portion of the Six Basins, and otherwise is within the Counties of
16 Los Angeles and San Bernardino.

17 2. Pomona is a charter city situated in the County of Los Angeles. Pomona
18 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
19 boundaries, on land lying outside its incorporated boundaries within the County of Los Angeles and
20 on City owned lands that predominantly overlie some portion of the Six Basins. Pomona owns and
21 controls land in the Six Basins Area upon which it has historically diverted, for direct use and
22 spreading, surface water from San Antonio Creek and Evey Canyon.

23 3. La Verne is a general law city situated in the County of Los Angeles. La Verne
24 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
25 boundaries, on land lying outside its incorporated boundaries within the County of Los Angeles and
26 on City owned lands that predominantly overlie some portion of the Six Basins.

27
28

1 4. Upland is a general law city situated in the County of San Bernardino. Upland
2 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
3 boundaries some portion of which overlie the Six Basins. It possesses a majority of the shares of
4 stock in San Antonio and West End.

5 5. San Antonio is a mutual water corporation incorporated under the laws of the
6 State of California, with its principal place of business in San Bernardino County. San Antonio
7 produces groundwater from the Six Basins and delivers it for use by its shareholders.

8 6. West End is a mutual water corporation, incorporated under the laws of the
9 State of California, with its principal place of business in San Bernardino County. West End
10 produces groundwater from the Six Basins and delivers it for use by its shareholders.

11 7. Claremont is a general law city situated in the County of Los Angeles.
12 Claremont's incorporated boundaries and City owned lands overlie a portion of the Six Basins. The
13 City has executed an agreement with SCWC with respect to its groundwater rights.

14 8. Pomona College is a California corporation, with a principal place of business
15 in the County of Los Angeles. Pomona College owns land and groundwater production facilities that
16 overlie the Six Basins Area and it has executed operating leases with SCWC regarding these
17 facilities. Pomona College has executed an agreement with SCWC with respect to its groundwater
18 rights.

19 9. Simpson is a Washington corporation, which is doing business in the State of
20 California and the County of Los Angeles. Simpson produces groundwater from the Six Basins for
21 its own use and also purchases water service from Pomona.

22 10. PVPA is a California corporation, operating on a non-profit basis for the mutual
23 benefit of its members with its principal place of business in the County of Los Angeles.
24 Shareholders of PVPA include Pomona, Pomona College, San Antonio, SCWC, Simpson, Upland
25 and West End. PVPA owns the primary spreading grounds and recharge facilities for the Six Basins
26 and owns other lands which also overlie the Six Basins. PVPA has undertaken ongoing studies and
27 evaluation of groundwater conditions in the Six Basins Area.

28

1 11. TVMWD is a California Municipal Water District formed pursuant to the
2 provisions of the municipal water district act and with the power to acquire, control, distribute, store,
3 and spread water for beneficial purposes within its boundaries.

4 **E. Settlement Negotiations.**

5 1. **Importance of Groundwater.** Groundwater is an important water supply
6 source for businesses, individuals and public agencies that overlie or extract groundwater from the
7 Six Basins. The Parties have a mutual and collective interest in the efficient and reasonable use of
8 groundwater and the coordinated management of water resources to ensure the prudent use of the
9 resource. The Parties have a further collective interest in furthering the efficient and reasonable use
10 of groundwater and the coordinated and comprehensive management of water resources to ensure that
11 the common resource may be sustained and enhanced.

12 2. **Coordinated Study.** PVPA has conducted and continues to conduct technical
13 studies of the Six Basins and has developed groundwater models of the Six Basins. To achieve the
14 goals of coordinated basin management and to ensure and promote the sustainable and enhanced use
15 of the groundwater resources of the Six Basins, the Parties joined in a collaborative process, reviewed
16 prior groundwater production reports and hydrologic studies, other historical data and engaged in new
17 technical studies to supplement the previous work of PVPA. Substantial engineering, hydrologic and
18 geologic data not previously known have been collected and jointly analyzed and verified by the
19 Parties. Included therein are estimates of production and reported production from the Six Basins
20 and further refinement of PVPA's groundwater models. The results of these efforts provide the
21 technical foundation for this Judgment.

22 3. **Overdraft.**

23 a. **Native Safe Yield.** The Native Safe Yield (as defined in Judgment,
24 Section I(A), below) of the Six Basins Area has historically been augmented generally by the
25 spreading activities conducted by PVPA, Pomona and La Verne and from return flows from water
26 imported to the Six Basins Area through TVMWD. There is no precise estimate of the Native Safe
27 Yield; however, without augmentation comprised of the substantial spreading operations conducted
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1 by PVPA and others, and the return flows from imported water, the amount of groundwater
2 comprising the Native Safe Yield is substantially less than the Safe Yield which is allocated to the
3 parties pursuant to this Judgment.

4 **b. Safe Yield.** Safe Yield (as defined in Judgment, Section I(A), below)
5 for all groundwater supplies within the Six Basins, including the benefits of historic augmentation
6 is nineteen thousand three hundred (19,300) acre feet per year.

7 **c. Groundwater Production.** Reports filed with the State of California
8 pursuant to *Water Code Section 4999 et seq.*, production records reported to PVPA by its members,
9 and independent verification by the Parties all demonstrate that the cumulative groundwater
10 production of the Parties from the Six Basins Area annually has been greater than twenty thousand
11 (20,000) acre feet in each of the five years immediately preceding the filing of this action. Therefore,
12 groundwater production has exceeded the available Safe Yield and *a fortiori* the Native Safe Yield
13 in each of the last five years.

14 **F. Stipulation.** The Parties, whose production from the Six Basins cumulatively comprise
15 essentially all of the groundwater production in the Six Basins Area, which have engaged in long-
16 standing groundwater replenishment activities or otherwise have an interest in the efficient and
17 coordinated management of groundwater, have stipulated to the entry of this Judgment. Each of the
18 Parties stipulate that this Judgment is a physical solution (as defined in Judgment, Section I(A),
19 below) which provides due consideration to the environment, the respective groundwater rights of
20 the Parties, and that this Judgment will not cause substantial material injury to any Party under these
21 circumstances of a lengthy period of overdraft and the competing claims to groundwater. The Parties
22 further stipulate that the Judgment is a fair and equitable allocation of water in accordance with the
23 provisions of *Article X, Section 2 of the California Constitution*.

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1 JUDGMENT

2 IT IS HEREBY ORDERED, ADJUDGED AND DECREED:

3 I. INTRODUCTION

4 A. Definitions.

5 1. "Base Annual Production Right" means the average annual production , in acre-feet,
6 for each Party for the twelve year period beginning on January 1 of 1985 and ending on
7 December 31 of 1996 as set forth in Exhibit "D".

8 2. "Carryover Rights" means the maximum percentage of a Party's annual allocation
9 of Operating Safe Yield production of which may be deferred until the following Year free
10 of any Replacement Water Assessment.

11 3. "Effective Date" means January 1, 1999.

12 4. "Four Basins or Four Basins Area" means the following groundwater basins and
13 the area overlying them: Canyon, Upper Claremont Heights, Lower Claremont Heights and
14 Pomona as shown on Exhibit "A" and further described in Exhibit "B".

15 5. "Groundwater" means all water beneath the ground surface and contained
16 within any one of the Six Basins except as provided in Article IIIA Section 1.

17 6. "Imported Water" means water that is not naturally tributary to the Six Basins Area
18 and which is delivered to the Six Basins Area.

19 7. "In Lieu Procedures" means a method of either providing Replacement Water or
20 water to be stored under a Storage and Recovery Agreement whereby a Party receives direct
21 deliveries of Imported Water or water other than Replenishment Water in exchange for
22 foregoing the production of an equivalent amount of such Party's share of the Operating Safe
23 Yield.

24 8. "Minimal Producers" means any producer whose production is less than 25 acre
25 feet each Year.

26 9. "Native Groundwater" means groundwater within the Six Basins Area that
27 originates from the deep percolation of rainfall, natural stream flow or subsurface inflow, and
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1 expressly excluding groundwater which originates from (a) the Parties' replenishment
2 activities and (b) return flows from both imported water and the Parties' replenishment
3 activities, and water described in Article IIIA Section 1.

4 **10. "Native Safe Yield"** means the amount of Native Groundwater, in acre feet, that can
5 be extracted from the Six Basins Area on an annual basis without causing an undesirable
6 result. Expressed as a formula: Native Safe Annual Yield = Annually Available Groundwater
7 - (Replenishment Water + return flows from Imported Water and Replenishment Water).

8 **11. "Native Water"** means water which is naturally tributary to the Six Basins Area.

9 **12. "Non-party"** means any person or entity which is not a party to this Judgment.

10 **13. "Operating Plan"** means the plan, developed by Watermaster (as defined in
11 Judgment, Article V below) for the Four Basins Area, by which the purpose and objectives
12 of the Physical Solution will be implemented and realized.

13 **14. "Operating Safe Yield"** means the amount of groundwater, in acre feet, which the
14 Watermaster shall determine can be produced from the Four Basins Area by the Parties during
15 any single year, free of any replacement obligation under the Physical Solution herein.
16 Because of the benefits created by coordinated management of groundwater provided by the
17 Physical Solution, the Operating Safe Yield set by Watermaster may exceed the Safe Yield
18 that would otherwise be available for production by the Parties. The Two Basins Area is
19 excluded from the Operating Safe Yield allocated pursuant to this Judgment with its annual
20 Safe Yield being equivalent to the amount of groundwater La Verne may reasonably produce
21 from the Two Basins Area on an annual basis without causing substantial injury to any other
22 Party.

23 **15. "Overdraft"** means a condition wherein the total annual production from a
24 groundwater basin exceeds the Safe Yield.

25 **16. "Party or Parties"** means any person(s) or entity(ies) named in this action, who
26 has/have intervened in this case or has/have become subject to this Judgment through
27 succession, stipulation, transfer, default, trial or otherwise.

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1 17. **"Physical Solution"** means the efficient and equitable coordinated management of
2 groundwater within the Six Basins Area to maximize the reasonable and beneficial use of
3 groundwater resources in a manner that is consistent with the public interest, *Article X,*
4 *Section 2 of the California Constitution,* and with due regard for the environment.

5 18. **"Producer"** means a person, firm, association, organization, joint venture, partner-
6 ship, business, trust, corporation or public entity who, or which, produces or has a right to
7 produce groundwater from the Six Basins Area.

8 19. **"Production"** means the process of pumping groundwater; also, the gross amount
9 of groundwater pumped.

10 20. **"Replacement Water"** means imported water or water other than Replenishment
11 Water supplied through in-lieu procedures that is acquired by the Watermaster or provided
12 by a Party to replace production by such Party in excess of the amount of its share of the
13 Operating Safe Yield, Carry-Over Rights and Storage and Recovery rights authorized by
14 Watermaster.

15 21. **"Replacement Water Assessment"** means an assessment levied by Watermaster
16 pursuant to Article XII A, Section 4 of this Judgment.

17 22. **"Replenishment"** means a program to spread or inject Replenishment Water into
18 the Six Basins Area. A description of the current replenishment programs is attached hereto
19 as Exhibit "E."

20 23. **"Replenishment Water"** means native water which augments the Native Safe Yield
21 and thereby comprises a portion of the Operating Safe Yield pursuant to a historical
22 replenishment program as described in Article VIB, Section 9 and Exhibit E.

23 24. **"Return Flows"** means water which percolates, infiltrates or seeps into the Six
24 Basins after having been previously applied to some end use by one of the Parties or any user
25 of water.

26 25. **"Safe Yield"** means the amount of groundwater, including Replenishment and return
27 flows from Imported Water, that can be reasonably produced from the combined Two Basins
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1 and the Four Basins Areas on an annual basis without causing an undesirable result, including
2 but not limited to land subsidence, water quality degradation, and harm from high
3 groundwater levels, i.e. 19,300 acre feet per year.

4 **26. "Six Basins or Six Basins Area"** means the Four Basins Area plus the Two Basins
5 Area, as shown on Exhibit "A" and further described in Exhibit "B."

6 **27. "Spreading"** means a method of groundwater recharge whereby water is placed in
7 permeable impoundments and allowed to percolate into a basin.

8 **28. "Storage and Recovery"** means a program administered under an agreement
9 between the Watermaster and a Party to store water either directly by sinking, spreading or
10 injecting or by in-lieu procedures, into the Four Basins, and subsequently recovering such
11 water without regard to the limitations imposed by the Party's Base Annual Production Right.

12 **29. "Storage and Recovery Agreement"** means an agreement between Watermaster and
13 a Party for Storage and Recovery of water by such Party. An acceptable pre-approved
14 Storage and Recovery Agreement between Watermaster and Pomona is listed on Exhibit "F."

15 **30. "Transfer"** means temporary or permanent assignment, sale, contract or lease of any
16 Party's Base Annual Production Right and its associated percentage of the Safe Yield, Carry-
17 Over Rights or rights to recover water stored under a Storage and Recover Agreement to any
18 other Party or a person that becomes a Party. A lease shall not be considered a "permanent
19 transfer" unless both the Lessee and Lessor jointly agree to such characterization.

20 **31. "Two Basins or Two Basins Area"** means the Live Oak and Ganesha Basins and
21 the areas overlying them, as shown on Exhibit "A" and further described in Exhibit "B."

22 **32. "Water Shortage Emergency"** means the substantial impairment, which cannot be
23 promptly mitigated, of the ability of the Parties to provide sufficient water for human
24 consumption, sanitation and fire protection because of: (a) a sudden occurrence such as
25 storm, flood, fire, unexpected equipment outage; or (b) an extended period of drought.

26 **33. "Watermaster"** means the committee with the powers and duties defined in Article
27 V of this Judgment.

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1 34. "Year" means a calendar year.

2 B. Exhibits. Each exhibit is expressly incorporated herein and made part of this
3 Judgment.

4 Exhibit A: Six Basin Map

5 Exhibit B: General Description of the Six Basins Area

6 Exhibit C: Memorandum of Agreement between Watermaster and PVPA

7 Exhibit D: Base Annual Production Rights of Parties

8 Exhibit E: Description of Replenishment Programs

9 Exhibit F: City of Pomona Storage and Recovery Agreement

10 Exhibit G: Initial Operating Plan

11 **II. FINDINGS AND HYDROLOGIC CONDITIONS**

12 A. Safe Yield. Prior to the imposition of this Physical Solution, the Safe Yield of the Six
13 Basins is historically found to be 19,300 acre feet per year.

14 B. Overdraft and Prescriptive Circumstances. For a period in excess of five
15 consecutive Years prior to the filing of the complaint herein, the Native Safe Yield and the Safe Yield
16 have been exceeded by the aggregate Production therefrom and the Six Basins have been in a
17 continuous state of Overdraft. The court finds that the Production constituting such Overdraft has
18 been open, notorious, continuous, adverse, hostile, and under claim of right. The court further finds
19 that the groundwater Production has exceeded the Native Safe Yield and the Safe Yield in each of
20 the last five years and thus all the required elements necessary to establish prescription have been
21 satisfied.

22 1. Adversity. The Native Safe Yield of the Six Basins Area has been continuously
23 exceeded for decades. It is only through the ongoing Replenishment undertaken by PVPA, Pomona
24 and La Verne coupled with the availability of and return flows from Imported Water that a further
25 decline in water levels has been averted. An unmanaged downward decline in water levels is known
26 to have severe adverse impacts on the rights of groundwater producers and groundwater quality, to
27 cause land subsidence and to cause increased pump-lifts. Moreover, the Court finds that presently
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1 estimated Safe Yield of 19,300 acre feet, with the full benefit of the Replenishment carried on by the
2 Parties has been exceeded and if Production is not managed pursuant to this Physical Solution, severe
3 adverse impacts will result.

4 **2. Continuity.** The Native Safe Yield has been continuously exceeded for at least two
5 decades. For each of the last five Years the Safe Yield has been exceeded. The Court finds that
6 cumulative total Production from the Six Basins Area for the Years 1993 through 1997 is as follows:

7	1993	21,020 acre feet
8	1994	20,313 acre feet
9	1995	22,959 acre feet
10	1996	23,584 acre feet
11	1997	21,902 acre feet

12 **3. Notice.** Each of the Parties with a Base Annual Production Right, or their agents, have
13 filed groundwater production reports with the State Department of Water Resources pursuant to
14 *Water Code Section 4999*. These reports are public records and are available for inspection by any
15 member of the public. SCWC is an investor-owned public utility subject to regulation by the
16 California Public Utilities Commission (PUC). Its records, reports and filings with the PUC regularly
17 include information regarding the wells used and groundwater produced from the Six Basins Area.
18 The PUC has held publicly noticed rate hearings which have been attended by the public and
19 representatives from Claremont. Pomona, La Verne and Upland are all public entities and their
20 groundwater production information are public records and open to public inspection upon reasonable
21 notice. PVPA has frequently published reports which indicate the nature of its Replenishment and
22 the volume of groundwater produced in the Six Basins Area. At least two settlement agreements
23 have been entered between certain Parties on matters related to the adverse impacts of increased
24 groundwater production. Both of these agreements were approved by a public entity and are public
25 records. Moreover, the negotiations leading up to the entry of this Judgment were open to all persons
26 claiming the right to produce groundwater by virtue of their owning overlying land or having
27 corporate boundaries overlying the Six Basins Area. Regular meetings concerning these negotiations
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1 have been held at the headquarters of TVMWD, a public agency, and were personally attended by
2 representatives from each of the Parties. These meetings have taken place at regular intervals for
3 more than twelve consecutive months and the contents of this Judgment and the status of groundwater
4 conditions in the Six Basins Area has remained readily available. Accordingly, the Court finds that
5 all persons claiming the right to produce had actual notice, constructive notice or could have easily
6 determined upon reasonable diligence that the Six Basins Area was in Overdraft and of each Party's
7 claim to groundwater. The circumstances of such Overdraft and water use are such that each of the
8 Parties either: (i) had actual knowledge of such circumstances; or (ii) should have discovered such
9 circumstances upon the exercise of reasonable diligence or (iii) received constructive notice of the
10 adverse nature of such aggregate production through the public record filings with the State of
11 California pursuant to *Water Code Section 4999* and through the various reports published by the
12 Parties.

13 **C. High Groundwater Levels.** There are cienegas and springs in the Four Basins Area
14 and there is a potential for groundwater to rise to the surface regardless of the replenishment,
15 replacement or storage operations of the Watermaster and carried out by the Parties. Periodically,
16 though not in the past twelve years, high groundwater levels have constituted an important causative
17 factor, in creating damage in the Four Basins Area.

18 **D. Water Quality Problems.** Some of the Six Basins have experienced problems of high
19 concentrations of nitrates and volatile organic compounds (VOC's) in groundwater. Potential sources
20 of the nitrate are historical agricultural practices and individual wastewater disposal systems, most
21 of which have been abandoned. The Two Basins Area and some of the Four Basins Area have been
22 adversely impacted by high concentrations of nitrates and VOC's and may also require remediation.

23 **III. DECLARATION OF RIGHTS AND RESPONSIBILITIES**

24 **A. General Provisions.**

25 **1. Surface Water Rights.** Pomona and San Antonio have prior and paramount pre-
26 1914 water rights, superior to the rights of any other party, to the surface water and supporting
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1 subsurface flows historically and presently diverted therefrom in San Antonio and Evey Canyon,
2 except as provided in Article VIB Section 9 and as referenced in Article IIIA Section 1d.

3 a. Historically, Pomona and San Antonio have diverted, and presently are
4 diverting, surface waters and supporting subsurface flows from San Antonio Canyon.

5 b. Historically, Pomona has diverted, and presently is diverting, surface water
6 and supporting subsurface flows from Evey Canyon.

7 c. Pomona and San Antonio are under no obligation to spread such waters.

8 d. Surface waters and supporting subsurface flows diverted in San Antonio and
9 Evey Canyons at existing diversion locations are excluded from (i) the operation of this Judgment
10 and (ii) the determination of Operating Safe Yield, except to the extent of the portion of such waters
11 which are spread by Pomona at its Pedley Treatment Plant, which portion is governed by the
12 provisions of Article VIB, Section 9.

13 e. The diversion and the use of surface waters and supporting subsurface flows
14 shall not be subject to this Judgment.

15 f. The above-referenced surface waters and supporting subsurface flows shall
16 not be subject to allocation among the Parties pursuant to this Judgment.

17 g. Surface waters and supporting subsurface flows may be used by Pomona and
18 San Antonio to satisfy Replacement Water obligations as provided in Article VIB, Section 5.

19 **2. Loss of Priorities.** By reason of the long continued overdraft in the Six Basins, and
20 in light of the complexity of determining appropriative priorities and the need for conserving and
21 making maximum beneficial use of the water resources of the State, each and all of the Parties listed
22 in Exhibit "D" are estopped and barred from asserting special priorities or preferences *inter se* to
23 groundwater except as expressly provided herein. All the Parties' rights to groundwater are
24 accordingly deemed and considered to be of equal priority unless otherwise expressly stated herein.

25 **3. Limitations on Export.** Other than the limitation on Pomona's use of 109 acre feet
26 as further described in Exhibit "D", any Party's share of the Operating Safe Yield, including
27 Carryover Rights and Transfers, may be produced and exported for use outside the Six Basins Area.

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1 However, groundwater stored and recovered pursuant to a Storage and Recovery Agreement may be
2 produced and exported only in accordance with the terms and conditions of the Storage and Recovery
3 Agreement.

4 **4. No Abandonment of Rights.** It is in the interest of reasonable beneficial use of the
5 Six Basins Area and its water supply, that no Party be encouraged to take and use more water in any
6 Year than is actually required. Failure to produce all of the water to which a Party is entitled
7 hereunder shall, in and of itself, not be deemed to be, or constitute an abandonment of such Party's
8 right, in whole or in part.

9 **5. Pre-Existing Rights.** This Judgment controls each Party's rights to the Production,
10 Replenishment, Storage and Recovery of groundwater and expressly supersedes other rights, claims
11 or defenses arising from agreement, operation of law, prior use or a prior judgment to the extent that
12 they are inconsistent with this Judgment. However, nothing in this Judgment shall alter or affect any
13 rights or remedies that any Party may have under any contract or agreement with any other Party on
14 matters which are not inconsistent with or are unrelated to the provisions of this Judgment or as
15 provided in Article IVC herein.

16 **6. Physical Solution.** This Judgment represents a total and complete Physical Solution
17 for the Six Basins Area and all basins included therein. Although prior hydrologic and physical
18 conditions limited the Safe Yield to 19,300 acre feet per year, through the coordinated and equitable
19 management of the Four Basins and Two Basins Areas provided under this Judgment, an Operating
20 Safe Yield, Operating Plan and Base Annual Production Rights shall be independently established
21 for the Four Basins Area. However, La Verne shall be entitled to produce groundwater from the Two
22 Basins Area in addition to its equitable share of the Four Basins Operating Safe Yield, as provided
23 in accordance with the terms of this Judgment.

24 **7. Portability Between the Two Basins and Four Basins Areas.** A Party's right to
25 produce, store or recover groundwater accruing under this Judgment in the Four Basins Area may not
26 be transferred, exchanged or exercised in the Two Basins Area. A Party's right to produce, store or
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1 recover groundwater accruing under this Judgment in the Two Basins Area may not be transferred,
2 exchanged or exercised in the Four Basins Area.

3 **B. Rights of the Parties to Produce Groundwater from the Four Basins.**

4 1. **Declaration of Rights.** The Parties listed in Exhibit "D" are the owners of
5 appropriative rights, including rights by prescription, and exercised and unexercised overlying rights
6 of equal priority, and each Party shall be entitled to produce groundwater under the Physical Solution
7 and to share in the Operating Safe Yield of the Four Basins according to the percentages set forth in
8 Exhibit "D" as Base Annual Production Rights in a manner consistent with the provisions of this
9 Judgment.

10 2. **Carryover Rights.** Any Party that produces less than its share of the Operating Safe
11 Yield in any Year shall have the right to carry the unproduced portion forward to be produced in the
12 following year subject to the following limitations: (a) the first water produced in any Year shall be
13 deemed to be an exercise of any Carryover Right; (b) a Party's Carryover Right cannot exceed 25
14 (twenty-five) per cent of such Party's share of the current Operating Safe Yield for the prior Year;
15 and (c) Carryover Rights may be lost in the event replenishment is discontinued or curtailed as
16 provided below in Article IIIB, Section 7.

17 3. **Transferability of Rights.** Subject to the limitations set forth in his Judgment, a Base
18 Annual Production Right and its associated percentage of the Operating Safe Yield, as well as any
19 Carryover Rights and water stored under a Storage and Recovery Agreement, may be transferred, in
20 whole or in part, among existing Parties or to any other person that becomes a Party on either a
21 temporary or permanent basis provided that no Party is substantially injured by the Transfer. Pro-
22 duction pursuant to any such Transfer shall be subject to the limitations on carryover and portability
23 set forth in Article IIIB, Section 4. Any such Transfer shall become effective upon being recorded
24 with Watermaster. Watermaster shall revise Exhibit "D" annually, to reflect any permanent
25 Transfers. The permanent Transfer of any Party's full Base Annual Production Right shall require
26 Watermaster approval. Upon Watermaster approval the permanent Transfer of a Party's full Base
27 Annual Production Right may require an adjustment in the Party representatives to the Watermaster
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1 and the number of votes of the Party's representatives as provided in Article V. Notwithstanding the
2 provision of this Article IIIB, Section 3, Pomona shall not be entitled to Transfer 109 acre feet of its
3 Base Annual Production Right and its associated percentage of Operating Safe Yield.

4 **4. Portability of Rights Among the Four Basins.** Any Party with a Base Annual
5 Production Right, shall have the right to produce its share of the Operating Safe Yield of the Four
6 Basins, including any Carryover Rights or Transfers, from any or all of the Four Basins, subject to
7 the following conditions.

8 **a. No Substantial Injury.** Any groundwater production from a "new" location
9 shall not cause substantial injury to another Party.

10 **b. Advance Written Notice to Watermaster.** Any Party that intends to
11 undertake any of the following actions shall provide thirty (30) days' advance written notice to the
12 Watermaster: (i) acquire, construct or operate a "new" groundwater production facility in any one
13 of the Four Basins in which it is then producing groundwater; (ii) change the point of extraction from
14 an existing groundwater production facility to a "new" groundwater production facility where the old
15 and the new groundwater production facilities are both within the Canyon or Upper Claremont
16 Heights or Lower Claremont Heights Basins; (iii) change the point of extraction from an existing
17 groundwater production facility on one side of the Indian Hill Fault to a "new" facility on the other
18 side of the Indian Hill Fault.

19 **c. Prior Watermaster Approval.** Any Party that changes the point of extraction
20 from an existing groundwater production facility on one side of the Indian Hill Fault to a "new"
21 facility located on the other side of the Indian Hill Fault and increases the cumulative rate of annual
22 extraction therefrom by more than 2,000 acre feet per year shall be required to obtain the prior written
23 approval of the Watermaster.

24 **d. New Facility Defined.** "New" as used in this Section 4 means either (i) an
25 increase or enlargement in the pre-existing design capacity of a groundwater production facility or
26 (ii) a movement in the location of a groundwater extraction facility by more than three hundred (300)
27 feet or from one legal parcel to another legal parcel.

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1 e. **Procedure for Resolution of Disputes.** The Watermaster shall make all
2 necessary determinations and resolve all disputes arising under this Article IIIB, Section 4 in
3 accordance with the provisions of Article VIII.

4 5. **Rights to Unused Groundwater Storage Capacity.** From time to time there may
5 exist in the Four Basins, unused storage capacity. Parties holding Base Annual Production Rights
6 pursuant to this Judgment and TVMWD for the sole purpose of storing Imported Water, shall have
7 the exclusive rights to use such storage capacity, and subject to the complete discretion of the
8 Watermaster, may sink, spread or inject water into the Four Basins Area pursuant to a Storage and
9 Recovery Agreement.

10 6. **Priorities for Use of Groundwater Storage Capacity.** In directing spreading and
11 controlling the use of groundwater storage capacity, the Watermaster shall give first priority to
12 Replenishment Water; second priority to Carryover Rights; third priority to Storage and Recovery
13 of water which is naturally tributary to the Six Basins Area; fourth priority to Storage and Recovery
14 of Imported Water, and fifth priority to Storage and Recovery of other water.

15 7. **Loss of Stored and Carryover Water.** After providing notice and opportunity to be
16 heard to any affected Party pursuant to Article IXA, if the Watermaster reasonably determines that
17 Replenishment had to be terminated or curtailed in any year, or that Replenishment Water was
18 rejected because of insufficient storage capacity, some or all of a Party's unproduced Carryover
19 Rights or Storage and Recovery rights may be deemed lost. The amount of water subject to loss shall
20 be equal to that quantity of Replenishment Water which was curtailed or rejected solely because of
21 insufficient storage capacity in the Four Basins.

22 The burden of a determination by Watermaster that rejected recharge has occurred and that
23 there shall be a loss of stored and Carryover water, shall be shared proportionately by each Party to
24 the extent the quantity of water held by each Party at the time of the loss bears to the total quantity
25 of water within each of the classification. Any losses shall be charged first to the storage of other
26 water, then to the storage of Imported Water, then to the storage of Native Water, then to Carryover
27 Water as expressly set forth below.

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- a. Highest priority shall be given to Replenishment Water.
- b. Second priority against loss shall be given to Carryover Water.
- c. Third priority against loss shall be given to storage of Native Water.
- d. Fourth priority against loss shall be given to storage of Imported Water.
- e. Fifth priority against loss shall be given to storage of other water.

8. **Consideration of Groundwater Levels.** Watermaster shall make every reasonable effort to establish water operations limits so that the spreading of Replenishment or Replacement water, groundwater storage pursuant to a Storage and Recovery Agreement, or the determination of Operating Safe Yield shall not cause high groundwater levels that result in material damage to overlying property (not including sand and gravel excavations or operations) or cause groundwater to surface above the undisturbed natural terrain.

C. **The Parties' Rights to Groundwater and Storage in the Two Basins.**

1. **Declaration of Rights.** In recognition of the remediation efforts that are likely to be necessary to maximize groundwater production from the Two Basins; because of the detected high nitrate concentrations and in recognition that La Verne is uniquely situated to remedy these water quality conditions and exploit future opportunities; because of the minimal hydrologic communication between the Four Basins and Two Basins, and in furtherance of a complete and total physical solution for the Six Basins Area, La Verne shall have the right to produce as much groundwater as it may reasonably withdraw from the Two Basins Area on an annual basis so long as it does not substantially injure the rights of any other Party.

2. **Storage and Recovery.** La Verne has the sole right to use available storage capacity in the Two Basins in its complete discretion for the Storage and Recovery of groundwater so long as it does not cause substantial injury to any other Party. La Verne shall not be required to obtain a Storage and Recovery Agreement from the Watermaster for Storage and Recovery programs carried out within the Two Basins Area provided that (i) such production or use of storage capacity shall not cause substantial injury to any other Party and (ii) La Verne provides 60 (sixty) days' advance written notice to Watermaster before initiating such a Storage and Recovery program.

1 **3. Transferability of Rights.** Subject to the limitations set forth in Article III A,
2 Section 7, La Verne's right to produce groundwater from the Two Basins Area may be transferred,
3 in whole or in part, among existing Parties or to any other person that becomes a Party, on either a
4 temporary or permanent basis provided that no Party is substantially injured by the Transfer. The
5 permanent Transfer of the right to produce groundwater from the Two Basins Area shall not be
6 effective until approved by Watermaster.

7 **D. Rights and Responsibilities of PVPA.**

8 **1. Spreading Operations.** PVPA and the other Parties have negotiated a Supplemental
9 Memorandum of Agreement, attached hereto as Exhibit "C". This Supplemental Memorandum of
10 Agreement and all modifications or amendments thereto shall include a provision for Watermaster's
11 indemnity of PVPA for all Replenishment activities undertaken by PVPA at the direction of the
12 Watermaster. Within sixty (60) days of entry of this Judgment, Watermaster and PVPA shall execute
13 the Agreement. Upon execution, the Agreement shall become part of the Physical Solution. PVPA
14 shall not be required to execute a Storage and Recovery Agreement with Watermaster for its
15 Replenishment activities carried out under the direction of the Watermaster. The Spreading
16 operations conducted by PVPA may result in incidental Replenishment to the Two Basins Area and
17 none of the Parties have a right to object thereto. This Replenishment is authorized under the
18 Judgment.

19 **2. Waiver of Claims Against PVPA.** The Parties expressly waive any and all claims
20 against PVPA arising from facts, conditions or occurrences in existence before the Effective Date and
21 arising from PVPA's spreading operations including but not limited to water quality degradation,
22 subsurface infiltration, high groundwater or groundwater Overdraft within the Six Basins Area.

23 **E. Non-parties.**

24 **1. Minimal Producers.** Minimal producers are not bound or affected by this Judgment.
25 No person may produce twenty-five acre feet or more in any Year without becoming a Party.
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1 2. Parties' Rights Versus Non-parties Reserved. The Parties expressly reserve all
2 rights, without limitation, concerning any and all claims raised by persons not a Party to this
3 Judgment as provided in Article IV C Section 1.

4 **IV. REMEDIES**

5 A. Injunctions.

6 1. Injunction Against Unauthorized Production. Each and every Party, its officers,
7 agents, employees, successors and assigns is enjoined and restrained from producing water from the
8 Six Basins except as authorized herein.

9 2. Injunction Against Unauthorized Storage. Each and every Party, its officers,
10 agents, employees, successors and assigns is enjoined and restrained from storing water in the Six
11 Basin Area except as authorized herein.

12 3. Injunction Against Unauthorized Replenishment. Each and every Party, its
13 officers, agents, employees, successors and assigns is enjoined and restrained from replenishing water
14 in the Six Basin Area except as authorized herein.

15 B. Continuing Jurisdiction

16 1. Jurisdiction Reserved. Full jurisdiction, power and authority are retained by and
17 reserved to the Court upon the application of any Party, by a motion noticed in accordance with the
18 review procedures of Article XIA, Section 6 hereof, to make such further or supplemental order or
19 directions as may be necessary or appropriate for interpretation, enforcement or implementation of
20 this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to
21 the provisions thereof consistent with the rights herein decreed; provided that nothing in this
22 paragraph shall authorize a reduction of the Base Annual Production Right of any Party except
23 pursuant to a Transfer.

24 2. Intervention After Judgment. Any Non-party who proposes to produce
25 Groundwater from the Six Basins Area in an amount equal to or greater than 25 acre feet per Year,
26 may seek to become a Party to this Judgment through (a) a stipulation for intervention entered into
27 with Watermaster or (b) any Party or Watermaster filing a complaint against the Non-party requesting
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1 that the Non-party be joined in and bound by this Judgment. Watermaster may execute said Stipu-
2 lation on behalf of the other Parties herein, but such stipulation shall not preclude a Party from
3 opposing such intervention at the time of the Court hearing thereon. A stipulation for intervention
4 must thereupon be filed with the Court, which will consider an order confirming said intervention
5 following thirty (30) days' notice to the Parties. Thereafter, if approved by the Court, such intervenor
6 shall be a Party bound by this Judgment and entitled to the rights and privileges accorded under the
7 Physical Solution herein, including a Base Annual Production Right in an amount equal to its average
8 annual production in the twelve-year period beginning on January 1, of 1985 and ending on
9 December 31, 1996, or any Base Annual Production Right it may obtain by a transfer.

10 C. Reservation of Other Remedies.

11 1. Claims By and Against Non-parties. Nothing in this Judgment shall expand or
12 restrict the rights, remedies or defenses available to any Party in raising or defending against claims
13 made by any Non-party. Any Party shall have the right to initiate an action against any Non-party
14 to enforce or compel compliance with the provisions of this Judgment.

15 2. Claims Between Parties on Matters Unrelated to the Judgment. Nothing in this
16 Judgment shall either expand or restrict the rights or remedies of the Parties concerning subject
17 matter which is unrelated to the quantity and quality of groundwater allocated and equitably managed
18 pursuant to this Judgment other than as provided in Article IIIA, Section 1.

19 3. Groundwater Levels. Except as expressly provided herein, nothing in this Judgment
20 shall either expand or restrict the rights or remedies at law that any Party may have against any other
21 Party for money damages to real or personal property resulting from high groundwater or defenses
22 thereto for events or occurrences after the Effective Date.

23 V. WATERMASTER

24 A. Composition, Voting and Compensation. The Watermaster shall be a committee
25 composed of one representative of each of the following Parties, and each representative shall have
26 the authority to cast the indicated number of votes on any question before the committee:

27 City of La Verne 5 votes

1	City of Pomona	5 votes
2	City of Upland	5 votes
3	Southern California Water Company	5 votes
4	City of Claremont	2 votes
5	TVMWD	2 votes
6	PVPA	2 votes
7	Simpson Paper	1 vote
8	Pomona College	1 vote
9	San Antonio	1 vote

10 Committee representatives having the combined authority to cast twenty votes shall constitute a
 11 quorum for the transaction of affairs of Watermaster and seventeen affirmative votes shall be required
 12 to constitute action by Watermaster. Representatives shall be compensated for their services by their
 13 respective appointing authorities. Representatives may be reimbursed by Watermaster for out of
 14 pocket expenses incurred on authorized Watermaster business.

15 **B. Nomination and Appointment Process.** Each of the Parties named in Article VA,
 16 above, shall within thirty (30) days of entry of this Judgment submit to the Court its nominees for its
 17 representative member of the Watermaster Committee and one alternate and the Court shall in the
 18 ordinary course confirm the same by an appropriate order of appointment. Once appointed
 19 representatives and their alternates shall normally serve until a replacement is designated by the Party
 20 or until removed by the Court. If a representative or alternate is no longer willing or able to serve
 21 for any reason the Party represented by such member or alternate shall promptly submit a
 22 replacement for the member or their alternate. There shall be no need for replacement representative
 23 members or alternates to be approved by the Court. In its annual report to the Court, Watermaster
 24 shall update the list of its representative members and alternates.

25 **C. Succession.** For the purpose of determining whether a permanent Transfer of a Base
 26 Annual Production Right shall affect whether a Party shall have a Representative on the Watermaster
 27 Committee and the number of votes held by the representative, the following guidelines shall apply:
 28

1 1. Partial Succession. The permanent Transfer of less than any Party's full Base
2 Annual Production Right shall be considered a "partial" succession. A partial succession shall not
3 create any new or additional voting rights in the successor Party or require any modifications to the
4 rules and procedures under this Article V. The full Base Annual Production Right of any Party shall
5 be equal to the entire quantity of the Base Annual Production Right for that Party set forth in Exhibit
6 D on the Effective Date.

7 2. Non-Party Successor. A permanent Transfer of the full Base Annual
8 Production Right of any Party to a Non-Party shall automatically include the authority to cast the
9 number of votes held by the Party. In addition, the Non-Party shall succeed to all other rights and
10 responsibilities of their predecessor Party under this Judgment.

11 3. Party Successor. A permanent Transfer of the full Base Annual Production
12 Right between Parties shall automatically include the authority to cast a number of votes equal to the
13 greater of: (a) the number of votes indicated for the acquiring Party on the Effective Date or (b) the
14 number of votes indicated for the Party whose Base Annual Production Right has been acquired at
15 the time the Transfer is approved by the Watermaster. The number of votes equal to the lesser of 3(a)
16 or 3(b) shall be extinguished. The acquisition of one Party's full Base Annual Production Right by
17 another Party shall not cause a change in the number of votes required to constitute a quorum or to
18 take an action under this Article. However, in the event more than two votes are eliminated, any
19 Party or the Watermaster upon its own motion, may petition the Court to revise the required number
20 of votes to constitute a quorum or to take action under this Judgment.

21 D. Powers and Duties. Subject to the continuing supervision and control of the Court
22 and the limitations set forth in this Judgment, Watermaster shall have and may exercise the following
23 express powers, and shall perform the following duties, together with any specific powers, authority
24 and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the
25 Court in the exercise of its continuing jurisdiction:

- 26 1. Developing, Maintaining and Implementing the Operating Plan.
- 27 2. Adopting Rules, Regulations, Procedures, Criteria and Time Schedules.

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- 1 3. Acquiring or Investing in Facilities or Facility Improvements.
- 2 4. Acquiring or Investing in Monitoring Facilities.
- 3 5. Inspecting and Testing Measuring Devices.
- 4 6. Levying Assessments
- 5 7. Requiring the Acquisition of and Recharge of Replacement Water.
- 6 8. Contracting for Necessary Services. (Including the execution of agreements regarding
- 7 spreading and groundwater modeling.)
- 8 9. Employing Agents, Experts and Legal Counsel provided that Watermaster shall not
- 9 contract with or otherwise engage a Party with a Base Annual Production Right to
- 10 perform directly or indirectly, administrative services. However, this limitation shall
- 11 not apply to spreading services under Exhibit C, and meter reading.
- 12 10. Adopting an annual budget for monitoring and reporting legal and administrative
- 13 costs.
- 14 11. Managing Watermaster Funds.
- 15 12. Cooperating with Federal, State and Local Agencies.
- 16 13. Entering and Administering Storage and Recovery Agreements.
- 17 14. Maintaining a Notice List.
- 18 15. Reporting Annually to the Court.
- 19 16. Engaging in Dispute Resolution.
- 20 17. Prosecuting litigation against Non-parties in furtherance of the Judgment.
- 21 18. Limiting groundwater production to Operating Safe Yield during a Water Shortage
- 22 Emergency.

23 **E. Organization and Meetings.** At its first meeting in each Year Watermaster shall elect
24 a chair, vice chair, secretary and treasurer and such other officers as may be appropriate. Watermaster
25 shall hold regular meetings at places and times specified in its rules and regulations, and may hold
26 such special meetings as may be required. Watermaster shall provide notices of all regular and special
27 meetings to all parties and any person requesting notice in writing. Any meeting may be adjourned
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1 to a time and place specified in the order of adjournment. Meetings shall be conducted to the extent
2 practicable in accordance with the provisions of the California Open Meetings Law ("Brown Act")
3 *California Government Code Section 54950*, et seq as it may be amended from time to time.

4 F. **Limits on Assessments.** Watermaster shall not have the authority to levy assessments
5 beyond those specifically described herein.

6 **VI. PHYSICAL SOLUTION FOR THE SIX BASINS AREA**

7 A. **General Purposes and Objectives.**

8 1. **Physical Solution is Consistent With the Public Interest.** The Physical Solution
9 is consistent with each Party's full enjoyment and the reasonable exercise of its respective water
10 rights will not materially injure the interests of any Parties and will promote coordinated groundwater
11 management with due regard for the environment and it is therefore consistent with the public interest
12 and the reasonable and beneficial use of water.

13 2. **Balance of Equities.** This Physical Solution constitutes a legal and practical means
14 for balancing the needs of the Parties for a reliable water supply, providing an appropriate incentive
15 for remediation of poor water quality conditions, managing the available groundwater storage
16 capacity to protect against loss of available groundwater and against damage from high groundwater
17 levels with due regard for the environment .

18 3. **Flexibility.** It is essential that this Physical Solution provides maximum flexibility
19 so that the Watermaster and the Court may be free to adapt and accommodate future changed
20 conditions or new institutional or technological considerations. To that end the Court's retained
21 jurisdiction may be utilized to augment or adjust the Physical Solution without adjustment to a Party's
22 Base Annual Production Right.

23 B. **Guidelines for Operation of Four Basins Area.**

24 All production, replenishment, replacement, and Storage and Recovery of water in the Four
25 Basins Area must be conducted pursuant to the Operating Plan adopted by Watermaster in accordance
26 with the principles and procedures contained in this Judgment. The following general pattern of
27 operations is contemplated:
28

1 1. Replenishment. Groundwater will be replenished pursuant to Exhibit "E" or under
2 any other replenishment program or activity to the extent water which is naturally tributary to the Six
3 Basin Area, is available for that purpose and can safely be spread.

4 2. Storage and Recovery. Other Native Water, imported water or other water may be
5 stored and recovered pursuant to Storage and Recovery Agreements.

6 3. Operating Safe Yield. Watermaster will annually, not later than September 15,
7 establish the Operating Safe Yield for the Four Basins for the following Year, taking into
8 consideration the amount of water in storage and the need to control water table elevations.
9 Watermaster shall review the condition of the Four Basins at least quarterly during the Year and may
10 make any appropriate adjustments of the Operating Safe Yield.

11 4. Production. In any Year, each Party will be free to produce its share of the Operating
12 Safe Yield, including any Carryover Rights or Transfers, plus any water authorized to be recovered
13 pursuant to a Storage and Recovery Agreement. Except upon Transfer, no change shall be made to
14 any Party's Base Annual Production Rights.

15 5. Replacement Water. Notwithstanding any limitation contained in this Judgment, a
16 Party may produce and export water from the Four Basins in excess of its Base Annual Production
17 Right and its share of the Operating Safe Yield, plus unused Carryover rights and recoverable
18 groundwater pursuant to an approved Storage and Recovery Agreement, subject to the requirement
19 to provide Replacement Water in the manner set forth herein.

20 a. **Obligation to Provide Replacement Water.** To the extent a Party's
21 production in the Four Basins or in any basin exceeds that Party's share of the Operating Safe Yield,
22 plus unused Carryover rights and recoverable groundwater pursuant to an approved Storage and
23 Recovery Agreement, the Party shall arrange for delivery of Replacement Water in an amount equal
24 to the Party's excess production by any of the following: (i) acquiring Replacement Water directly
25 from TVMWD except Upland which may also acquire Replacement Water from the Inland Empire
26 Utilities Agency ("the Empire"); (ii) arranging for delivery of a Native water supply other than
27 Replenishment Water; or (iii) paying a Replacement Water Assessment to Watermaster for the
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1 purpose of acquiring Replacement Water directly from TVMWD except as to Upland for which
2 Watermaster may acquire replacement water from the Empire.

3 **b. In Lieu Procedures.** Replacement Water may be supplied through In-Lieu
4 Procedures, spreading or other method at a place, time and manner, acceptable to Watermaster, for
5 a price and upon terms to be determined by TVMWD except as to Upland for which the price and
6 terms may be determined by the Empire.

7 **c. Replacement Water Assessment.** Watermaster will use Replacement Water
8 Assessment proceeds to acquire Replacement Water from TVMWD, or as to Upland, the Empire.

9 **6. Development, Maintenance and Implementation of the Operating Plan.** Water-
10 master is directed to maintain and implement the Operating Plan such that Production, Replenishment
11 and Storage and Recovery of water are consistent with and implement the purpose and objectives of
12 the Physical Solution herein. The Operating Plan shall include rules, regulations, procedures, criteria
13 and time schedules, as appropriate, for at least the following elements:

- 14 a. Establishing and adjusting the Operating Safe Yield.
- 15 b. Replenishment.
- 16 c. Execution of supplemental agreements with PVPA regarding spreading
17 grounds and the funding thereof.
- 18 d. Acquisition and delivery of Replacement Water.
- 19 e. Standard terms and conditions of Storage Agreements.
- 20 f. Replenishment, replacement and storage limits needed to protect against high
21 groundwater levels.
- 22 g. Remediation of water quality problems.
- 23 h. Monitoring systems and protocols, including such for groundwater levels.
- 24 i. Monitoring, reporting and verification programs.
- 25 j. Transfers.
- 26 k. Annual budgets.
- 27 l. Financial management.

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1 m. Reporting to the Court.

2 n. Levying Assessments.

3 7. **Initial Operating Plan.** Within six months of the effective date of this Judgment
4 Watermaster shall submit to the Court for approval an initial Operating Plan. An outline of the Initial
5 Operating Plan is attached as Exhibit "G."

6 8. **Annual Review of the Operating Plan.** Watermaster shall review the Operating Plan
7 at least annually and, subsequent to each such review, submit to the Court for its approval any
8 proposed amendments or revisions.

9 9. **Replenishment.** PVPA and Pomona historically augmented the Native Safe Yield
10 within the Four Basins Area through replenishment programs or activities. For many years these
11 replenishment programs or activities have resulted in the spreading and percolation of native waters
12 originating in the San Antonio Canyon and Evey Canyon. To the extent such waters have been
13 historically spread, they comprise a portion of the Safe Yield and Operating Safe Yield subject to
14 management under this Physical Solution.

15 a. All Replenishment shall be at the direction of the Watermaster.

16 b. At the direction and sole discretion of the Watermaster PVPA shall, pursuant
17 to the Memorandum of Agreement set forth in Exhibit "C" or any subsequent
18 amendments thereto, continue to spread such native waters as it receives.

19 c. Unless it is acting for the benefit of another Party pursuant to a Storage and
20 Recovery Agreement approved by the Watermaster, except for Replacement Water,
21 all water PVPA spreads, sinks or injects shall be considered Replenishment and shall
22 comprise a portion of the Operating Safe Yield.

23 d. Although Pomona has no continuing obligation to spread or replenish, all
24 waters spread in excess of its "historical replenishment" shall not be considered
25 Replenishment and a part of the Operating Safe Yield of the Four Basins Area. The
26 "historical replenishment" of Pomona shall be equal to a twelve (12) year annual
27 average for the twelve (12) years immediately preceding the filing of the complaint
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1 (1985-1996), which is determined to be one-hundred and thirty) acre feet. All water
2 Pomona spreads, sinks or injects, or causes to be spread, sunk or injected (collectively
3 augmentation) in excess of the historical replenishment shall not be considered a
4 portion of the Operating Safe Yield, and shall not be allocated among the Parties
5 pursuant to their Base Annual Production Rights. Pomona shall be entitled to produce
6 such excess quantity in addition to its Base Annual Production Right under a pre-
7 approved Storage and Recovery Agreement as provided in Article VIA, Section 10
8 in a form substantially similar to Exhibit F hereto, which is ordered to be executed by
9 Watermaster and Pomona within sixty (60) days from the Effective Date.
10 Measurement of Pomona's rights to recover water under any Storage and Recovery
11 Agreement shall be administered as follows:

- 12 i. Pomona shall be entitled to recover the amount by which its
13 augmentation of water over the twelve (12) year period ending with
14 the current year exceeds 1,560 acre feet.
- 15 ii. If less than twelve (12) years have elapsed since the effective date of
16 this Judgment, Pomona shall have the right to recover the amount by
17 which the total number of acre feet of groundwater augmented by
18 Pomona exceeds one hundred thirty (130) acre feet times the number
19 of years elapsed.
- 20 iii. The amount in excess of Pomona's historical replenishment may be
21 recovered by Pomona as provided in the Storage and Recovery
22 Agreement.

23 **10. Storage and Recovery Pursuant to Storage and Recovery Agreements.**

24 Watermaster may enter a Storage and Recovery Agreement with any Party holding a Base Annual
25 Production Right or TVMWD so long as the Storage and Recovery of groundwater will not cause an
26 unreasonably high groundwater table and physical damage. A Storage and Recovery Agreement
27 shall contain uniform terms and conditions as set forth in the Operating Plan and may also contain
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1 special terms and conditions as deemed appropriate by Watermaster. Water that may be stored
2 pursuant to a Storage Agreement includes any water other than Replenishment Water including
3 augmentation in excess of historical replenishment as expressly set forth under Article VIB, Section
4 9.

5 **11. Special Projects.** Any Party may propose for Watermaster approval, special projects
6 including projects for controlling water levels or for remediation of water quality problems. Any such
7 proposal shall be accompanied by an analysis that identifies the benefits of the project as well as any
8 potential adverse impacts on any Party and any proposed mitigation measures. After notice to all
9 Parties, if any Party files a written objection to the proposed project, Watermaster shall hold a hearing
10 to determine whether the objections to the proposed project can be resolved. If there are no
11 objections or if objections are resolved to the satisfaction of the Parties or if Watermaster determines
12 that the objections are without merit, then Watermaster shall approve the proposed project.
13 Groundwater produced under authorization as a Special Project shall not be eligible for the accrual
14 of Carryover Rights unless authorized by Watermaster.

15 **12. Temporary Surplus Groundwater.** From time to time it may be in the best interest
16 of the Parties, for the control of high groundwater, water quality remediation or other reasons, to
17 produce groundwater over and above the then declared Operating Safe Yield. Therefore, from time
18 to time, the Watermaster may declare a Temporary Surplus of groundwater to be available for
19 production. The Parties' rights to the Temporary Surplus shall be in the same percentages as the Base
20 Annual Production Right bears to the Operating Safe Yield. A Party's rights to temporary surplus
21 shall not be eligible for the accrual of Carryover Rights set forth in Article IIIB, Section 2.

22 **C. Guidelines for Operation of the Two Basins Area.** All Production, Replenishment
23 and Storage and Recovery rights for groundwater in the Two Basins Area are reserved to La Verne.
24 However, La Verne's Production, Replenishment and Storage and Recovery of groundwater must not
25 substantially injure other Parties.

26 **1. Replenishment.** La Verne shall have sole and complete discretion in the operation
27 of Replenishment programs in the Two Basins Area provided that no other Party is substantially
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1 injured by the program. La Verne shall provide written notice to Watermaster sixty (60) days in
2 advance of any Replenishment program being undertaken.

3 **2. Storage and Recovery.** La Verne shall have sole and complete discretion in the
4 operation of a Storage and Recovery program in the Two Basins Area provided that no other Party
5 is substantially injured by the program. La Verne shall provide written notice to Watermaster sixty
6 (60) days in advance of any Storage and Recovery program being undertaken. La Verne shall
7 annually report the quantity of groundwater stored pursuant to a Storage and Recovery Program in
8 the Two Basins Area.

9 **3. Production.** La Verne shall have sole and complete discretion to produce
10 groundwater from the Two Basins Area provided that no other Party is substantially injured by such
11 production. La Verne shall report its groundwater production to the Watermaster on a monthly basis.

12 **VII. ASSESSMENTS**

13 **A. Ground Rules**

14 **1. Authorization.** Subject to the continuing supervision of the Court and the limitations
15 set forth in the Judgment, Watermaster is authorized to levy assessments to fund Replacement Water
16 acquisition costs, administrative costs and other costs determined by Watermaster to be necessary for
17 the implementation of the physical solution.

18 **2. Assessment Spread.** Excluding Replacement Water Assessments, all assessments
19 levied by the Watermaster shall be spread such that Claremont, Pomona College and TVMWD
20 (collectively, the "Minor Parties") shall each individually be assessed three and one half (3.5) percent
21 of the total assessment , and eighty-nine and one half (89.5) percent of the total assessment is spread
22 among La Verne, Pomona, Upland, San Antonio, West End, ~~Simpson~~ and SCWC (collectively, the
23 "Major Parties") in proportion to their then-current holdings of Base Annual Production Rights,
24 provided that for assessments other than for Replacement Water or administration (a) the total amount
25 spread among Minor Parties shall not exceed sixty-thousand \$60,000, escalated, in any year without
26 their unanimous consent and (b) the total amount spread among the Major Parties in any year shall
27 not exceed ten dollars (\$10.00), escalated, per acre foot of their Base Annual Production Rights
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1 without their unanimous consent. "Escalated" shall mean an annual adjustment in the specified dollar
2 value based upon the Consumer Price Index for Southern California in the immediately preceding
3 Year. No escalation adjustment shall be made until the Judgment has been in effect for twelve
4 consecutive calendar months. PVPA shall not have any obligation to pay any assessments.

5 **3. Administrative Assessment.** Watermaster is authorized to levy an annual assessment
6 that is sufficient to fund the costs of administering the Judgment. The administrative assessment shall
7 not exceed the cost of Watermaster's administrative budget and shall be due and payable according
8 to a schedule established by Watermaster. The administrative assessment for the first Year following
9 entry of Judgment shall be \$8.00^{per AF} and shall be due and payable on January 15, 1999. Late payment
10 shall bear an interest penalty to be established annually by Watermaster. (*escalated?*)

11 **4. Replacement Water Assessments.** To the extent Watermaster must acquire and
12 recharge the groundwater with Replacement Water pursuant to the terms of this Judgment, in order
13 to fund the costs thereof, Watermaster is authorized to levy Replacement Water Assessments.
14 Replacement Water Assessments levied against any Party shall be sufficient to pay the costs to
15 replace such Party's production in excess of the sum of such Party's share of the Operating Safe Yield,
16 any Carryover Right or Transfers and any storage recovery, Production of Temporary Surplus or
17 pursuant to Special Project authorization, during the prior Year, minus any Replacement Water
18 provided to Watermaster by the Party. Any Replacement Water Assessment shall be paid within
19 sixty (60) days from the date of the written invoice from Watermaster.

20 **VIII. DISPUTE RESOLUTION**

21 **A. Entity for Resolution of Dispute.** All disputes arising under this Judgment initially
22 shall be submitted to Watermaster for resolution in accordance with the provisions of this Article.

23 **B. Determination Regarding Substantial Injury.** Any Party having a right to be
24 protected against "substantial injury" caused by any other Party; the right to proceed so long as not
25 causing substantial injury to another party; or any other claim, right or remedy against any other
26 Party arising under the provisions of this Judgment may file a written request with the Watermaster
27 to hold a hearing.

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1 **C. Notice and Hearing.** Upon receipt of the written request, Watermaster shall provide
2 written notice to each Party which generally describes the nature of the dispute. Thereafter,
3 Watermaster shall cause an item to be placed on the agenda for the next regularly scheduled meeting
4 of the Watermaster or if requested by the moving Party, call a special meeting for the purpose of
5 providing a full hearing of the dispute and providing the interested Parties with notice and
6 opportunity to be heard. No later than 30 days following the conclusion of the hearing(s)
7 Watermaster shall issue a written decision which is dispositive of the dispute and which is supported
8 by written findings. Any Party may seek review of an adverse decision of the Watermaster in
9 accordance with the provisions of Article IX.

10 **IX. ADDITIONAL PROVISIONS**

11 **A. Procedure**

12 **1. Designation of Address for Notice and Service.** Each Party shall designate the name
13 and address to be used for purposes of all subsequent notices and service herein, either by its
14 endorsement on the Stipulation for Judgment or by a separate designation to be filed within thirty
15 (30) days after Judgment has been entered. Said designation may be changed from time to time by
16 filing a written notice of such change with Watermaster. Any Party desiring to be relieved of
17 receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by
18 Watermaster. Watermaster shall maintain at all times a current list of Parties to whom notices are
19 to be sent and their address for purposes of service. Watermaster shall also maintain a full current
20 list of names and addresses of all Parties or their successors, as filed herein. Copies of such lists shall
21 be available to any person. If no designation is made, a Party's designee shall be deemed to be, in
22 order of priority: (i) the Party's attorney of record; (ii) if the Party does not have an attorney of
23 record, the Party itself at the address on the Watermaster list.

24 **2. Service of Documents.** Delivery to or service upon any Party by Watermaster, by any
25 other Party, or by the Court, of any document required to be served upon or delivered to a Party under
26 or pursuant to this Judgment shall be deemed made if made by deposit thereof (or by copy thereof)

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1 in the mail, first class postage prepaid, addressed to the designee of the Party and at the address
2 shown in the latest designation filed by that Party.

3 **3. Recordation of Notice.** Within sixty (60) days following entry of this Judgment,
4 Watermaster shall record in the office of the County Recorder of the Los Angeles and San Bernardino
5 Counties a notice substantially complying with the notice content requirements set forth in *Section*
6 *2529 of the California Water Code* as it exists on the Effective Date.

7 **4. Judgment Binding on Successors.** Subject to specific provisions hereinbefore
8 contained, this Judgment and all provisions thereof are applicable to and binding upon and inure to
9 the benefit of not only the Parties to this action, but also to their respective heirs, executors,
10 administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in
11 fact of any such Persons.

12 **5. Costs.** No Party stipulating to this Judgment shall recover any costs or attorneys fees
13 in this proceeding from another stipulating Party. In any future proceedings, the costs of notice or
14 service, shall be levied in accordance with the provisions of Article XIA, Section 6.

15 **6. Review Procedures.** Any action, decision, rule or procedure of Watermaster pursuant
16 to this Judgment shall be subject to review by the Court on its own motion or on timely motion by
17 any Party, as follows:

18 **a. Effective Date of Watermaster Action.** Any order, decision or action of
19 Watermaster pursuant to this Judgment on noticed specific agenda items shall be deemed to have
20 occurred on the date of the order, decision or action.

21 **b. Notice of Motion.** Any Party may, by a regularly noticed motion, petition the
22 Court for review of Watermaster's action or decision pursuant to this Judgment. The motion shall
23 be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to
24 Watermaster together with the service fee established by Watermaster sufficient to cover the cost to
25 photocopy and mail the motion to each Party. Watermaster shall prepare copies and mail a copy of
26 the motion to each Party or its designee according to the official service list which shall be
27 maintained by Watermaster according to Article XIA, Section 1, a Party's obligation to serve notice
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1 of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless
2 ordered by the Court, any such petition shall not operate to stay the effect of any Watermaster action
3 or decision which is challenged.

4 c. Time for Motion. A motion to review any Watermaster action or decision
5 shall be filed within ninety (90) days after such Watermaster action or decision, except that motions
6 to review Watermaster Assessments hereunder shall be filed within thirty (30) days of mailing of
7 notice of the Assessment.

8 d. De Novo Nature of Proceeding. Upon filing of a petition to review
9 Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take
10 evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or
11 action shall have no evidentiary weight in such proceeding.

12 e. Payment of Assessments. Payment of Assessments levied by Watermaster
13 hereunder shall be made when due, notwithstanding any motion for review of Watermaster action,
14 decision, rules or procedures, including review of Watermaster Assessments.

15
16 B. Entry of Judgment. The Clerk shall enter this Judgment.

17
18 Dated: DEC 18 1998 1998.

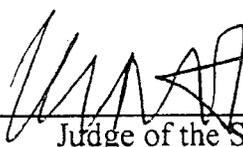
19 
20 _____
21 Judge of the Superior Court
22 **WILLIAM J. McVITTIE**
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EXHIBIT B

DESCRIPTION OF SIX BASINS AREA

The Six Basins Area lies between the San Jose Hills on the south, the Chino Basin on the east, the San Gabriel Mountains on the north and the Main San Gabriel Basin on the west. The boundaries of the Main San Gabriel Basin are set forth in the Judgment in the case of the *Upper San Gabriel Valley Municipal Water District vs. City of Alhambra, et al.*, Superior Court of the State of California, Los Angeles County, Case No. 924128, and the boundaries of the Chino Basin are set forth in the Judgment in the case of *Chino Basin Municipal Water District vs. City of Chino, et al.*, Superior Court for the State of California, San Bernardino County, Case No. 164327. The Area consists of six interconnected groundwater basins. Each basin consists of all alluvium or other water-bearing formations lying beneath the surface of the basin. The approximate boundaries of the surface of each basin are shown on EXHIBIT A and are described generally as follows:

Canyon Basin. The surface of the Canyon Basin is bounded on the south and east by the surface trace of the Sierra Madre/Cucamonga Fault and on the north and west by the surface trace of the bedrock/alluvium interface between (a) the point of intersection in Township 1 North, Range 8 West, Section 31, SBB&M, of the Sierra Madre/Cucamonga Fault with easterly boundary of the Main San Gabriel Basin and (b) the point of intersection in Township 1 North, Range 8 West, Section 20, SBB&M, of the Sierra Madre/Cucamonga Fault with the San Gabriel Mountains. The northernmost extent of the bedrock/alluvium interface is assumed to be at the southern boundary of Township 1 North, Range 8 West, Section 13, SBB&M in San Antonio Canyon.

Upper Claremont Heights Basin. The surface of the Upper Claremont Heights Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the westerly boundary of the Chino Basin, on the north by the surface trace of the Sierra Madre/Cucamonga Fault and on the west by the surface trace of the Claremont Heights Barrier.

Lower Claremont Heights Basin. The surface of the Lower Claremont Heights Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the surface trace of the Claremont Heights Barrier, on the north by the surface trace of the Sierra Madre/Cucamonga Fault on the west by the surface trace of the Thompson Wash Barrier.

Live Oak Basin. The surface of the Live Oak Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the surface trace of the Thompson Wash Barrier, on the north by the surface trace of the Sierra Madre/Cucamonga Fault and on the west by the easterly boundary of the Main San Gabriel Basin.

Ganesha Basin. The surface of the Ganesha Basin is bounded on the south and east by the surface of the San Antonio Fault, on the north surface trace of the Indian Hill Fault, and on the west by easterly boundary of the Main San Gabriel Basin and by the surface trace of the bedrock/alluvium interface between (a) the point of intersection in Township 1 South, Range 9 West, Section 11, SBB&M, of the easterly boundary of the Main San Gabriel Basin with the San Jose Hills and (b)

the point of intersection in Township 1 South, Range 9 West, Section 14, SBB&M, of the surface trace of the San Antonio Fault with the San Jose Hills.

Pomona Basin. The surface of the Pomona Basin is bounded on the south by the surface trace of the bedrock/alluvium boundary between (a) the intersection in Township 1 South, Range 9 West, Section 14, SBB&M, of the surface trace of the San Antonio Fault with the San Jose Hills and (b) the intersection in Township 1 South, Range 8 West, Section 19, SBB&M, of the boundary of the Chino Basin, on the north by the surface trace of the Indian Hill Fault on the west by the surface of the San Antonio Fault.

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MEMORANDUM OF AGREEMENT
BETWEEN THE POMONA VALLEY PROTECTIVE ASSOCIATION
AND WATERMASTER OF THE SIX BASINS RELATING TO
WATER SPREADING AND RELATED ACTIVITIES

THE AGREEMENT, made, entered into, and executed as of this ____ day of _____, 1999, by and between the Pomona Valley Protective Association ("PVPA"), and Watermaster of the Six Basins ("Watermaster"), relating to water spreading and related activities in connection with the Canyon Basin, the Upper Claremont Height Basin, the Lower Claremont Heights Basin, the Live Oak Basin, the Ganesha Basin and the Pomona Basin (collectively, the "Six Basins").

RECITALS

WHEREAS, the rights to groundwater in connection with the Six Basins were adjudicated by the court in an action entitled "*Southern California Water Company v. City of La Verne, et al.*," Case No. KC029152 in the Superior Court of the State of California, County of Los Angeles, (the "Judgment"); and

WHEREAS, the Judgment requires the Watermaster to determine annually an Operating Safe Yield of the Six Basins and to develop an Operating Plan, which will include the monitoring and direction of all production, replenishment, replacement and storage of groundwater in the Six Basins; and

WHEREAS, PVPA, a California corporation, formed in 1910 by various water interests in Pomona Valley, engages in water conservation activities for the benefit of its shareholders, which include the City of Upland, Southern California Water Company, the City of Pomona, Simpson Paper Co., Pomona College, the San Antonio Water Company, and the West End Water Company; and

WHEREAS, PVPA owns certain real property in and around the Six Basins area primarily consisting of two spreading grounds: the San Antonio Spreading Grounds and the Thompson Creek Spreading Grounds together with appurtenant diversion and conveyance facilities (the "Spreading Grounds" herein); and

1 WHEREAS, in connection with its water conservation activities, PVPA has conducted
2 several technical studies of the Six Basins including the development of a numerical groundwater
3 model which assists in the prediction of the Six Basins' response to PVPA's spreading activities, and
4 is used to control the groundwater resources for the Six Basins and to mitigate high groundwater in
5 the Six Basins; and

6 WHEREAS, the parties to the Judgment have conducted additional studies including the
7 enhancement and refinement of the PVPA groundwater model.

8 NOW, THEREFORE, in consideration of mutual promises, agreements, and covenants of
9 Watermaster and PVPA collectively referred to herein as "the Parties" agree as follows:

10 **I. DEFINITIONS**

11 A. The Judgment defines certain important terms. Except as to the definitions provided
12 in this Agreement, the terms used in this Agreement which have been defined in the Judgment shall
13 have the meaning set forth in the Judgment and the definitions set forth in the Judgment are
14 incorporated herein by this reference

15 B. "Emergency" shall mean a sudden event which threatens life or property.

16 C. "Models" shall mean the spreadsheet and the basin wide models used by PVPA in
17 development of an Operating Plan and any subsequent version or improvement thereof.

18 D. "Parties" written with an upper case P, refer to the Watermaster and to PVPA.
19 Parties written with a lower case p, refer to the parties to the Judgment as defined therein.

20 **II. SPREADING GROUNDS AND SPREADING OPERATIONS**

21 A. Watermaster Direction and PVPA Reservation. PVPA shall use and operate the
22 Spreading Grounds primarily for the spreading of replenishment, replacement and storage water
23 under the direction of the Watermaster Plan. PVPA reserves the right to use the Spreading Grounds
24 for other lawful activities consistent with its water spreading activities so long as doing so does not
25 impair PVPA's ability to spread replenishment water in quantities substantially comparable to
26 historic quantities.

27 B. Impossibility and related defenses. PVPA shall not be liable, in breach or in default
28 of the Agreement if PVPA is unable, either temporarily or permanently, to perform its obligations

1 under the Agreement for reasons beyond PVPA's reasonable control, including but not limited to,
2 acts of God, eminent domain, impossibility or impracticability of performance, interference of a
3 third party and natural disasters, including without limitation, floods, earthquakes, and fires.

4 C. PVPA Discretion. PVPA shall have discretion to make operational decisions in
5 discharging its obligation hereunder within the scope of Watermaster direction.

6 D. Common conditions of spreading. In addition to the direction of Watermaster PVPA
7 shall spread replenishment, replacement or storage waters subject to the following conditions.

8 1. Cessation of Spreading for Emergencies. PVPA reserves the right to cease
9 spreading at any time, without prior notice to Watermaster if, in the discretion of PVPA, such action
10 shall be warranted by, and in connection with, any emergency condition. PVPA will give
11 Watermaster immediate notice of any such cessation.

12 2. Water Quality. PVPA bears no responsibility for the quality of replenishment,
13 replacement or storage water or the impacts of spreading such water upon water quality of the Six
14 Basins.

15 3. High Groundwater. PVPA bears no responsibility for high groundwater due
16 to any spreading of replenishment, replacement or storage water.

17 4. Rejected water. PVPA bears no responsibility for loss of replenishment,
18 replacement or storage water which is rejected or otherwise lost.

19 5. Measurement and Reporting. Watermaster shall provide adequate measuring
20 devices to measure the spreading of replenishment, replacement and storage waters and any such
21 water rejected or lost. PVPA will keep, maintain and furnish to Watermaster on a monthly basis,
22 records of the quantities of replenishment waters spread and rejected.

23 6. Record of Deliveries and Spreading. Watermaster shall keep, maintain and
24 furnish to PVPA records of the quantities and quality of replacement or storage waters delivered
25 within 30 days following delivery of such waters. PVPA shall keep, maintain, and furnish to
26 Watermaster the quantities of replacement and storage waters spread within 30 days following
27 delivery of such water together with an estimate of the quantities of water bypassing the spreading
28 facilities, if any.

1 7. Compensation. Subject to review by the court under its continuing
2 jurisdiction in Case No. KC029152, Watermaster shall pay PVPA's actual, reasonable and necessary
3 costs incurred by PVPA in spreading replenishment, replacement and storage water. PVPA will
4 bill Watermaster such costs on a quarterly basis and such bill will include a reasonably detailed
5 accounting of such costs under generally accepted accounting principles (GAAP). Payment is due
6 upon billing. PVPA's costs may be subject to review or audit by an outside accounting firm selected
7 and paid by Watermaster (within thirty days following billing). Within thirty (30) days following
8 billing, Watermaster shall either contest the billing or accept said billing.

9 E. Replenishment water. In addition to the above, PVPA shall spread replenishment
10 water as it becomes available. PVPA has no control over the availability of replenishment waters
11 and is under no obligation to spread any specific quantity of replenishment water.

12 F. Replacement Water. In addition to the above, PVPA shall spread Replacement
13 Water on the Spreading Grounds under the following terms and conditions. Pursuant to the
14 Judgment, only qualified parties under the Judgment may store water in the Six Basins upon entry
15 into a Storage and Recovery Agreement with Watermaster. Upon request, PVPA shall spread
16 storage water under the following terms and conditions:

17 1. Terms of Delivery. Watermaster shall deliver and PVPA shall spread storage
18 water under the same terms and conditions as replacement waters.

19 2. Replacement Water Flows. PVPA will assist Watermaster in determining the
20 allowable daily rates and the duration of replacement water deliveries, based upon conditions
21 existing from time to time, including any unused capacity available at and in PVPA spreading
22 facilities.

23 3. Notice of New or Changed Replacement Water Flows. Watermaster, at least
24 seven (7) days prior to any anticipated delivery of replacement water, shall notify PVPA that water
25 will be available for transport and spreading and shall give PVPA at least forty-eight (48) hours
26 notice of any anticipated change in previously established flow rates of delivery for such water.

27 4. Spreading Grounds Limitations. PVPA may require changes in delivery flow
28 rates when, in PVPA's opinion, continued spreading (in whole or in part) cannot be carried out

1 hereunder due to operational and/or maintenance problems, including, but not limited to, trespassing,
2 insect infestations, scarification, weed abatement, and/or construction in or at PVPA's conveyance
3 and spreading facilities. When it is reasonable to do so, PVPA will give Watermaster at least twenty-
4 four (24) hours' notice of any such changes.

5 **III. OWNERSHIP AND IMPROVEMENTS OF SPREADING GROUNDS**

6 A. No Dedication. Nothing in this Agreement shall be construed as a dedication of the
7 PVPA Spreading Grounds or its facilities to Watermaster, the other parties to the Judgment, or to
8 the public use or benefit. The spreading grounds and appurtenant facilities are, and remain, the sole
9 property of PVPA. PVPA may sell, lease, or otherwise dispose of portions of its spreading grounds
10 at its own discretion but not inconsistent with this Agreement.

11 B. Spreading Grounds Improvements. Nothing in this Agreement obligates or otherwise
12 requires PVPA to construct new or additional facilities in connection with its spreading operations.
13 PVPA may at its discretion construct new or additional facilities. Watermaster may propose
14 improvements to PVPA's spreading grounds and facilities at its own expense.

15 C. Condemnation. Watermaster agrees to and does waive and disclaim any interest in
16 any award or settlement which may be made in any proceeding in eminent domain concerning all
17 or part of the Spreading Grounds whether the taking be total or partial, or for easement purposes.
18 If the taking be such as to render the Spreading Grounds totally unfit and unsuitable for the above
19 use, then, pursuant to Paragraph II,^B~~A~~ PVPA is not in default or breach.

20 **IV. GROUNDWATER MODEL**

21 A. License for use. PVPA grants Watermaster a license to use its Spreadsheet Models
22 pursuant to the terms and conditions of this agreement for the development of an Operating Plan.
23 In developing the initial operating plan, Watermaster has used PVPA's Groundwater Models. In
24 developing subsequent operating plans or revising such plans, Watermaster shall use PVPA's
25 Groundwater Models and any subsequent version or improvement thereof, or other criteria at
26 Watermaster's discretion.

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1 1. Custody of the PVPA's Groundwater Models. Watermaster shall have
2 physical custody of a copy of the model. However, PVPA shall have the right to access the Models
3 for any purpose which is not inconsistent with the Judgment or the direction of the Watermaster.

4 2. Updates to Model.

5
6 Said license shall include, following consultation with PVPA, the right to make changes,
7 modifications, improvements, updates, or refinements in or to PVPA's Groundwater Model at the
8 sole expense of Watermaster and without any contribution from PVPA.

9 B. Terms and Conditions. For daily operations, Watermaster shall be responsible for
10 keeping, maintaining and reporting on the data base necessary for use of PVPA's Groundwater
11 Models. Watermaster shall collect water level and quality data necessary, including key well levels
12 and rainfall data, to use the Groundwater Models to implement the Physical Solution. Watermaster
13 shall provide this data to PVPA by the fifteenth day of each month. PVPA shall provide
14 Watermaster readings of replenishment water spread, on a daily basis. PVPA then shall provide
15 Watermaster with a monthly report on available storage and water levels of monitoring wells.

16 1. Compensation. PVPA grants Watermaster this license at no cost other than
17 the continuing costs which may be incurred by PVPA as a result of Watermaster operating the
18 Models.

19 2. No Warranty. PVPA makes no warranty and disclaims all warranties
20 regarding PVPA's Groundwater Model and its subsequent updates or improvements.

21 3. Field Conditions. PVPA shall report to Watermaster any field conditions that
22 may have an impact on Spreading Operations.

23 V. **INDEMNIFICATION**

24 A. Watermaster Obligations. To the extent which is allowed by law, Watermaster shall
25 indemnify and hold harmless, PVPA, its officers, directors, employees, agents, and representatives
26 against any and all claims, demands, costs, and/or liabilities due to, or arising from any act or
27 omission by PVPA, its officers, directors, employees, or agents arising from any activities not
28 connected with the spreading of water under the direction of Watermaster.

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VI. INSURANCE

A. Subject to the above, PVPA shall obtain and maintain during the term of this Agreement the following insurance policies:

1. General Liability Insurance: PVPA shall maintain general liability insurance for bodily injury, property damage, personal injury, errors and omissions, and if practicable, flooding. The insurance shall be on an occurrence basis. The policy limits shall be at least \$1,000,000.

2. Property: PVPA shall obtain insurance to provide for replacement of real and personal property owned by PVPA in the event of loss by fire, flood or vandalism. This insurance shall be provided on an occurrence basis and the policy limits shall be at least \$1,000,000.

VII. MISCELLANEOUS PROVISIONS

A. Effective Date. This Agreement shall not be effective until executed by the Parties and approved by the court upon motion of Watermaster in said action in Case No. KC029152.

B. Written Amendments. This Agreement may only be modified, amended, or supplemented by a subsequent writing executed by each Party hereto and approved by the Court with jurisdiction in Case No. KC029152.

C. Choice of Law. This Agreement shall be governed by and interpreted under the laws of the State of California.

D. Delivery of Notices. All notices permitted or required under this Agreement shall be addressed to the representative Parties at the following address, or such other address as the respective Parties may provide in writing for this purpose:

PVPA: President
Pomona Valley Protective Association
414 Yale Avenue, Suite H
Claremont, California 91711

Six Basins Watermaster As may be designated by Watermaster

1 Such Notices shall be deemed made when personally delivered or, when mailed, forty-eight
2 (48) hours after deposit in the U.S. mail, first class postage pre-paid and addressed to the Party at
3 its applicable address.

4 E. Successors and Assigns. This Agreement is binding on and shall inure to the benefit
5 of the Parties, their respective successors in interest and assigns.

6 F. Assignment. No Party shall have the right to assign its rights or delegate any of its
7 obligations hereunder without the express written consent of the other Party.

8 G. Construction. Each Party and/or its respective counsel has taken part in the
9 negotiation, drafting, and preparation of this Agreement, and, therefore, any ambiguity or
10 uncertainty in this Agreement shall not be construed against any Party. To ensure that this
11 Agreement is not construed against any Party, the Parties expressly agree that any common law or
12 statutory provision providing that an ambiguous or uncertain term will be construed against the
13 drafter of an Agreement is waived and shall not apply to the construction of this Agreement.

14 H. Entire Agreement. This Agreement embodies the entire and final Agreement and
15 understanding of the Parties pertaining to the subject matter of this Agreement, and supersedes all
16 prior Agreements, understandings, negotiations, representations, and discussions pertaining to that
17 subject matter, whether verbal or written, of the Parties. The Parties acknowledge that there are no
18 representations, promises, warranties, conditions, or obligations of any Party, or counsel (or any
19 Party), pertaining to that subject matter other than is contained in this Agreement, and that no Party
20 has executed this agreement in reliance on any representation, promise, warranty, condition, or
21 obligation, other than is contained in this Agreement.

22 I. Execution. The Parties to this Agreement acknowledge that they have executed this
23 Agreement voluntarily and without any duress or undue influence. The Parties further acknowledge
24 that they (1) have been represented by counsel of their own choice in connection with the
25 negotiation and execution of this Agreement, or have been advised to seek independent counsel of
26 their own choice prior to executing this agreement; (2) have read this Agreement in its entirety; and
27 (3) have entered into this Agreement of their own volition and not as a result of any representations
28 or advice by other Party or counsel for any other Party.

1 J. Counter Parts. This Agreement may be executed in one or more counterparts, each
2 of which shall be deemed an original, but all of which together shall constitute one and the same
3 instrument. This agreement shall become effective and binding immediately upon its execution by
4 both Parties. This Agreement consists of nine (9) pages, including the signature page.

5 K. Termination. Upon motion made by either Party to this Agreement in accordance
6 with the procedures set forth in Article IX, Section A of the Judgment and approval of the Court,
7 this Agreement shall be terminated.

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9 DATED: _____ WATERMASTER

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11 _____
12 By:

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14 DATED: _____ POMONA VALLEY PROTECTIVE ASSOCIATION

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16 _____
17 By:

EXHIBIT D

BASE ANNUAL GROUNDWATER PRODUCTION IN EACH BASIN, 1985- 1996
 AND TOTAL BASE ANNUAL GROUNDWATER PRODUCTION, 1985- 1996
 FOR EACH PARTY, AND EACH PARTY'S PERCENTAGE OF THE AGGREGATE OPERATING SAFE
 YIELD FOR THE CANYON, UPPER CLAREMONT HEIGHTS, LOWER CLAREMONT HEIGHTS AND POMONA BASINS

Party	Base Annual Production, Acre Feet per Year				Percentage of Aggregate Operating Safe Yield
	Canyon Basin	Upper Claremont Heights Basin	Lower Claremont Heights Basin	Pomona Basin	
City of La Verne	0	0	0	1,492	7.731
City of Pomona*	0	1,234	961	1,128	17.218
Simpson Paper	0	0	0	691	3.580
Southern Cal. Water Co.	56	2,895	107	3,647	34.741
City of Claremont	0	267	0	268	2.772
Pomona College	0	357	0	0	1.850
City of Upland	408	1,434	0	0	9.544
West End Consolidated Water Company	0	2,972	0	0	15.399
San Antonio Water Company	0	1,383	0	0	7.166
TOTAL	464	10,542	1,068	7,226	100.000%

* Pomona shall have the right to produce an additional 109 acre feet of groundwater per year subject to the following:

(a) Pomona shall provide at least 436 acre feet of recycled water to the property presently designated by the Los Angeles County Assessor as Assessor's Parcel Nos. 834-800-8001, 834-800-8002, 834-800-8009, 834-800-5013 and 834-800-6001.

(b) Pomona's additional production right shall be added to its Base Annual Production Right and shall be subject to all provisions of the Judgment relating to Base Annual Production Rights; provided however, such additional right shall not be subject to transfer or the water produced delivered for use outside the Pomona service area.

(c) To the extent in any year Pomona provides less than 436 acre feet of recycled water to the above described property, the additional right of Pomona shall be reduced to an amount equal to one fourth (1/4) of the amount of recycled water provided. However, no reduction shall occur to the extent the failure to deliver recycled water is the result of sudden occurrences such as storms, floods, fires, earthquakes, accidents or unexpected equipment outage) or acts or omissions of the Los Angeles County Sanitation District which impair the ability of Pomona to make recycled water deliveries.

EXHIBIT E

DESCRIPTION OF REPLENISHMENT PROGRAMS

San Antonio Spreading Grounds

Owned and operated by the Pomona Valley Protective Association (PVPA), this private facility is comprised of 600 acres of spreading grounds on both the east and west sides of San Antonio channel. The grounds consist of ditches, check levees, gates, metering stations, shallow basins and deep basins. The primary source of water for this facility is from San Antonio Creek by way of controlled releases from San Antonio Dam which is owned and operated by the U.S. Army Corps of Engineers. Water is released from the dam directly into San Antonio Flood Control Channel. Upon entering the channel, water is diverted into an underground basin where control gates allow regulated flow onto the spreading grounds. Additional sources of water include uncontrolled surface flows from adjacent properties in San Bernardino and Los Angeles Counties. The Corps coordinates its releases with PVPA. Four metering stations are used for flow measurements, and a series of ditches, check levees, gates and appurtenances allow the water to be directed into shallow and deep basins. Since 1896, PVPA has regularly spread water at its facility.

Thompson Creek Spreading Grounds

Owned and maintained by PVPA, this private facility is comprised of approximately 53 acres of spreading grounds south of Thompson Creek Dam and east of Thompson Creek. PVPA operates this facility with the cooperation of the Los Angeles County Flood Control District. The grounds consist of ditches, check levees, gates, shallow and deep basins. The sources of water for this facility are Cobal, Williams, Palmer, and Padua Creeks which are diverted to the grounds by PVPA with the cooperation of the Los Angeles County Department of Public Works through the Palmer Diversion. Surface runoff is diverted onto the grounds by way of Chicken Creek through a diversion located directly north of the grounds. PVPA's facility can also receive water from Thompson Creek Dam when the reservoir exceeds the elevation of 1625 feet above sea level. Since 1918, PVPA has spread water at this facility.

Pomona Spreading Grounds

Owned and operated by the City of Pomona, this facility is comprised of 8 acres of spreading grounds adjacent to the City's Pedley Water Treatment Plant. The City acquired this property in October 1926. The present deep basin configuration of the facility was completed in 1957. The source of water for this facility is San Antonio Creek water delivered through the Loop Merserve Canyon Water Company pipeline and Evey Canyon water. This facility also receives some local runoff. Water has been spread in this vicinity on and off since about 1897.

Live Oak Spreading Grounds

Owned and operated by the Los Angeles County Department of Public Works, this facility consists of approximately 5 acres of spreading grounds. Approximately 1.5 acres north of Baseline Road and 3.5 acres south of route 30 freeway extension. The source of water for this facility is controlled releases from Live Oak Dam and Live Oak Debris Basin. This facility was first used in the 1961-62 water year.

WATER STORAGE AND RECOVERY AGREEMENT

1. IDENTIFICATION

THIS AGREEMENT dated _____ by and between the CITY OF POMONA, a chartered municipal corporation (Pomona), and the SIX BASINS WATERMASTER, a court appointed entity established by the Los Angeles County Superior Court (Watermaster), and is based upon the following recitals.

2. RECITALS

2.1 Water rights have been adjudicated in the Six Basins Area according to the Judgment in Los Angeles County Superior Court Case No. KC 029152, entitled Southern California Water Company v. the City of La Verne.

2.2 Said Judgment establishes the Watermaster as the court empowered entity responsible for managing the Six Basins Area. Under the provisions of Paragraph VI.B.10 of the Judgment, Watermaster is authorized to enter into Storage and Recovery Agreements with any party holding a base annual production right.

2.3 Pomona is a party holding a base annual production right. In addition, Pomona has historically replenished the Six Basins Area. While Pomona is under no obligation to replenish the Six Basins Area, to the extent that it does augment groundwater supplies in excess of its historical replenishment as provided in Paragraph VI.B.9 of the Judgment, Pomona is authorized to recover such water.

2.4 Spreading and injecting or otherwise recharging groundwater in the Six Basins Area is restricted according to Paragraph IV.B of the Judgment; however, pursuant to Paragraph VI.B.10,

Watermaster is authorized to enter into storage and recovery agreements for the utilization of groundwater storage capacity and for subsequent recovery use or credit by the storing entity.

2.5 Pomona and Water master desire to enter into an agreement for the storage and recovery of water.

3. AGREEMENTS

In consideration for the mutual promises and conditions contained herein and for other valuable consideration, the parties agree as follows:

3.1 Pomona may, subject to the conditions hereinafter set forth, spread and cause to be spread water which would be stored for Pomona's account. The amount of water stored and recovered shall be all amounts it has spread or caused to be spread in the Six Basins Area in excess of 130 acre feet annually as specifically provided in Paragraph VI.B.9 of the Judgment. Without limitation on accumulations, Pomona shall acquire and retain ownership of all such storage in excess of the historical replenishment of 130 acre feet per year until such water is produced by Pomona or transferred as a credit toward any Replacement Water obligation.

3.2 Pomona shall issue a report to Watermaster on a quarterly basis indicating the amount of water which Pomona has spread. The report shall be due the last day of the month next following the end of the relevant quarter.

3.3 Recovery of water by Pomona shall be accounted for as follows:

3.3.1 The first water Pomona produces in a calendar year shall be the carryover of unused rights in accordance with Paragraph III.B.2.

3.3.2 The next such water produced shall be Pomona's Base Annual Production Right.

3.3.3 The next such water produced shall be water stored pursuant to this storage and Recovery Agreement.

3.4 This Agreement shall be effective upon court approval of the Judgment in the above-referenced case.

3.5 Any notices required hereunder may be given by mail postage prepaid and addressed as follows:

TO WATERMASTER:

TO CITY OF POMONA:

Henry Pepper, Director of Utilities
Public Works Department
City of Pomona
505 S. Garey Avenue
Pomona, CA 91769-0660

EXECUTED this _____ day of _____, 1998, at _____, CA.

CITY OF POMONA

By: _____

WATERMASTER

By: _____

EXHIBIT G

INITIAL OPERATING PLAN

1. Replenishment. PVPA shall continue to replenish the basin as it has historically done. PVPA shall curtail replenishment when the Index Water Level is at 1455 or higher, where the Index Water Level is the average of the water level elevations above Mean Sea Level for the following five Key Wells:

Upland-Foothill No. 3 (Owner: WECWC)
Mountain View No. 4 (Owner: WECWC)
Miramar No. 3 (Owner: SCWC)
College No. 1 (Owner: Pomona College)
Tunnel Well No. 3 (Owner: Pomona)

On the second Monday of each month owners of the Key Wells shall measure and report to Watermaster and to PVPA the water level elevations in the Key Wells. Water level elevations shall be measured using protocols specified by Watermaster.

2. Production Measurement and Reporting. Within 180 days following Entry of Judgment each producer shall have installed on all of its producing wells a calibrated device to measure production. Such devices shall conform to, and be regularly calibrated in accordance with, specifications developed by Watermaster. Each producer shall record the monthly production from each well in acre feet and shall report such monthly production for each well and the total for all wells for the month and for the year to date to Watermaster by not later than the third working day following the end of the month.

3. Operating Safe Yield. The initial Operating Safe Yield of the Four Basins is 24,000 acre feet per year.

PROOF OF SERVICE

I am a resident of the State of California, over the age of eighteen years, and not a party to the within action. My business address is 21 East Carrillo Street, Santa Barbara, California 93101-2782. On December 21, 1998, I served the within document:

NOTICE OF ENTRY OF JUDGMENT

by transmitting via facsimile the document(s) listed above to the fax number(s) set forth below on this date before 5:00 p.m.

by placing the document listed above in a sealed envelope with postage thereon fully prepaid, in the United States mail at Santa Barbara, California as set forth below.

by causing personal delivery by _____ of the document(s) listed above to the person(s) at the address(es) set forth below.

by personally delivering the document(s) listed above to the person(s) at the address(es) set forth below.

SEE ATTACHED LIST

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Executed on December 21, 1998, at Santa Barbara, California.

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LOS ANGELES SUPERIOR

DEC 18 1998

JOHN A. CLARKE, CLERK
John A. Clarke

9 SUPERIOR COURT OF THE STATE OF CALIFORNIA
10 FOR THE COUNTY OF LOS ANGELES

11 SOUTHERN CALIFORNIA WATER COMPANY)
12)
13 Plaintiff,)
14 vs.)
15 CITY OF LA VERNE, CITY OF CLAREMONT,)
16 CITY OF POMONA, CITY OF UPLAND,)
17 POMONA COLLEGE, POMONA VALLEY)
18 PROTECTIVE ASSOCIATION, SAN ANTONIO)
19 WATER COMPANY, SIMPSON PAPER)
20 COMPANY, THREE VALLEYS MUNICIPAL)
21 WATER DISTRICT, WEST END)
22 CONSOLIDATED WATER COMPANY, and)
23 DOES 1 through 1,000, Inclusive,)
24 Respondents and Defendants.)

CASE NO. KC029152

Assigned for All
Purposes to Judge
William O. McVittie

Department 0

(Complaint Filed, September 28,
1998)

JUDGMENT

25 THE DOCUMENT TO WHICH THIS CERTIFICATE IS
26 ATTACHED IS A FULL, TRUE, AND CORRECT COPY
27 OF THE ORIGINAL ON FILE AND OF RECORD IN
28 MY OFFICE.

DEC 18 1998

ATTEST _____

JOHN A. CLARKE

Executive Officer/Clerk of the
Superior Court of California, County of
Los Angeles.
By *John A. Clarke*, Deputy

C. MORALES

144876.1:6774.54

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1 PRELIMINARY FINDINGS

2 **A. Complaint.**

3 The Southern California Water Company ("SCWC"), (or "Plaintiff"), and the City of La Verne
4 ("La Verne"), City of Claremont ("Claremont"), City of Pomona ("Pomona"), City of Upland
5 ("Upland"), Pomona College ("Pomona College"), Pomona Valley Protective Association ("PVPA"),
6 San Antonio Water Company ("San Antonio"), Simpson Paper Company ("Simpson"), Three Valleys
7 Municipal Water District ("TVMWD"), West End Consolidated Water Company ("West End"),
8 collectively (Defendants) either:

- 9 i. account for essentially all of the current production of groundwater from or the
10 replenishment to the Canyon Basin, the Upper Claremont Heights Basin, the
11 Lower Claremont Heights Basin, the Pomona Basin, the Live Oak Basin and
12 the Ganesha Basin ("Six Basins Area"), located in Los Angeles and San
13 Bernardino Counties, and described in Exhibits "A," and "B" attached hereto,
14 and further defined in Judgment Section I(A) below; or
15 ii. are public agencies with an interest in the efficient and responsible
16 management of groundwater resources within the Six Basins.

17 On or about September 28, 1998 the Plaintiff filed a complaint against Defendants and Does 1
18 through 1,000 requesting a declaration of their individual and collective rights to groundwater and
19 a mandatory and prohibitory injunction requiring the reasonable use and equitable management of
20 groundwater within the Six Basins pursuant to *Article X, Section 2 of the California Constitution*.
21 The pleadings further allege that the Plaintiff and Defendants collectively claim substantially all
22 rights of groundwater use, replenishment and storage within the Six Basins Area, that the available
23 Safe Yield (as defined in Judgment Section I(A), below) is being exceeded and that the groundwater
24 supply to the Six Basins Area is inadequate to meet the current and long term demands of Plaintiff
25 and Defendants without the imposition of a physical solution. Plaintiff requests a determination of
26 all groundwater rights, including replenishment and storage rights, of whatever nature within the
27 boundaries of the Six Basins and request the imposition of an equitable physical solution.

1 **B. Answers and Cross-Complaints.** On or before November 13, 1998, Plaintiff and
2 Defendants filed a stipulation for entry of judgment.

3 **C. Jurisdiction.** This Court has jurisdiction to enter judgment declaring and adjudicating
4 the Plaintiff's and Defendants' ("the Parties") rights to the reasonable and beneficial use of
5 groundwater by the Parties in the Six Basins Area pursuant to *Article X, Section 2 of the California*
6 *Constitution* and to impose a complete physical solution. All pre-existing rights to groundwater
7 within the Basin held or claimed by any Party (as defined in Section I(A) of the Judgment below) are
8 hereby settled and defined as the production allocations and the other rights and obligations set forth
9 under this judgment ("Judgment"). The respective allocations for each Party are expressly set forth
10 in Exhibit "D."

11 **D. Parties.**

12 1. SCWC is an investor-owned public utility incorporated under the laws of the
13 State of California. (*See Public Utilities Code Section 1001 et seq. and 2701 et seq.*) SCWC produces
14 groundwater from the Six Basins and delivers it for use on land within its certificated service area
15 that predominantly overlies some portion of the Six Basins, and otherwise is within the Counties of
16 Los Angeles and San Bernardino.

17 2. Pomona is a charter city situated in the County of Los Angeles. Pomona
18 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
19 boundaries, on land lying outside its incorporated boundaries within the County of Los Angeles and
20 on City owned lands that predominantly overlie some portion of the Six Basins. Pomona owns and
21 controls land in the Six Basins Area upon which it has historically diverted, for direct use and
22 spreading, surface water from San Antonio Creek and Evey Canyon.

23 3. La Verne is a general law city situated in the County of Los Angeles. La Verne
24 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
25 boundaries, on land lying outside its incorporated boundaries within the County of Los Angeles and
26 on City owned lands that predominantly overlie some portion of the Six Basins.

27
28

1 4. Upland is a general law city situated in the County of San Bernardino. Upland
2 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
3 boundaries some portion of which overlie the Six Basins. It possesses a majority of the shares of
4 stock in San Antonio and West End.

5 5. San Antonio is a mutual water corporation incorporated under the laws of the
6 State of California, with its principal place of business in San Bernardino County. San Antonio
7 produces groundwater from the Six Basins and delivers it for use by its shareholders.

8 6. West End is a mutual water corporation, incorporated under the laws of the
9 State of California, with its principal place of business in San Bernardino County. West End
10 produces groundwater from the Six Basins and delivers it for use by its shareholders.

11 7. Claremont is a general law city situated in the County of Los Angeles.
12 Claremont's incorporated boundaries and City owned lands overlie a portion of the Six Basins. The
13 City has executed an agreement with SCWC with respect to its groundwater rights.

14 8. Pomona College is a California corporation, with a principal place of business
15 in the County of Los Angeles. Pomona College owns land and groundwater production facilities that
16 overlie the Six Basins Area and it has executed operating leases with SCWC regarding these
17 facilities. Pomona College has executed an agreement with SCWC with respect to its groundwater
18 rights.

19 9. Simpson is a Washington corporation, which is doing business in the State of
20 California and the County of Los Angeles. Simpson produces groundwater from the Six Basins for
21 its own use and also purchases water service from Pomona.

22 10. PVPA is a California corporation, operating on a non-profit basis for the mutual
23 benefit of its members with its principal place of business in the County of Los Angeles.
24 Shareholders of PVPA include Pomona, Pomona College, San Antonio, SCWC, Simpson, Upland
25 and West End. PVPA owns the primary spreading grounds and recharge facilities for the Six Basins
26 and owns other lands which also overlie the Six Basins. PVPA has undertaken ongoing studies and
27 evaluation of groundwater conditions in the Six Basins Area.

28

1 11. TVMWD is a California Municipal Water District formed pursuant to the
2 provisions of the municipal water district act and with the power to acquire, control, distribute, store,
3 and spread water for beneficial purposes within its boundaries.

4 **E. Settlement Negotiations.**

5 1. **Importance of Groundwater.** Groundwater is an important water supply
6 source for businesses, individuals and public agencies that overlie or extract groundwater from the
7 Six Basins. The Parties have a mutual and collective interest in the efficient and reasonable use of
8 groundwater and the coordinated management of water resources to ensure the prudent use of the
9 resource. The Parties have a further collective interest in furthering the efficient and reasonable use
10 of groundwater and the coordinated and comprehensive management of water resources to ensure that
11 the common resource may be sustained and enhanced.

12 2. **Coordinated Study.** PVPA has conducted and continues to conduct technical
13 studies of the Six Basins and has developed groundwater models of the Six Basins. To achieve the
14 goals of coordinated basin management and to ensure and promote the sustainable and enhanced use
15 of the groundwater resources of the Six Basins, the Parties joined in a collaborative process, reviewed
16 prior groundwater production reports and hydrologic studies, other historical data and engaged in new
17 technical studies to supplement the previous work of PVPA. Substantial engineering, hydrologic and
18 geologic data not previously known have been collected and jointly analyzed and verified by the
19 Parties. Included therein are estimates of production and reported production from the Six Basins
20 and further refinement of PVPA's groundwater models. The results of these efforts provide the
21 technical foundation for this Judgment.

22 3. **Overdraft.**

23 a. **Native Safe Yield.** The Native Safe Yield (as defined in Judgment,
24 Section I(A), below) of the Six Basins Area has historically been augmented generally by the
25 spreading activities conducted by PVPA, Pomona and La Verne and from return flows from water
26 imported to the Six Basins Area through TVMWD. There is no precise estimate of the Native Safe
27 Yield; however, without augmentation comprised of the substantial spreading operations conducted
28

1 by PVPA and others, and the return flows from imported water, the amount of groundwater
2 comprising the Native Safe Yield is substantially less than the Safe Yield which is allocated to the
3 parties pursuant to this Judgment.

4 **b. Safe Yield.** Safe Yield (as defined in Judgment, Section I(A), below)
5 for all groundwater supplies within the Six Basins, including the benefits of historic augmentation
6 is nineteen thousand three hundred (19,300) acre feet per year.

7 **c. Groundwater Production.** Reports filed with the State of California
8 pursuant to *Water Code Section 4999 et seq.*, production records reported to PVPA by its members,
9 and independent verification by the Parties all demonstrate that the cumulative groundwater
10 production of the Parties from the Six Basins Area annually has been greater than twenty thousand
11 (20,000) acre feet in each of the five years immediately preceding the filing of this action. Therefore,
12 groundwater production has exceeded the available Safe Yield and *a fortiori* the Native Safe Yield
13 in each of the last five years.

14 **F. Stipulation.** The Parties, whose production from the Six Basins cumulatively comprise
15 essentially all of the groundwater production in the Six Basins Area, which have engaged in long-
16 standing groundwater replenishment activities or otherwise have an interest in the efficient and
17 coordinated management of groundwater, have stipulated to the entry of this Judgment. Each of the
18 Parties stipulate that this Judgment is a physical solution (as defined in Judgment, Section I(A),
19 below) which provides due consideration to the environment, the respective groundwater rights of
20 the Parties, and that this Judgment will not cause substantial material injury to any Party under these
21 circumstances of a lengthy period of overdraft and the competing claims to groundwater. The Parties
22 further stipulate that the Judgment is a fair and equitable allocation of water in accordance with the
23 provisions of *Article X, Section 2 of the California Constitution*.

24 //

25 //

26 //

27 //

28

1 JUDGMENT

2 IT IS HEREBY ORDERED, ADJUDGED AND DECREED:

3 I. INTRODUCTION

4 A. Definitions.

5 1. "Base Annual Production Right" means the average annual production , in acre-feet,
6 for each Party for the twelve year period beginning on January 1 of 1985 and ending on
7 December 31 of 1996 as set forth in Exhibit "D".

8 2. "Carryover Rights" means the maximum percentage of a Party's annual allocation
9 of Operating Safe Yield production of which may be deferred until the following Year free
10 of any Replacement Water Assessment.

11 3. "Effective Date" means January 1, 1999.

12 4. "Four Basins or Four Basins Area" means the following groundwater basins and
13 the area overlying them: Canyon, Upper Claremont Heights, Lower Claremont Heights and
14 Pomona as shown on Exhibit "A" and further described in Exhibit "B".

15 5. "Groundwater" means all water beneath the ground surface and contained
16 within any one of the Six Basins except as provided in Article IIIA Section 1.

17 6. "Imported Water" means water that is not naturally tributary to the Six Basins Area
18 and which is delivered to the Six Basins Area.

19 7. "In Lieu Procedures" means a method of either providing Replacement Water or
20 water to be stored under a Storage and Recovery Agreement whereby a Party receives direct
21 deliveries of Imported Water or water other than Replenishment Water in exchange for
22 foregoing the production of an equivalent amount of such Party's share of the Operating Safe
23 Yield.

24 8. "Minimal Producers" means any producer whose production is less than 25 acre
25 feet each Year.

26 9. "Native Groundwater" means groundwater within the Six Basins Area that
27 originates from the deep percolation of rainfall, natural stream flow or subsurface inflow, and
28

1 expressly excluding groundwater which originates from (a) the Parties' replenishment
2 activities and (b) return flows from both imported water and the Parties' replenishment
3 activities, and water described in Article IIIA Section 1.

4 **10. "Native Safe Yield"** means the amount of Native Groundwater, in acre feet, that can
5 be extracted from the Six Basins Area on an annual basis without causing an undesirable
6 result. Expressed as a formula: Native Safe Annual Yield = Annually Available Groundwater
7 - (Replenishment Water + return flows from Imported Water and Replenishment Water).

8 **11. "Native Water"** means water which is naturally tributary to the Six Basins Area.

9 **12. "Non-party"** means any person or entity which is not a party to this Judgment.

10 **13. "Operating Plan"** means the plan, developed by Watermaster (as defined in
11 Judgment, Article V below) for the Four Basins Area, by which the purpose and objectives
12 of the Physical Solution will be implemented and realized.

13 **14. "Operating Safe Yield"** means the amount of groundwater, in acre feet, which the
14 Watermaster shall determine can be produced from the Four Basins Area by the Parties during
15 any single year, free of any replacement obligation under the Physical Solution herein.
16 Because of the benefits created by coordinated management of groundwater provided by the
17 Physical Solution, the Operating Safe Yield set by Watermaster may exceed the Safe Yield
18 that would otherwise be available for production by the Parties. The Two Basins Area is
19 excluded from the Operating Safe Yield allocated pursuant to this Judgment with its annual
20 Safe Yield being equivalent to the amount of groundwater La Verne may reasonably produce
21 from the Two Basins Area on an annual basis without causing substantial injury to any other
22 Party.

23 **15. "Overdraft"** means a condition wherein the total annual production from a
24 groundwater basin exceeds the Safe Yield.

25 **16. "Party or Parties"** means any person(s) or entity(ies) named in this action, who
26 has/have intervened in this case or has/have become subject to this Judgment through
27 succession, stipulation, transfer, default, trial or otherwise.

28

1 17. **"Physical Solution"** means the efficient and equitable coordinated management of
2 groundwater within the Six Basins Area to maximize the reasonable and beneficial use of
3 groundwater resources in a manner that is consistent with the public interest, *Article X,*
4 *Section 2 of the California Constitution,* and with due regard for the environment.

5 18. **"Producer"** means a person, firm, association, organization, joint venture, partner-
6 ship, business, trust, corporation or public entity who, or which, produces or has a right to
7 produce groundwater from the Six Basins Area.

8 19. **"Production"** means the process of pumping groundwater; also, the gross amount
9 of groundwater pumped.

10 20. **"Replacement Water"** means imported water or water other than Replenishment
11 Water supplied through in-lieu procedures that is acquired by the Watermaster or provided
12 by a Party to replace production by such Party in excess of the amount of its share of the
13 Operating Safe Yield, Carry-Over Rights and Storage and Recovery rights authorized by
14 Watermaster.

15 21. **"Replacement Water Assessment"** means an assessment levied by Watermaster
16 pursuant to Article XII A, Section 4 of this Judgment.

17 22. **"Replenishment"** means a program to spread or inject Replenishment Water into
18 the Six Basins Area. A description of the current replenishment programs is attached hereto
19 as Exhibit "E."

20 23. **"Replenishment Water"** means native water which augments the Native Safe Yield
21 and thereby comprises a portion of the Operating Safe Yield pursuant to a historical
22 replenishment program as described in Article VIB, Section 9 and Exhibit E.

23 24. **"Return Flows"** means water which percolates, infiltrates or seeps into the Six
24 Basins after having been previously applied to some end use by one of the Parties or any user
25 of water.

26 25. **"Safe Yield"** means the amount of groundwater, including Replenishment and return
27 flows from Imported Water, that can be reasonably produced from the combined Two Basins
28

1 and the Four Basins Areas on an annual basis without causing an undesirable result, including
2 but not limited to land subsidence, water quality degradation, and harm from high
3 groundwater levels, i.e. 19,300 acre feet per year.

4 **26. "Six Basins or Six Basins Area"** means the Four Basins Area plus the Two Basins
5 Area, as shown on Exhibit "A" and further described in Exhibit "B."

6 **27. "Spreading"** means a method of groundwater recharge whereby water is placed in
7 permeable impoundments and allowed to percolate into a basin.

8 **28. "Storage and Recovery"** means a program administered under an agreement
9 between the Watermaster and a Party to store water either directly by sinking, spreading or
10 injecting or by in-lieu procedures, into the Four Basins, and subsequently recovering such
11 water without regard to the limitations imposed by the Party's Base Annual Production Right.

12 **29. "Storage and Recovery Agreement"** means an agreement between Watermaster and
13 a Party for Storage and Recovery of water by such Party. An acceptable pre-approved
14 Storage and Recovery Agreement between Watermaster and Pomona is listed on Exhibit "F."

15 **30. "Transfer"** means temporary or permanent assignment, sale, contract or lease of any
16 Party's Base Annual Production Right and its associated percentage of the Safe Yield, Carry-
17 Over Rights or rights to recover water stored under a Storage and Recover Agreement to any
18 other Party or a person that becomes a Party. A lease shall not be considered a "permanent
19 transfer" unless both the Lessee and Lessor jointly agree to such characterization.

20 **31. "Two Basins or Two Basins Area"** means the Live Oak and Ganesha Basins and
21 the areas overlying them, as shown on Exhibit "A" and further described in Exhibit "B."

22 **32. "Water Shortage Emergency"** means the substantial impairment, which cannot be
23 promptly mitigated, of the ability of the Parties to provide sufficient water for human
24 consumption, sanitation and fire protection because of: (a) a sudden occurrence such as
25 storm, flood, fire, unexpected equipment outage; or (b) an extended period of drought.

26 **33. "Watermaster"** means the committee with the powers and duties defined in Article
27 V of this Judgment.

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1 34. "Year" means a calendar year.

2 B. Exhibits. Each exhibit is expressly incorporated herein and made part of this
3 Judgment.

4 Exhibit A: Six Basin Map

5 Exhibit B: General Description of the Six Basins Area

6 Exhibit C: Memorandum of Agreement between Watermaster and PVPA

7 Exhibit D: Base Annual Production Rights of Parties

8 Exhibit E: Description of Replenishment Programs

9 Exhibit F: City of Pomona Storage and Recovery Agreement

10 Exhibit G: Initial Operating Plan

11 **II. FINDINGS AND HYDROLOGIC CONDITIONS**

12 A. Safe Yield. Prior to the imposition of this Physical Solution, the Safe Yield of the Six
13 Basins is historically found to be 19,300 acre feet per year.

14 B. Overdraft and Prescriptive Circumstances. For a period in excess of five
15 consecutive Years prior to the filing of the complaint herein, the Native Safe Yield and the Safe Yield
16 have been exceeded by the aggregate Production therefrom and the Six Basins have been in a
17 continuous state of Overdraft. The court finds that the Production constituting such Overdraft has
18 been open, notorious, continuous, adverse, hostile, and under claim of right. The court further finds
19 that the groundwater Production has exceeded the Native Safe Yield and the Safe Yield in each of
20 the last five years and thus all the required elements necessary to establish prescription have been
21 satisfied.

22 1. Adversity. The Native Safe Yield of the Six Basins Area has been continuously
23 exceeded for decades. It is only through the ongoing Replenishment undertaken by PVPA, Pomona
24 and La Verne coupled with the availability of and return flows from Imported Water that a further
25 decline in water levels has been averted. An unmanaged downward decline in water levels is known
26 to have severe adverse impacts on the rights of groundwater producers and groundwater quality, to
27 cause land subsidence and to cause increased pump-lifts. Moreover, the Court finds that presently
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1 estimated Safe Yield of 19,300 acre feet, with the full benefit of the Replenishment carried on by the
2 Parties has been exceeded and if Production is not managed pursuant to this Physical Solution, severe
3 adverse impacts will result.

4 **2. Continuity.** The Native Safe Yield has been continuously exceeded for at least two
5 decades. For each of the last five Years the Safe Yield has been exceeded. The Court finds that
6 cumulative total Production from the Six Basins Area for the Years 1993 through 1997 is as follows:

7	1993	21,020 acre feet
8	1994	20,313 acre feet
9	1995	22,959 acre feet
10	1996	23,584 acre feet
11	1997	21,902 acre feet

12 **3. Notice.** Each of the Parties with a Base Annual Production Right, or their agents, have
13 filed groundwater production reports with the State Department of Water Resources pursuant to
14 *Water Code Section 4999*. These reports are public records and are available for inspection by any
15 member of the public. SCWC is an investor-owned public utility subject to regulation by the
16 California Public Utilities Commission (PUC). Its records, reports and filings with the PUC regularly
17 include information regarding the wells used and groundwater produced from the Six Basins Area.
18 The PUC has held publicly noticed rate hearings which have been attended by the public and
19 representatives from Claremont. Pomona, La Verne and Upland are all public entities and their
20 groundwater production information are public records and open to public inspection upon reasonable
21 notice. PVPA has frequently published reports which indicate the nature of its Replenishment and
22 the volume of groundwater produced in the Six Basins Area. At least two settlement agreements
23 have been entered between certain Parties on matters related to the adverse impacts of increased
24 groundwater production. Both of these agreements were approved by a public entity and are public
25 records. Moreover, the negotiations leading up to the entry of this Judgment were open to all persons
26 claiming the right to produce groundwater by virtue of their owning overlying land or having
27 corporate boundaries overlying the Six Basins Area. Regular meetings concerning these negotiations
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1 have been held at the headquarters of TVMWD, a public agency, and were personally attended by
2 representatives from each of the Parties. These meetings have taken place at regular intervals for
3 more than twelve consecutive months and the contents of this Judgment and the status of groundwater
4 conditions in the Six Basins Area has remained readily available. Accordingly, the Court finds that
5 all persons claiming the right to produce had actual notice, constructive notice or could have easily
6 determined upon reasonable diligence that the Six Basins Area was in Overdraft and of each Party's
7 claim to groundwater. The circumstances of such Overdraft and water use are such that each of the
8 Parties either: (i) had actual knowledge of such circumstances; or (ii) should have discovered such
9 circumstances upon the exercise of reasonable diligence or (iii) received constructive notice of the
10 adverse nature of such aggregate production through the public record filings with the State of
11 California pursuant to *Water Code Section 4999* and through the various reports published by the
12 Parties.

13 **C. High Groundwater Levels.** There are cienegas and springs in the Four Basins Area
14 and there is a potential for groundwater to rise to the surface regardless of the replenishment,
15 replacement or storage operations of the Watermaster and carried out by the Parties. Periodically,
16 though not in the past twelve years, high groundwater levels have constituted an important causative
17 factor, in creating damage in the Four Basins Area.

18 **D. Water Quality Problems.** Some of the Six Basins have experienced problems of high
19 concentrations of nitrates and volatile organic compounds (VOC's) in groundwater. Potential sources
20 of the nitrate are historical agricultural practices and individual wastewater disposal systems, most
21 of which have been abandoned. The Two Basins Area and some of the Four Basins Area have been
22 adversely impacted by high concentrations of nitrates and VOC's and may also require remediation.

23 **III. DECLARATION OF RIGHTS AND RESPONSIBILITIES**

24 **A. General Provisions.**

25 **1. Surface Water Rights.** Pomona and San Antonio have prior and paramount pre-
26 1914 water rights, superior to the rights of any other party, to the surface water and supporting
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1 subsurface flows historically and presently diverted therefrom in San Antonio and Evey Canyon,
2 except as provided in Article VIB Section 9 and as referenced in Article IIIA Section 1d.

3 a. Historically, Pomona and San Antonio have diverted, and presently are
4 diverting, surface waters and supporting subsurface flows from San Antonio Canyon.

5 b. Historically, Pomona has diverted, and presently is diverting, surface water
6 and supporting subsurface flows from Evey Canyon.

7 c. Pomona and San Antonio are under no obligation to spread such waters.

8 d. Surface waters and supporting subsurface flows diverted in San Antonio and
9 Evey Canyons at existing diversion locations are excluded from (i) the operation of this Judgment
10 and (ii) the determination of Operating Safe Yield, except to the extent of the portion of such waters
11 which are spread by Pomona at its Pedley Treatment Plant, which portion is governed by the
12 provisions of Article VIB, Section 9.

13 e. The diversion and the use of surface waters and supporting subsurface flows
14 shall not be subject to this Judgment.

15 f. The above-referenced surface waters and supporting subsurface flows shall
16 not be subject to allocation among the Parties pursuant to this Judgment.

17 g. Surface waters and supporting subsurface flows may be used by Pomona and
18 San Antonio to satisfy Replacement Water obligations as provided in Article VIB, Section 5.

19 2. **Loss of Priorities.** By reason of the long continued overdraft in the Six Basins, and
20 in light of the complexity of determining appropriative priorities and the need for conserving and
21 making maximum beneficial use of the water resources of the State, each and all of the Parties listed
22 in Exhibit "D" are estopped and barred from asserting special priorities or preferences *inter se* to
23 groundwater except as expressly provided herein. All the Parties' rights to groundwater are
24 accordingly deemed and considered to be of equal priority unless otherwise expressly stated herein.

25 3. **Limitations on Export.** Other than the limitation on Pomona's use of 109 acre feet
26 as further described in Exhibit "D", any Party's share of the Operating Safe Yield, including
27 Carryover Rights and Transfers, may be produced and exported for use outside the Six Basins Area.

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1 However, groundwater stored and recovered pursuant to a Storage and Recovery Agreement may be
2 produced and exported only in accordance with the terms and conditions of the Storage and Recovery
3 Agreement.

4 **4. No Abandonment of Rights.** It is in the interest of reasonable beneficial use of the
5 Six Basins Area and its water supply, that no Party be encouraged to take and use more water in any
6 Year than is actually required. Failure to produce all of the water to which a Party is entitled
7 hereunder shall, in and of itself, not be deemed to be, or constitute an abandonment of such Party's
8 right, in whole or in part.

9 **5. Pre-Existing Rights.** This Judgment controls each Party's rights to the Production,
10 Replenishment, Storage and Recovery of groundwater and expressly supersedes other rights, claims
11 or defenses arising from agreement, operation of law, prior use or a prior judgment to the extent that
12 they are inconsistent with this Judgment. However, nothing in this Judgment shall alter or affect any
13 rights or remedies that any Party may have under any contract or agreement with any other Party on
14 matters which are not inconsistent with or are unrelated to the provisions of this Judgment or as
15 provided in Article IVC herein.

16 **6. Physical Solution.** This Judgment represents a total and complete Physical Solution
17 for the Six Basins Area and all basins included therein. Although prior hydrologic and physical
18 conditions limited the Safe Yield to 19,300 acre feet per year, through the coordinated and equitable
19 management of the Four Basins and Two Basins Areas provided under this Judgment, an Operating
20 Safe Yield, Operating Plan and Base Annual Production Rights shall be independently established
21 for the Four Basins Area. However, La Verne shall be entitled to produce groundwater from the Two
22 Basins Area in addition to its equitable share of the Four Basins Operating Safe Yield, as provided
23 in accordance with the terms of this Judgment.

24 **7. Portability Between the Two Basins and Four Basins Areas.** A Party's right to
25 produce, store or recover groundwater accruing under this Judgment in the Four Basins Area may not
26 be transferred, exchanged or exercised in the Two Basins Area. A Party's right to produce, store or
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1 recover groundwater accruing under this Judgment in the Two Basins Area may not be transferred,
2 exchanged or exercised in the Four Basins Area.

3 **B. Rights of the Parties to Produce Groundwater from the Four Basins.**

4 1. **Declaration of Rights.** The Parties listed in Exhibit "D" are the owners of
5 appropriative rights, including rights by prescription, and exercised and unexercised overlying rights
6 of equal priority, and each Party shall be entitled to produce groundwater under the Physical Solution
7 and to share in the Operating Safe Yield of the Four Basins according to the percentages set forth in
8 Exhibit "D" as Base Annual Production Rights in a manner consistent with the provisions of this
9 Judgment.

10 2. **Carryover Rights.** Any Party that produces less than its share of the Operating Safe
11 Yield in any Year shall have the right to carry the unproduced portion forward to be produced in the
12 following year subject to the following limitations: (a) the first water produced in any Year shall be
13 deemed to be an exercise of any Carryover Right; (b) a Party's Carryover Right cannot exceed 25
14 (twenty-five) per cent of such Party's share of the current Operating Safe Yield for the prior Year;
15 and (c) Carryover Rights may be lost in the event replenishment is discontinued or curtailed as
16 provided below in Article IIIB, Section 7.

17 3. **Transferability of Rights.** Subject to the limitations set forth in his Judgment, a Base
18 Annual Production Right and its associated percentage of the Operating Safe Yield, as well as any
19 Carryover Rights and water stored under a Storage and Recovery Agreement, may be transferred, in
20 whole or in part, among existing Parties or to any other person that becomes a Party on either a
21 temporary or permanent basis provided that no Party is substantially injured by the Transfer. Pro-
22 duction pursuant to any such Transfer shall be subject to the limitations on carryover and portability
23 set forth in Article IIIB, Section 4. Any such Transfer shall become effective upon being recorded
24 with Watermaster. Watermaster shall revise Exhibit "D" annually, to reflect any permanent
25 Transfers. The permanent Transfer of any Party's full Base Annual Production Right shall require
26 Watermaster approval. Upon Watermaster approval the permanent Transfer of a Party's full Base
27 Annual Production Right may require an adjustment in the Party representatives to the Watermaster
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1 and the number of votes of the Party's representatives as provided in Article V. Notwithstanding the
2 provision of this Article IIIB, Section 3, Pomona shall not be entitled to Transfer 109 acre feet of its
3 Base Annual Production Right and its associated percentage of Operating Safe Yield.

4 **4. Portability of Rights Among the Four Basins.** Any Party with a Base Annual
5 Production Right, shall have the right to produce its share of the Operating Safe Yield of the Four
6 Basins, including any Carryover Rights or Transfers, from any or all of the Four Basins, subject to
7 the following conditions.

8 **a. No Substantial Injury.** Any groundwater production from a "new" location
9 shall not cause substantial injury to another Party.

10 **b. Advance Written Notice to Watermaster.** Any Party that intends to
11 undertake any of the following actions shall provide thirty (30) days' advance written notice to the
12 Watermaster: (i) acquire, construct or operate a "new" groundwater production facility in any one
13 of the Four Basins in which it is then producing groundwater; (ii) change the point of extraction from
14 an existing groundwater production facility to a "new" groundwater production facility where the old
15 and the new groundwater production facilities are both within the Canyon or Upper Claremont
16 Heights or Lower Claremont Heights Basins; (iii) change the point of extraction from an existing
17 groundwater production facility on one side of the Indian Hill Fault to a "new" facility on the other
18 side of the Indian Hill Fault.

19 **c. Prior Watermaster Approval.** Any Party that changes the point of extraction
20 from an existing groundwater production facility on one side of the Indian Hill Fault to a "new"
21 facility located on the other side of the Indian Hill Fault and increases the cumulative rate of annual
22 extraction therefrom by more than 2,000 acre feet per year shall be required to obtain the prior written
23 approval of the Watermaster.

24 **d. New Facility Defined.** "New" as used in this Section 4 means either (i) an
25 increase or enlargement in the pre-existing design capacity of a groundwater production facility or
26 (ii) a movement in the location of a groundwater extraction facility by more than three hundred (300)
27 feet or from one legal parcel to another legal parcel.

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1 e. **Procedure for Resolution of Disputes.** The Watermaster shall make all
2 necessary determinations and resolve all disputes arising under this Article IIIB, Section 4 in
3 accordance with the provisions of Article VIII.

4 5. **Rights to Unused Groundwater Storage Capacity.** From time to time there may
5 exist in the Four Basins, unused storage capacity. Parties holding Base Annual Production Rights
6 pursuant to this Judgment and TVMWD for the sole purpose of storing Imported Water, shall have
7 the exclusive rights to use such storage capacity, and subject to the complete discretion of the
8 Watermaster, may sink, spread or inject water into the Four Basins Area pursuant to a Storage and
9 Recovery Agreement.

10 6. **Priorities for Use of Groundwater Storage Capacity.** In directing spreading and
11 controlling the use of groundwater storage capacity, the Watermaster shall give first priority to
12 Replenishment Water; second priority to Carryover Rights; third priority to Storage and Recovery
13 of water which is naturally tributary to the Six Basins Area; fourth priority to Storage and Recovery
14 of Imported Water, and fifth priority to Storage and Recovery of other water.

15 7. **Loss of Stored and Carryover Water.** After providing notice and opportunity to be
16 heard to any affected Party pursuant to Article IXA, if the Watermaster reasonably determines that
17 Replenishment had to be terminated or curtailed in any year, or that Replenishment Water was
18 rejected because of insufficient storage capacity, some or all of a Party's unproduced Carryover
19 Rights or Storage and Recovery rights may be deemed lost. The amount of water subject to loss shall
20 be equal to that quantity of Replenishment Water which was curtailed or rejected solely because of
21 insufficient storage capacity in the Four Basins.

22 The burden of a determination by Watermaster that rejected recharge has occurred and that
23 there shall be a loss of stored and Carryover water, shall be shared proportionately by each Party to
24 the extent the quantity of water held by each Party at the time of the loss bears to the total quantity
25 of water within each of the classification. Any losses shall be charged first to the storage of other
26 water, then to the storage of Imported Water, then to the storage of Native Water, then to Carryover
27 Water as expressly set forth below.

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- a. Highest priority shall be given to Replenishment Water.
- b. Second priority against loss shall be given to Carryover Water.
- c. Third priority against loss shall be given to storage of Native Water.
- d. Fourth priority against loss shall be given to storage of Imported Water.
- e. Fifth priority against loss shall be given to storage of other water.

8. **Consideration of Groundwater Levels.** Watermaster shall make every reasonable effort to establish water operations limits so that the spreading of Replenishment or Replacement water, groundwater storage pursuant to a Storage and Recovery Agreement, or the determination of Operating Safe Yield shall not cause high groundwater levels that result in material damage to overlying property (not including sand and gravel excavations or operations) or cause groundwater to surface above the undisturbed natural terrain.

C. **The Parties' Rights to Groundwater and Storage in the Two Basins.**

1. **Declaration of Rights.** In recognition of the remediation efforts that are likely to be necessary to maximize groundwater production from the Two Basins; because of the detected high nitrate concentrations and in recognition that La Verne is uniquely situated to remedy these water quality conditions and exploit future opportunities; because of the minimal hydrologic communication between the Four Basins and Two Basins, and in furtherance of a complete and total physical solution for the Six Basins Area, La Verne shall have the right to produce as much groundwater as it may reasonably withdraw from the Two Basins Area on an annual basis so long as it does not substantially injure the rights of any other Party.

2. **Storage and Recovery.** La Verne has the sole right to use available storage capacity in the Two Basins in its complete discretion for the Storage and Recovery of groundwater so long as it does not cause substantial injury to any other Party. La Verne shall not be required to obtain a Storage and Recovery Agreement from the Watermaster for Storage and Recovery programs carried out within the Two Basins Area provided that (i) such production or use of storage capacity shall not cause substantial injury to any other Party and (ii) La Verne provides 60 (sixty) days' advance written notice to Watermaster before initiating such a Storage and Recovery program.

1 **3. Transferability of Rights.** Subject to the limitations set forth in Article III A,
2 Section 7, La Verne's right to produce groundwater from the Two Basins Area may be transferred,
3 in whole or in part, among existing Parties or to any other person that becomes a Party, on either a
4 temporary or permanent basis provided that no Party is substantially injured by the Transfer. The
5 permanent Transfer of the right to produce groundwater from the Two Basins Area shall not be
6 effective until approved by Watermaster.

7 **D. Rights and Responsibilities of PVPA.**

8 **1. Spreading Operations.** PVPA and the other Parties have negotiated a Supplemental
9 Memorandum of Agreement, attached hereto as Exhibit "C". This Supplemental Memorandum of
10 Agreement and all modifications or amendments thereto shall include a provision for Watermaster's
11 indemnity of PVPA for all Replenishment activities undertaken by PVPA at the direction of the
12 Watermaster. Within sixty (60) days of entry of this Judgment, Watermaster and PVPA shall execute
13 the Agreement. Upon execution, the Agreement shall become part of the Physical Solution. PVPA
14 shall not be required to execute a Storage and Recovery Agreement with Watermaster for its
15 Replenishment activities carried out under the direction of the Watermaster. The Spreading
16 operations conducted by PVPA may result in incidental Replenishment to the Two Basins Area and
17 none of the Parties have a right to object thereto. This Replenishment is authorized under the
18 Judgment.

19 **2. Waiver of Claims Against PVPA.** The Parties expressly waive any and all claims
20 against PVPA arising from facts, conditions or occurrences in existence before the Effective Date and
21 arising from PVPA's spreading operations including but not limited to water quality degradation,
22 subsurface infiltration, high groundwater or groundwater Overdraft within the Six Basins Area.

23 **E. Non-parties.**

24 **1. Minimal Producers.** Minimal producers are not bound or affected by this Judgment.
25 No person may produce twenty-five acre feet or more in any Year without becoming a Party.

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1 2. Parties' Rights Versus Non-parties Reserved. The Parties expressly reserve all
2 rights, without limitation, concerning any and all claims raised by persons not a Party to this
3 Judgment as provided in Article IV C Section 1.

4 **IV. REMEDIES**

5 A. Injunctions.

6 1. Injunction Against Unauthorized Production. Each and every Party, its officers,
7 agents, employees, successors and assigns is enjoined and restrained from producing water from the
8 Six Basins except as authorized herein.

9 2. Injunction Against Unauthorized Storage. Each and every Party, its officers,
10 agents, employees, successors and assigns is enjoined and restrained from storing water in the Six
11 Basin Area except as authorized herein.

12 3. Injunction Against Unauthorized Replenishment. Each and every Party, its
13 officers, agents, employees, successors and assigns is enjoined and restrained from replenishing water
14 in the Six Basin Area except as authorized herein.

15 B. Continuing Jurisdiction

16 1. Jurisdiction Reserved. Full jurisdiction, power and authority are retained by and
17 reserved to the Court upon the application of any Party, by a motion noticed in accordance with the
18 review procedures of Article XIA, Section 6 hereof, to make such further or supplemental order or
19 directions as may be necessary or appropriate for interpretation, enforcement or implementation of
20 this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to
21 the provisions thereof consistent with the rights herein decreed; provided that nothing in this
22 paragraph shall authorize a reduction of the Base Annual Production Right of any Party except
23 pursuant to a Transfer.

24 2. Intervention After Judgment. Any Non-party who proposes to produce
25 Groundwater from the Six Basins Area in an amount equal to or greater than 25 acre feet per Year,
26 may seek to become a Party to this Judgment through (a) a stipulation for intervention entered into
27 with Watermaster or (b) any Party or Watermaster filing a complaint against the Non-party requesting
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1 that the Non-party be joined in and bound by this Judgment. Watermaster may execute said Stipu-
2 lation on behalf of the other Parties herein, but such stipulation shall not preclude a Party from
3 opposing such intervention at the time of the Court hearing thereon. A stipulation for intervention
4 must thereupon be filed with the Court, which will consider an order confirming said intervention
5 following thirty (30) days' notice to the Parties. Thereafter, if approved by the Court, such intervenor
6 shall be a Party bound by this Judgment and entitled to the rights and privileges accorded under the
7 Physical Solution herein, including a Base Annual Production Right in an amount equal to its average
8 annual production in the twelve-year period beginning on January 1, of 1985 and ending on
9 December 31, 1996, or any Base Annual Production Right it may obtain by a transfer.

10 C. Reservation of Other Remedies.

11 1. Claims By and Against Non-parties. Nothing in this Judgment shall expand or
12 restrict the rights, remedies or defenses available to any Party in raising or defending against claims
13 made by any Non-party. Any Party shall have the right to initiate an action against any Non-party
14 to enforce or compel compliance with the provisions of this Judgment.

15 2. Claims Between Parties on Matters Unrelated to the Judgment. Nothing in this
16 Judgment shall either expand or restrict the rights or remedies of the Parties concerning subject
17 matter which is unrelated to the quantity and quality of groundwater allocated and equitably managed
18 pursuant to this Judgment other than as provided in Article IIIA, Section 1.

19 3. Groundwater Levels. Except as expressly provided herein, nothing in this Judgment
20 shall either expand or restrict the rights or remedies at law that any Party may have against any other
21 Party for money damages to real or personal property resulting from high groundwater or defenses
22 thereto for events or occurrences after the Effective Date.

23 V. WATERMASTER

24 A. Composition, Voting and Compensation. The Watermaster shall be a committee
25 composed of one representative of each of the following Parties, and each representative shall have
26 the authority to cast the indicated number of votes on any question before the committee:

27 City of La Verne 5 votes

1	City of Pomona	5 votes
2	City of Upland	5 votes
3	Southern California Water Company	5 votes
4	City of Claremont	2 votes
5	TVMWD	2 votes
6	PVPA	2 votes
7	Simpson Paper	1 vote
8	Pomona College	1 vote
9	San Antonio	1 vote

10 Committee representatives having the combined authority to cast twenty votes shall constitute a
 11 quorum for the transaction of affairs of Watermaster and seventeen affirmative votes shall be required
 12 to constitute action by Watermaster. Representatives shall be compensated for their services by their
 13 respective appointing authorities. Representatives may be reimbursed by Watermaster for out of
 14 pocket expenses incurred on authorized Watermaster business.

15 **B. Nomination and Appointment Process.** Each of the Parties named in Article VA,
 16 above, shall within thirty (30) days of entry of this Judgment submit to the Court its nominees for its
 17 representative member of the Watermaster Committee and one alternate and the Court shall in the
 18 ordinary course confirm the same by an appropriate order of appointment. Once appointed
 19 representatives and their alternates shall normally serve until a replacement is designated by the Party
 20 or until removed by the Court. If a representative or alternate is no longer willing or able to serve
 21 for any reason the Party represented by such member or alternate shall promptly submit a
 22 replacement for the member or their alternate. There shall be no need for replacement representative
 23 members or alternates to be approved by the Court. In its annual report to the Court, Watermaster
 24 shall update the list of its representative members and alternates.

25 **C. Succession.** For the purpose of determining whether a permanent Transfer of a Base
 26 Annual Production Right shall affect whether a Party shall have a Representative on the Watermaster
 27 Committee and the number of votes held by the representative, the following guidelines shall apply:
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1 1. Partial Succession. The permanent Transfer of less than any Party's full Base
2 Annual Production Right shall be considered a "partial" succession. A partial succession shall not
3 create any new or additional voting rights in the successor Party or require any modifications to the
4 rules and procedures under this Article V. The full Base Annual Production Right of any Party shall
5 be equal to the entire quantity of the Base Annual Production Right for that Party set forth in Exhibit
6 D on the Effective Date.

7 2. Non-Party Successor. A permanent Transfer of the full Base Annual
8 Production Right of any Party to a Non-Party shall automatically include the authority to cast the
9 number of votes held by the Party. In addition, the Non-Party shall succeed to all other rights and
10 responsibilities of their predecessor Party under this Judgment.

11 3. Party Successor. A permanent Transfer of the full Base Annual Production
12 Right between Parties shall automatically include the authority to cast a number of votes equal to the
13 greater of: (a) the number of votes indicated for the acquiring Party on the Effective Date or (b) the
14 number of votes indicated for the Party whose Base Annual Production Right has been acquired at
15 the time the Transfer is approved by the Watermaster. The number of votes equal to the lesser of 3(a)
16 or 3(b) shall be extinguished. The acquisition of one Party's full Base Annual Production Right by
17 another Party shall not cause a change in the number of votes required to constitute a quorum or to
18 take an action under this Article. However, in the event more than two votes are eliminated, any
19 Party or the Watermaster upon its own motion, may petition the Court to revise the required number
20 of votes to constitute a quorum or to take action under this Judgment.

21 D. Powers and Duties. Subject to the continuing supervision and control of the Court
22 and the limitations set forth in this Judgment, Watermaster shall have and may exercise the following
23 express powers, and shall perform the following duties, together with any specific powers, authority
24 and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the
25 Court in the exercise of its continuing jurisdiction:

- 26 1. Developing, Maintaining and Implementing the Operating Plan.
27 2. Adopting Rules, Regulations, Procedures, Criteria and Time Schedules.

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- 1 3. Acquiring or Investing in Facilities or Facility Improvements.
- 2 4. Acquiring or Investing in Monitoring Facilities.
- 3 5. Inspecting and Testing Measuring Devices.
- 4 6. Levying Assessments
- 5 7. Requiring the Acquisition of and Recharge of Replacement Water.
- 6 8. Contracting for Necessary Services. (Including the execution of agreements regarding
- 7 spreading and groundwater modeling.)
- 8 9. Employing Agents, Experts and Legal Counsel provided that Watermaster shall not
- 9 contract with or otherwise engage a Party with a Base Annual Production Right to
- 10 perform directly or indirectly, administrative services. However, this limitation shall
- 11 not apply to spreading services under Exhibit C, and meter reading.
- 12 10. Adopting an annual budget for monitoring and reporting legal and administrative
- 13 costs.
- 14 11. Managing Watermaster Funds.
- 15 12. Cooperating with Federal, State and Local Agencies.
- 16 13. Entering and Administering Storage and Recovery Agreements.
- 17 14. Maintaining a Notice List.
- 18 15. Reporting Annually to the Court.
- 19 16. Engaging in Dispute Resolution.
- 20 17. Prosecuting litigation against Non-parties in furtherance of the Judgment.
- 21 18. Limiting groundwater production to Operating Safe Yield during a Water Shortage
- 22 Emergency.

23 **E. Organization and Meetings.** At its first meeting in each Year Watermaster shall elect
24 a chair, vice chair, secretary and treasurer and such other officers as may be appropriate. Watermaster
25 shall hold regular meetings at places and times specified in its rules and regulations, and may hold
26 such special meetings as may be required. Watermaster shall provide notices of all regular and special
27 meetings to all parties and any person requesting notice in writing. Any meeting may be adjourned
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1 to a time and place specified in the order of adjournment. Meetings shall be conducted to the extent
2 practicable in accordance with the provisions of the California Open Meetings Law ("Brown Act")
3 *California Government Code Section 54950*, et seq as it may be amended from time to time.

4 F. **Limits on Assessments.** Watermaster shall not have the authority to levy assessments
5 beyond those specifically described herein.

6 **VI. PHYSICAL SOLUTION FOR THE SIX BASINS AREA**

7 A. **General Purposes and Objectives.**

8 1. **Physical Solution is Consistent With the Public Interest.** The Physical Solution
9 is consistent with each Party's full enjoyment and the reasonable exercise of its respective water
10 rights will not materially injure the interests of any Parties and will promote coordinated groundwater
11 management with due regard for the environment and it is therefore consistent with the public interest
12 and the reasonable and beneficial use of water.

13 2. **Balance of Equities.** This Physical Solution constitutes a legal and practical means
14 for balancing the needs of the Parties for a reliable water supply, providing an appropriate incentive
15 for remediation of poor water quality conditions, managing the available groundwater storage
16 capacity to protect against loss of available groundwater and against damage from high groundwater
17 levels with due regard for the environment .

18 3. **Flexibility.** It is essential that this Physical Solution provides maximum flexibility
19 so that the Watermaster and the Court may be free to adapt and accommodate future changed
20 conditions or new institutional or technological considerations. To that end the Court's retained
21 jurisdiction may be utilized to augment or adjust the Physical Solution without adjustment to a Party's
22 Base Annual Production Right.

23 B. **Guidelines for Operation of Four Basins Area.**

24 All production, replenishment, replacement, and Storage and Recovery of water in the Four
25 Basins Area must be conducted pursuant to the Operating Plan adopted by Watermaster in accordance
26 with the principles and procedures contained in this Judgment. The following general pattern of
27 operations is contemplated:
28

1 1. Replenishment. Groundwater will be replenished pursuant to Exhibit "E" or under
2 any other replenishment program or activity to the extent water which is naturally tributary to the Six
3 Basin Area, is available for that purpose and can safely be spread.

4 2. Storage and Recovery. Other Native Water, imported water or other water may be
5 stored and recovered pursuant to Storage and Recovery Agreements.

6 3. Operating Safe Yield. Watermaster will annually, not later than September 15,
7 establish the Operating Safe Yield for the Four Basins for the following Year, taking into
8 consideration the amount of water in storage and the need to control water table elevations.
9 Watermaster shall review the condition of the Four Basins at least quarterly during the Year and may
10 make any appropriate adjustments of the Operating Safe Yield.

11 4. Production. In any Year, each Party will be free to produce its share of the Operating
12 Safe Yield, including any Carryover Rights or Transfers, plus any water authorized to be recovered
13 pursuant to a Storage and Recovery Agreement. Except upon Transfer, no change shall be made to
14 any Party's Base Annual Production Rights.

15 5. Replacement Water. Notwithstanding any limitation contained in this Judgment, a
16 Party may produce and export water from the Four Basins in excess of its Base Annual Production
17 Right and its share of the Operating Safe Yield, plus unused Carryover rights and recoverable
18 groundwater pursuant to an approved Storage and Recovery Agreement, subject to the requirement
19 to provide Replacement Water in the manner set forth herein.

20 a. **Obligation to Provide Replacement Water.** To the extent a Party's
21 production in the Four Basins or in any basin exceeds that Party's share of the Operating Safe Yield,
22 plus unused Carryover rights and recoverable groundwater pursuant to an approved Storage and
23 Recovery Agreement, the Party shall arrange for delivery of Replacement Water in an amount equal
24 to the Party's excess production by any of the following: (i) acquiring Replacement Water directly
25 from TVMWD except Upland which may also acquire Replacement Water from the Inland Empire
26 Utilities Agency ("the Empire"); (ii) arranging for delivery of a Native water supply other than
27 Replenishment Water; or (iii) paying a Replacement Water Assessment to Watermaster for the
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1 purpose of acquiring Replacement Water directly from TVMWD except as to Upland for which
2 Watermaster may acquire replacement water from the Empire.

3 **b. In Lieu Procedures.** Replacement Water may be supplied through In-Lieu
4 Procedures, spreading or other method at a place, time and manner, acceptable to Watermaster, for
5 a price and upon terms to be determined by TVMWD except as to Upland for which the price and
6 terms may be determined by the Empire.

7 **c. Replacement Water Assessment.** Watermaster will use Replacement Water
8 Assessment proceeds to acquire Replacement Water from TVMWD, or as to Upland, the Empire.

9 **6. Development, Maintenance and Implementation of the Operating Plan.** Water-
10 master is directed to maintain and implement the Operating Plan such that Production, Replenishment
11 and Storage and Recovery of water are consistent with and implement the purpose and objectives of
12 the Physical Solution herein. The Operating Plan shall include rules, regulations, procedures, criteria
13 and time schedules, as appropriate, for at least the following elements:

- 14 a. Establishing and adjusting the Operating Safe Yield.
- 15 b. Replenishment.
- 16 c. Execution of supplemental agreements with PVPA regarding spreading
17 grounds and the funding thereof.
- 18 d. Acquisition and delivery of Replacement Water.
- 19 e. Standard terms and conditions of Storage Agreements.
- 20 f. Replenishment, replacement and storage limits needed to protect against high
21 groundwater levels.
- 22 g. Remediation of water quality problems.
- 23 h. Monitoring systems and protocols, including such for groundwater levels.
- 24 i. Monitoring, reporting and verification programs.
- 25 j. Transfers.
- 26 k. Annual budgets.
- 27 l. Financial management.

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1 m. Reporting to the Court.

2 n. Levying Assessments.

3 7. **Initial Operating Plan.** Within six months of the effective date of this Judgment
4 Watermaster shall submit to the Court for approval an initial Operating Plan. An outline of the Initial
5 Operating Plan is attached as Exhibit "G."

6 8. **Annual Review of the Operating Plan.** Watermaster shall review the Operating Plan
7 at least annually and, subsequent to each such review, submit to the Court for its approval any
8 proposed amendments or revisions.

9 9. **Replenishment.** PVPA and Pomona historically augmented the Native Safe Yield
10 within the Four Basins Area through replenishment programs or activities. For many years these
11 replenishment programs or activities have resulted in the spreading and percolation of native waters
12 originating in the San Antonio Canyon and Evey Canyon. To the extent such waters have been
13 historically spread, they comprise a portion of the Safe Yield and Operating Safe Yield subject to
14 management under this Physical Solution.

15 a. All Replenishment shall be at the direction of the Watermaster.

16 b. At the direction and sole discretion of the Watermaster PVPA shall, pursuant
17 to the Memorandum of Agreement set forth in Exhibit "C" or any subsequent
18 amendments thereto, continue to spread such native waters as it receives.

19 c. Unless it is acting for the benefit of another Party pursuant to a Storage and
20 Recovery Agreement approved by the Watermaster, except for Replacement Water,
21 all water PVPA spreads, sinks or injects shall be considered Replenishment and shall
22 comprise a portion of the Operating Safe Yield.

23 d. Although Pomona has no continuing obligation to spread or replenish, all
24 waters spread in excess of its "historical replenishment" shall not be considered
25 Replenishment and a part of the Operating Safe Yield of the Four Basins Area. The
26 "historical replenishment" of Pomona shall be equal to a twelve (12) year annual
27 average for the twelve (12) years immediately preceding the filing of the complaint
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1 (1985-1996), which is determined to be one-hundred and thirty) acre feet. All water
2 Pomona spreads, sinks or injects, or causes to be spread, sunk or injected (collectively
3 augmentation) in excess of the historical replenishment shall not be considered a
4 portion of the Operating Safe Yield, and shall not be allocated among the Parties
5 pursuant to their Base Annual Production Rights. Pomona shall be entitled to produce
6 such excess quantity in addition to its Base Annual Production Right under a pre-
7 approved Storage and Recovery Agreement as provided in Article VIA, Section 10
8 in a form substantially similar to Exhibit F hereto, which is ordered to be executed by
9 Watermaster and Pomona within sixty (60) days from the Effective Date.
10 Measurement of Pomona's rights to recover water under any Storage and Recovery
11 Agreement shall be administered as follows:

- 12 i. Pomona shall be entitled to recover the amount by which its
13 augmentation of water over the twelve (12) year period ending with
14 the current year exceeds 1,560 acre feet.
- 15 ii. If less than twelve (12) years have elapsed since the effective date of
16 this Judgment, Pomona shall have the right to recover the amount by
17 which the total number of acre feet of groundwater augmented by
18 Pomona exceeds one hundred thirty (130) acre feet times the number
19 of years elapsed.
- 20 iii. The amount in excess of Pomona's historical replenishment may be
21 recovered by Pomona as provided in the Storage and Recovery
22 Agreement.

23 **10. Storage and Recovery Pursuant to Storage and Recovery Agreements.**

24 Watermaster may enter a Storage and Recovery Agreement with any Party holding a Base Annual
25 Production Right or TVMWD so long as the Storage and Recovery of groundwater will not cause an
26 unreasonably high groundwater table and physical damage. A Storage and Recovery Agreement
27 shall contain uniform terms and conditions as set forth in the Operating Plan and may also contain
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1 special terms and conditions as deemed appropriate by Watermaster. Water that may be stored
2 pursuant to a Storage Agreement includes any water other than Replenishment Water including
3 augmentation in excess of historical replenishment as expressly set forth under Article VIB, Section
4 9.

5 **11. Special Projects.** Any Party may propose for Watermaster approval, special projects
6 including projects for controlling water levels or for remediation of water quality problems. Any such
7 proposal shall be accompanied by an analysis that identifies the benefits of the project as well as any
8 potential adverse impacts on any Party and any proposed mitigation measures. After notice to all
9 Parties, if any Party files a written objection to the proposed project, Watermaster shall hold a hearing
10 to determine whether the objections to the proposed project can be resolved. If there are no
11 objections or if objections are resolved to the satisfaction of the Parties or if Watermaster determines
12 that the objections are without merit, then Watermaster shall approve the proposed project.
13 Groundwater produced under authorization as a Special Project shall not be eligible for the accrual
14 of Carryover Rights unless authorized by Watermaster.

15 **12. Temporary Surplus Groundwater.** From time to time it may be in the best interest
16 of the Parties, for the control of high groundwater, water quality remediation or other reasons, to
17 produce groundwater over and above the then declared Operating Safe Yield. Therefore, from time
18 to time, the Watermaster may declare a Temporary Surplus of groundwater to be available for
19 production. The Parties' rights to the Temporary Surplus shall be in the same percentages as the Base
20 Annual Production Right bears to the Operating Safe Yield. A Party's rights to temporary surplus
21 shall not be eligible for the accrual of Carryover Rights set forth in Article IIIB, Section 2.

22 **C. Guidelines for Operation of the Two Basins Area.** All Production, Replenishment
23 and Storage and Recovery rights for groundwater in the Two Basins Area are reserved to La Verne.
24 However, La Verne's Production, Replenishment and Storage and Recovery of groundwater must not
25 substantially injure other Parties.

26 **1. Replenishment.** La Verne shall have sole and complete discretion in the operation
27 of Replenishment programs in the Two Basins Area provided that no other Party is substantially
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1 injured by the program. La Verne shall provide written notice to Watermaster sixty (60) days in
2 advance of any Replenishment program being undertaken.

3 **2. Storage and Recovery.** La Verne shall have sole and complete discretion in the
4 operation of a Storage and Recovery program in the Two Basins Area provided that no other Party
5 is substantially injured by the program. La Verne shall provide written notice to Watermaster sixty
6 (60) days in advance of any Storage and Recovery program being undertaken. La Verne shall
7 annually report the quantity of groundwater stored pursuant to a Storage and Recovery Program in
8 the Two Basins Area.

9 **3. Production.** La Verne shall have sole and complete discretion to produce
10 groundwater from the Two Basins Area provided that no other Party is substantially injured by such
11 production. La Verne shall report its groundwater production to the Watermaster on a monthly basis.

12 **VII. ASSESSMENTS**

13 **A. Ground Rules**

14 **1. Authorization.** Subject to the continuing supervision of the Court and the limitations
15 set forth in the Judgment, Watermaster is authorized to levy assessments to fund Replacement Water
16 acquisition costs, administrative costs and other costs determined by Watermaster to be necessary for
17 the implementation of the physical solution.

18 **2. Assessment Spread.** Excluding Replacement Water Assessments, all assessments
19 levied by the Watermaster shall be spread such that Claremont, Pomona College and TVMWD
20 (collectively, the "Minor Parties") shall each individually be assessed three and one half (3.5) percent
21 of the total assessment , and eighty-nine and one half (89.5) percent of the total assessment is spread
22 among La Verne, Pomona, Upland, San Antonio, West End, ~~Simpson~~ and SCWC (collectively, the
23 "Major Parties") in proportion to their then-current holdings of Base Annual Production Rights,
24 provided that for assessments other than for Replacement Water or administration (a) the total amount
25 spread among Minor Parties shall not exceed sixty-thousand \$60,000, escalated, in any year without
26 their unanimous consent and (b) the total amount spread among the Major Parties in any year shall
27 not exceed ten dollars (\$10.00), escalated, per acre foot of their Base Annual Production Rights
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1 without their unanimous consent. "Escalated" shall mean an annual adjustment in the specified dollar
2 value based upon the Consumer Price Index for Southern California in the immediately preceding
3 Year. No escalation adjustment shall be made until the Judgment has been in effect for twelve
4 consecutive calendar months. PVPA shall not have any obligation to pay any assessments.

5 **3. Administrative Assessment.** Watermaster is authorized to levy an annual assessment
6 that is sufficient to fund the costs of administering the Judgment. The administrative assessment shall
7 not exceed the cost of Watermaster's administrative budget and shall be due and payable according
8 to a schedule established by Watermaster. The administrative assessment for the first Year following
9 entry of Judgment shall be \$8.00^{per AF} and shall be due and payable on January 15, 1999. Late payment
10 shall bear an interest penalty to be established annually by Watermaster. (*escalated?*)

11 **4. Replacement Water Assessments.** To the extent Watermaster must acquire and
12 recharge the groundwater with Replacement Water pursuant to the terms of this Judgment, in order
13 to fund the costs thereof, Watermaster is authorized to levy Replacement Water Assessments.
14 Replacement Water Assessments levied against any Party shall be sufficient to pay the costs to
15 replace such Party's production in excess of the sum of such Party's share of the Operating Safe Yield,
16 any Carryover Right or Transfers and any storage recovery, Production of Temporary Surplus or
17 pursuant to Special Project authorization, during the prior Year, minus any Replacement Water
18 provided to Watermaster by the Party. Any Replacement Water Assessment shall be paid within
19 sixty (60) days from the date of the written invoice from Watermaster.

20 **VIII. DISPUTE RESOLUTION**

21 **A. Entity for Resolution of Dispute.** All disputes arising under this Judgment initially
22 shall be submitted to Watermaster for resolution in accordance with the provisions of this Article.

23 **B. Determination Regarding Substantial Injury.** Any Party having a right to be
24 protected against "substantial injury" caused by any other Party; the right to proceed so long as not
25 causing substantial injury to another party; or any other claim, right or remedy against any other
26 Party arising under the provisions of this Judgment may file a written request with the Watermaster
27 to hold a hearing.

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1 C. Notice and Hearing. Upon receipt of the written request, Watermaster shall provide
2 written notice to each Party which generally describes the nature of the dispute. Thereafter,
3 Watermaster shall cause an item to be placed on the agenda for the next regularly scheduled meeting
4 of the Watermaster or if requested by the moving Party, call a special meeting for the purpose of
5 providing a full hearing of the dispute and providing the interested Parties with notice and
6 opportunity to be heard. No later than 30 days following the conclusion of the hearing(s)
7 Watermaster shall issue a written decision which is dispositive of the dispute and which is supported
8 by written findings. Any Party may seek review of an adverse decision of the Watermaster in
9 accordance with the provisions of Article IX.

10 **IX. ADDITIONAL PROVISIONS**

11 A. Procedure

12 1. Designation of Address for Notice and Service. Each Party shall designate the name
13 and address to be used for purposes of all subsequent notices and service herein, either by its
14 endorsement on the Stipulation for Judgment or by a separate designation to be filed within thirty
15 (30) days after Judgment has been entered. Said designation may be changed from time to time by
16 filing a written notice of such change with Watermaster. Any Party desiring to be relieved of
17 receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by
18 Watermaster. Watermaster shall maintain at all times a current list of Parties to whom notices are
19 to be sent and their address for purposes of service. Watermaster shall also maintain a full current
20 list of names and addresses of all Parties or their successors, as filed herein. Copies of such lists shall
21 be available to any person. If no designation is made, a Party's designee shall be deemed to be, in
22 order of priority: (i) the Party's attorney of record; (ii) if the Party does not have an attorney of
23 record, the Party itself at the address on the Watermaster list.

24 2. Service of Documents. Delivery to or service upon any Party by Watermaster, by any
25 other Party, or by the Court, of any document required to be served upon or delivered to a Party under
26 or pursuant to this Judgment shall be deemed made if made by deposit thereof (or by copy thereof)

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1 in the mail, first class postage prepaid, addressed to the designee of the Party and at the address
2 shown in the latest designation filed by that Party.

3 **3. Recordation of Notice.** Within sixty (60) days following entry of this Judgment,
4 Watermaster shall record in the office of the County Recorder of the Los Angeles and San Bernardino
5 Counties a notice substantially complying with the notice content requirements set forth in *Section*
6 *2529 of the California Water Code* as it exists on the Effective Date.

7 **4. Judgment Binding on Successors.** Subject to specific provisions hereinbefore
8 contained, this Judgment and all provisions thereof are applicable to and binding upon and inure to
9 the benefit of not only the Parties to this action, but also to their respective heirs, executors,
10 administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in
11 fact of any such Persons.

12 **5. Costs.** No Party stipulating to this Judgment shall recover any costs or attorneys fees
13 in this proceeding from another stipulating Party. In any future proceedings, the costs of notice or
14 service, shall be levied in accordance with the provisions of Article XIA, Section 6.

15 **6. Review Procedures.** Any action, decision, rule or procedure of Watermaster pursuant
16 to this Judgment shall be subject to review by the Court on its own motion or on timely motion by
17 any Party, as follows:

18 **a. Effective Date of Watermaster Action.** Any order, decision or action of
19 Watermaster pursuant to this Judgment on noticed specific agenda items shall be deemed to have
20 occurred on the date of the order, decision or action.

21 **b. Notice of Motion.** Any Party may, by a regularly noticed motion, petition the
22 Court for review of Watermaster's action or decision pursuant to this Judgment. The motion shall
23 be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to
24 Watermaster together with the service fee established by Watermaster sufficient to cover the cost to
25 photocopy and mail the motion to each Party. Watermaster shall prepare copies and mail a copy of
26 the motion to each Party or its designee according to the official service list which shall be
27 maintained by Watermaster according to Article XIA, Section 1, a Party's obligation to serve notice
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1 of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless
2 ordered by the Court, any such petition shall not operate to stay the effect of any Watermaster action
3 or decision which is challenged.

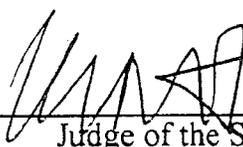
4 c. Time for Motion. A motion to review any Watermaster action or decision
5 shall be filed within ninety (90) days after such Watermaster action or decision, except that motions
6 to review Watermaster Assessments hereunder shall be filed within thirty (30) days of mailing of
7 notice of the Assessment.

8 d. De Novo Nature of Proceeding. Upon filing of a petition to review
9 Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take
10 evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or
11 action shall have no evidentiary weight in such proceeding.

12 e. Payment of Assessments. Payment of Assessments levied by Watermaster
13 hereunder shall be made when due, notwithstanding any motion for review of Watermaster action,
14 decision, rules or procedures, including review of Watermaster Assessments.

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16 B. Entry of Judgment. The Clerk shall enter this Judgment.

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18 Dated: DEC 18 1998 1998.



Judge of the Superior Court

WILLIAM J. McVITTIE

EXHIBIT B

DESCRIPTION OF SIX BASINS AREA

The Six Basins Area lies between the San Jose Hills on the south, the Chino Basin on the east, the San Gabriel Mountains on the north and the Main San Gabriel Basin on the west. The boundaries of the Main San Gabriel Basin are set forth in the Judgment in the case of the *Upper San Gabriel Valley Municipal Water District vs. City of Alhambra, et al.*, Superior Court of the State of California, Los Angeles County, Case No. 924128, and the boundaries of the Chino Basin are set forth in the Judgment in the case of *Chino Basin Municipal Water District vs. City of Chino, et al.*, Superior Court for the State of California, San Bernardino County, Case No. 164327. The Area consists of six interconnected groundwater basins. Each basin consists of all alluvium or other water-bearing formations lying beneath the surface of the basin. The approximate boundaries of the surface of each basin are shown on EXHIBIT A and are described generally as follows:

Canyon Basin. The surface of the Canyon Basin is bounded on the south and east by the surface trace of the Sierra Madre/Cucamonga Fault and on the north and west by the surface trace of the bedrock/alluvium interface between (a) the point of intersection in Township 1 North, Range 8 West, Section 31, SBB&M, of the Sierra Madre/Cucamonga Fault with easterly boundary of the Main San Gabriel Basin and (b) the point of intersection in Township 1 North, Range 8 West, Section 20, SBB&M, of the Sierra Madre/Cucamonga Fault with the San Gabriel Mountains. The northernmost extent of the bedrock/alluvium interface is assumed to be at the southern boundary of Township 1 North, Range 8 West, Section 13, SBB&M in San Antonio Canyon.

Upper Claremont Heights Basin. The surface of the Upper Claremont Heights Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the westerly boundary of the Chino Basin, on the north by the surface trace of the Sierra Madre/Cucamonga Fault and on the west by the surface trace of the Claremont Heights Barrier.

Lower Claremont Heights Basin. The surface of the Lower Claremont Heights Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the surface trace of the Claremont Heights Barrier, on the north by the surface trace of the Sierra Madre/Cucamonga Fault on the west by the surface trace of the Thompson Wash Barrier.

Live Oak Basin. The surface of the Live Oak Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the surface trace of the Thompson Wash Barrier, on the north by the surface trace of the Sierra Madre/Cucamonga Fault and on the west by the easterly boundary of the Main San Gabriel Basin.

Ganesha Basin. The surface of the Ganesha Basin is bounded on the south and east by the surface of the San Antonio Fault, on the north surface trace of the Indian Hill Fault, and on the west by easterly boundary of the Main San Gabriel Basin and by the surface trace of the bedrock/alluvium interface between (a) the point of intersection in Township 1 South, Range 9 West, Section 11, SBB&M, of the easterly boundary of the Main San Gabriel Basin with the San Jose Hills and (b)

the point of intersection in Township 1 South, Range 9 West, Section 14, SBB&M, of the surface trace of the San Antonio Fault with the San Jose Hills.

Pomona Basin. The surface of the Pomona Basin is bounded on the south by the surface trace of the bedrock/alluvium boundary between (a) the intersection in Township 1 South, Range 9 West, Section 14, SBB&M, of the surface trace of the San Antonio Fault with the San Jose Hills and (b) the intersection in Township 1 South, Range 8 West, Section 19, SBB&M, of the boundary of the Chino Basin, on the north by the surface trace of the Indian Hill Fault on the west by the surface of the San Antonio Fault.

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MEMORANDUM OF AGREEMENT
BETWEEN THE POMONA VALLEY PROTECTIVE ASSOCIATION
AND WATERMASTER OF THE SIX BASINS RELATING TO
WATER SPREADING AND RELATED ACTIVITIES

THE AGREEMENT, made, entered into, and executed as of this ____ day of _____, 1999, by and between the Pomona Valley Protective Association ("PVPA"), and Watermaster of the Six Basins ("Watermaster"), relating to water spreading and related activities in connection with the Canyon Basin, the Upper Claremont Height Basin, the Lower Claremont Heights Basin, the Live Oak Basin, the Ganesha Basin and the Pomona Basin (collectively, the "Six Basins").

RECITALS

WHEREAS, the rights to groundwater in connection with the Six Basins were adjudicated by the court in an action entitled "*Southern California Water Company v. City of La Verne, et al.*," Case No. KC029152 in the Superior Court of the State of California, County of Los Angeles, (the "Judgment"); and

WHEREAS, the Judgment requires the Watermaster to determine annually an Operating Safe Yield of the Six Basins and to develop an Operating Plan, which will include the monitoring and direction of all production, replenishment, replacement and storage of groundwater in the Six Basins; and

WHEREAS, PVPA, a California corporation, formed in 1910 by various water interests in Pomona Valley, engages in water conservation activities for the benefit of its shareholders, which include the City of Upland, Southern California Water Company, the City of Pomona, Simpson Paper Co., Pomona College, the San Antonio Water Company, and the West End Water Company; and

WHEREAS, PVPA owns certain real property in and around the Six Basins area primarily consisting of two spreading grounds: the San Antonio Spreading Grounds and the Thompson Creek Spreading Grounds together with appurtenant diversion and conveyance facilities (the "Spreading Grounds" herein); and

1 WHEREAS, in connection with its water conservation activities, PVPA has conducted
2 several technical studies of the Six Basins including the development of a numerical groundwater
3 model which assists in the prediction of the Six Basins' response to PVPA's spreading activities, and
4 is used to control the groundwater resources for the Six Basins and to mitigate high groundwater in
5 the Six Basins; and

6 WHEREAS, the parties to the Judgment have conducted additional studies including the
7 enhancement and refinement of the PVPA groundwater model.

8 NOW, THEREFORE, in consideration of mutual promises, agreements, and covenants of
9 Watermaster and PVPA collectively referred to herein as "the Parties" agree as follows:

10 **I. DEFINITIONS**

11 A. The Judgment defines certain important terms. Except as to the definitions provided
12 in this Agreement, the terms used in this Agreement which have been defined in the Judgment shall
13 have the meaning set forth in the Judgment and the definitions set forth in the Judgment are
14 incorporated herein by this reference

15 B. "Emergency" shall mean a sudden event which threatens life or property.

16 C. "Models" shall mean the spreadsheet and the basin wide models used by PVPA in
17 development of an Operating Plan and any subsequent version or improvement thereof.

18 D. "Parties" written with an upper case P, refer to the Watermaster and to PVPA.
19 Parties written with a lower case p, refer to the parties to the Judgment as defined therein.

20 **II. SPREADING GROUNDS AND SPREADING OPERATIONS**

21 A. Watermaster Direction and PVPA Reservation. PVPA shall use and operate the
22 Spreading Grounds primarily for the spreading of replenishment, replacement and storage water
23 under the direction of the Watermaster Plan. PVPA reserves the right to use the Spreading Grounds
24 for other lawful activities consistent with its water spreading activities so long as doing so does not
25 impair PVPA's ability to spread replenishment water in quantities substantially comparable to
26 historic quantities.

27 B. Impossibility and related defenses. PVPA shall not be liable, in breach or in default
28 of the Agreement if PVPA is unable, either temporarily or permanently, to perform its obligations

1 under the Agreement for reasons beyond PVPA's reasonable control, including but not limited to,
2 acts of God, eminent domain, impossibility or impracticability of performance, interference of a
3 third party and natural disasters, including without limitation, floods, earthquakes, and fires.

4 C. PVPA Discretion. PVPA shall have discretion to make operational decisions in
5 discharging its obligation hereunder within the scope of Watermaster direction.

6 D. Common conditions of spreading. In addition to the direction of Watermaster PVPA
7 shall spread replenishment, replacement or storage waters subject to the following conditions.

8 1. Cessation of Spreading for Emergencies. PVPA reserves the right to cease
9 spreading at any time, without prior notice to Watermaster if, in the discretion of PVPA, such action
10 shall be warranted by, and in connection with, any emergency condition. PVPA will give
11 Watermaster immediate notice of any such cessation.

12 2. Water Quality. PVPA bears no responsibility for the quality of replenishment,
13 replacement or storage water or the impacts of spreading such water upon water quality of the Six
14 Basins.

15 3. High Groundwater. PVPA bears no responsibility for high groundwater due
16 to any spreading of replenishment, replacement or storage water.

17 4. Rejected water. PVPA bears no responsibility for loss of replenishment,
18 replacement or storage water which is rejected or otherwise lost.

19 5. Measurement and Reporting. Watermaster shall provide adequate measuring
20 devices to measure the spreading of replenishment, replacement and storage waters and any such
21 water rejected or lost. PVPA will keep, maintain and furnish to Watermaster on a monthly basis,
22 records of the quantities of replenishment waters spread and rejected.

23 6. Record of Deliveries and Spreading. Watermaster shall keep, maintain and
24 furnish to PVPA records of the quantities and quality of replacement or storage waters delivered
25 within 30 days following delivery of such waters. PVPA shall keep, maintain, and furnish to
26 Watermaster the quantities of replacement and storage waters spread within 30 days following
27 delivery of such water together with an estimate of the quantities of water bypassing the spreading
28 facilities, if any.

1 7. Compensation. Subject to review by the court under its continuing
2 jurisdiction in Case No. KC029152, Watermaster shall pay PVPA's actual, reasonable and necessary
3 costs incurred by PVPA in spreading replenishment, replacement and storage water. PVPA will
4 bill Watermaster such costs on a quarterly basis and such bill will include a reasonably detailed
5 accounting of such costs under generally accepted accounting principles (GAAP). Payment is due
6 upon billing. PVPA's costs may be subject to review or audit by an outside accounting firm selected
7 and paid by Watermaster (within thirty days following billing). Within thirty (30) days following
8 billing, Watermaster shall either contest the billing or accept said billing.

9 E. Replenishment water. In addition to the above, PVPA shall spread replenishment
10 water as it becomes available. PVPA has no control over the availability of replenishment waters
11 and is under no obligation to spread any specific quantity of replenishment water.

12 F. Replacement Water. In addition to the above, PVPA shall spread Replacement
13 Water on the Spreading Grounds under the following terms and conditions. Pursuant to the
14 Judgment, only qualified parties under the Judgment may store water in the Six Basins upon entry
15 into a Storage and Recovery Agreement with Watermaster. Upon request, PVPA shall spread
16 storage water under the following terms and conditions:

17 1. Terms of Delivery. Watermaster shall deliver and PVPA shall spread storage
18 water under the same terms and conditions as replacement waters.

19 2. Replacement Water Flows. PVPA will assist Watermaster in determining the
20 allowable daily rates and the duration of replacement water deliveries, based upon conditions
21 existing from time to time, including any unused capacity available at and in PVPA spreading
22 facilities.

23 3. Notice of New or Changed Replacement Water Flows. Watermaster, at least
24 seven (7) days prior to any anticipated delivery of replacement water, shall notify PVPA that water
25 will be available for transport and spreading and shall give PVPA at least forty-eight (48) hours
26 notice of any anticipated change in previously established flow rates of delivery for such water.

27 4. Spreading Grounds Limitations. PVPA may require changes in delivery flow
28 rates when, in PVPA's opinion, continued spreading (in whole or in part) cannot be carried out

1 hereunder due to operational and/or maintenance problems, including, but not limited to, trespassing,
2 insect infestations, scarification, weed abatement, and/or construction in or at PVPA's conveyance
3 and spreading facilities. When it is reasonable to do so, PVPA will give Watermaster at least twenty-
4 four (24) hours' notice of any such changes.

5 **III. OWNERSHIP AND IMPROVEMENTS OF SPREADING GROUNDS**

6 A. No Dedication. Nothing in this Agreement shall be construed as a dedication of the
7 PVPA Spreading Grounds or its facilities to Watermaster, the other parties to the Judgment, or to
8 the public use or benefit. The spreading grounds and appurtenant facilities are, and remain, the sole
9 property of PVPA. PVPA may sell, lease, or otherwise dispose of portions of its spreading grounds
10 at its own discretion but not inconsistent with this Agreement.

11 B. Spreading Grounds Improvements. Nothing in this Agreement obligates or otherwise
12 requires PVPA to construct new or additional facilities in connection with its spreading operations.
13 PVPA may at its discretion construct new or additional facilities. Watermaster may propose
14 improvements to PVPA's spreading grounds and facilities at its own expense.

15 C. Condemnation. Watermaster agrees to and does waive and disclaim any interest in
16 any award or settlement which may be made in any proceeding in eminent domain concerning all
17 or part of the Spreading Grounds whether the taking be total or partial, or for easement purposes.
18 If the taking be such as to render the Spreading Grounds totally unfit and unsuitable for the above
19 use, then, pursuant to Paragraph II,^B~~A~~ PVPA is not in default or breach.

20 **IV. GROUNDWATER MODEL**

21 A. License for use. PVPA grants Watermaster a license to use its Spreadsheet Models
22 pursuant to the terms and conditions of this agreement for the development of an Operating Plan.
23 In developing the initial operating plan, Watermaster has used PVPA's Groundwater Models. In
24 developing subsequent operating plans or revising such plans, Watermaster shall use PVPA's
25 Groundwater Models and any subsequent version or improvement thereof, or other criteria at
26 Watermaster's discretion.

27
28

1 1. Custody of the PVPA's Groundwater Models. Watermaster shall have
2 physical custody of a copy of the model. However, PVPA shall have the right to access the Models
3 for any purpose which is not inconsistent with the Judgment or the direction of the Watermaster.

4 2. Updates to Model.

5
6 Said license shall include, following consultation with PVPA, the right to make changes,
7 modifications, improvements, updates, or refinements in or to PVPA's Groundwater Model at the
8 sole expense of Watermaster and without any contribution from PVPA.

9 B. Terms and Conditions. For daily operations, Watermaster shall be responsible for
10 keeping, maintaining and reporting on the data base necessary for use of PVPA's Groundwater
11 Models. Watermaster shall collect water level and quality data necessary, including key well levels
12 and rainfall data, to use the Groundwater Models to implement the Physical Solution. Watermaster
13 shall provide this data to PVPA by the fifteenth day of each month. PVPA shall provide
14 Watermaster readings of replenishment water spread, on a daily basis. PVPA then shall provide
15 Watermaster with a monthly report on available storage and water levels of monitoring wells.

16 1. Compensation. PVPA grants Watermaster this license at no cost other than
17 the continuing costs which may be incurred by PVPA as a result of Watermaster operating the
18 Models.

19 2. No Warranty. PVPA makes no warranty and disclaims all warranties
20 regarding PVPA's Groundwater Model and its subsequent updates or improvements.

21 3. Field Conditions. PVPA shall report to Watermaster any field conditions that
22 may have an impact on Spreading Operations.

23 V. **INDEMNIFICATION**

24 A. Watermaster Obligations. To the extent which is allowed by law, Watermaster shall
25 indemnify and hold harmless, PVPA, its officers, directors, employees, agents, and representatives
26 against any and all claims, demands, costs, and/or liabilities due to, or arising from any act or
27 omission by PVPA, its officers, directors, employees, or agents arising from any activities not
28 connected with the spreading of water under the direction of Watermaster.

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VI. INSURANCE

A. Subject to the above, PVPA shall obtain and maintain during the term of this Agreement the following insurance policies:

1. General Liability Insurance: PVPA shall maintain general liability insurance for bodily injury, property damage, personal injury, errors and omissions, and if practicable, flooding. The insurance shall be on an occurrence basis. The policy limits shall be at least \$1,000,000.

2. Property: PVPA shall obtain insurance to provide for replacement of real and personal property owned by PVPA in the event of loss by fire, flood or vandalism. This insurance shall be provided on an occurrence basis and the policy limits shall be at least \$1,000,000.

VII. MISCELLANEOUS PROVISIONS

A. Effective Date. This Agreement shall not be effective until executed by the Parties and approved by the court upon motion of Watermaster in said action in Case No. KC029152.

B. Written Amendments. This Agreement may only be modified, amended, or supplemented by a subsequent writing executed by each Party hereto and approved by the Court with jurisdiction in Case No. KC029152.

C. Choice of Law. This Agreement shall be governed by and interpreted under the laws of the State of California.

D. Delivery of Notices. All notices permitted or required under this Agreement shall be addressed to the representative Parties at the following address, or such other address as the respective Parties may provide in writing for this purpose:

PVPA: President
Pomona Valley Protective Association
414 Yale Avenue, Suite H
Claremont, California 91711

Six Basins Watermaster As may be designated by Watermaster

1 Such Notices shall be deemed made when personally delivered or, when mailed, forty-eight
2 (48) hours after deposit in the U.S. mail, first class postage pre-paid and addressed to the Party at
3 its applicable address.

4 E. Successors and Assigns. This Agreement is binding on and shall inure to the benefit
5 of the Parties, their respective successors in interest and assigns.

6 F. Assignment. No Party shall have the right to assign its rights or delegate any of its
7 obligations hereunder without the express written consent of the other Party.

8 G. Construction. Each Party and/or its respective counsel has taken part in the
9 negotiation, drafting, and preparation of this Agreement, and, therefore, any ambiguity or
10 uncertainty in this Agreement shall not be construed against any Party. To ensure that this
11 Agreement is not construed against any Party, the Parties expressly agree that any common law or
12 statutory provision providing that an ambiguous or uncertain term will be construed against the
13 drafter of an Agreement is waived and shall not apply to the construction of this Agreement.

14 H. Entire Agreement. This Agreement embodies the entire and final Agreement and
15 understanding of the Parties pertaining to the subject matter of this Agreement, and supersedes all
16 prior Agreements, understandings, negotiations, representations, and discussions pertaining to that
17 subject matter, whether verbal or written, of the Parties. The Parties acknowledge that there are no
18 representations, promises, warranties, conditions, or obligations of any Party, or counsel (or any
19 Party), pertaining to that subject matter other than is contained in this Agreement, and that no Party
20 has executed this agreement in reliance on any representation, promise, warranty, condition, or
21 obligation, other than is contained in this Agreement.

22 I. Execution. The Parties to this Agreement acknowledge that they have executed this
23 Agreement voluntarily and without any duress or undue influence. The Parties further acknowledge
24 that they (1) have been represented by counsel of their own choice in connection with the
25 negotiation and execution of this Agreement, or have been advised to seek independent counsel of
26 their own choice prior to executing this agreement; (2) have read this Agreement in its entirety; and
27 (3) have entered into this Agreement of their own volition and not as a result of any representations
28 or advice by other Party or counsel for any other Party.

1 J. Counter Parts. This Agreement may be executed in one or more counterparts, each
2 of which shall be deemed an original, but all of which together shall constitute one and the same
3 instrument. This agreement shall become effective and binding immediately upon its execution by
4 both Parties. This Agreement consists of nine (9) pages, including the signature page.

5 K. Termination. Upon motion made by either Party to this Agreement in accordance
6 with the procedures set forth in Article IX, Section A of the Judgment and approval of the Court,
7 this Agreement shall be terminated.

8
9 DATED: _____ WATERMASTER

10
11 _____
12 By:

13
14 DATED: _____ POMONA VALLEY PROTECTIVE ASSOCIATION

15
16 _____
17 By:

EXHIBIT D

BASE ANNUAL GROUNDWATER PRODUCTION IN EACH BASIN, 1985- 1996
 AND TOTAL BASE ANNUAL GROUNDWATER PRODUCTION, 1985- 1996
 FOR EACH PARTY, AND EACH PARTY'S PERCENTAGE OF THE AGGREGATE OPERATING SAFE
 YIELD FOR THE CANYON, UPPER CLAREMONT HEIGHTS, LOWER CLAREMONT HEIGHTS AND POMONA BASINS

Party	Base Annual Production, Acre Feet per Year				Percentage of Aggregate Operating Safe Yield
	Canyon Basin	Upper Claremont Heights Basin	Lower Claremont Heights Basin	Pomona Basin	
City of La Verne	0	0	0	1,492	7.731
City of Pomona*	0	1,234	961	1,128	17.218
Simpson Paper	0	0	0	691	3.580
Southern Cal. Water Co.	56	2,895	107	3,647	34.741
City of Claremont	0	267	0	268	2.772
Pomona College	0	357	0	0	1.850
City of Upland	408	1,434	0	0	9.544
West End Consolidated Water Company	0	2,972	0	0	15.399
San Antonio Water Company	0	1,383	0	0	7.166
TOTAL	464	10,542	1,068	7,226	100.000%

* Pomona shall have the right to produce an additional 109 acre feet of groundwater per year subject to the following:

(a) Pomona shall provide at least 436 acre feet of recycled water to the property presently designated by the Los Angeles County Assessor as Assessor's Parcel Nos. 834-800-8001, 834-800-8002, 834-800-8009, 834-800-5013 and 834-800-6001.

(b) Pomona's additional production right shall be added to its Base Annual Production Right and shall be subject to all provisions of the Judgment relating to Base Annual Production Rights; provided however, such additional right shall not be subject to transfer or the water produced delivered for use outside the Pomona service area.

(c) To the extent in any year Pomona provides less than 436 acre feet of recycled water to the above described property, the additional right of Pomona shall be reduced to an amount equal to one fourth (1/4) of the amount of recycled water provided. However, no reduction shall occur to the extent the failure to deliver recycled water is the result of sudden occurrences such as storms, floods, fires, earthquakes, accidents or unexpected equipment outage) or acts or omissions of the Los Angeles County Sanitation District which impair the ability of Pomona to make recycled water deliveries.

EXHIBIT E

DESCRIPTION OF REPLENISHMENT PROGRAMS

San Antonio Spreading Grounds

Owned and operated by the Pomona Valley Protective Association (PVPA), this private facility is comprised of 600 acres of spreading grounds on both the east and west sides of San Antonio channel. The grounds consist of ditches, check levees, gates, metering stations, shallow basins and deep basins. The primary source of water for this facility is from San Antonio Creek by way of controlled releases from San Antonio Dam which is owned and operated by the U.S. Army Corps of Engineers. Water is released from the dam directly into San Antonio Flood Control Channel. Upon entering the channel, water is diverted into an underground basin where control gates allow regulated flow onto the spreading grounds. Additional sources of water include uncontrolled surface flows from adjacent properties in San Bernardino and Los Angeles Counties. The Corps coordinates its releases with PVPA. Four metering stations are used for flow measurements, and a series of ditches, check levees, gates and appurtenances allow the water to be directed into shallow and deep basins. Since 1896, PVPA has regularly spread water at its facility.

Thompson Creek Spreading Grounds

Owned and maintained by PVPA, this private facility is comprised of approximately 53 acres of spreading grounds south of Thompson Creek Dam and east of Thompson Creek. PVPA operates this facility with the cooperation of the Los Angeles County Flood Control District. The grounds consist of ditches, check levees, gates, shallow and deep basins. The sources of water for this facility are Cobal, Williams, Palmer, and Padua Creeks which are diverted to the grounds by PVPA with the cooperation of the Los Angeles County Department of Public Works through the Palmer Diversion. Surface runoff is diverted onto the grounds by way of Chicken Creek through a diversion located directly north of the grounds. PVPA's facility can also receive water from Thompson Creek Dam when the reservoir exceeds the elevation of 1625 feet above sea level. Since 1918, PVPA has spread water at this facility.

Pomona Spreading Grounds

Owned and operated by the City of Pomona, this facility is comprised of 8 acres of spreading grounds adjacent to the City's Pedley Water Treatment Plant. The City acquired this property in October 1926. The present deep basin configuration of the facility was completed in 1957. The source of water for this facility is San Antonio Creek water delivered through the Loop Merserve Canyon Water Company pipeline and Evey Canyon water. This facility also receives some local runoff. Water has been spread in this vicinity on and off since about 1897.

Live Oak Spreading Grounds

Owned and operated by the Los Angeles County Department of Public Works, this facility consists of approximately 5 acres of spreading grounds. Approximately 1.5 acres north of Baseline Road and 3.5 acres south of route 30 freeway extension. The source of water for this facility is controlled releases from Live Oak Dam and Live Oak Debris Basin. This facility was first used in the 1961-62 water year.

WATER STORAGE AND RECOVERY AGREEMENT

1. IDENTIFICATION

THIS AGREEMENT dated _____ by and between the CITY OF POMONA, a chartered municipal corporation (Pomona), and the SIX BASINS WATERMASTER, a court appointed entity established by the Los Angeles County Superior Court (Watermaster), and is based upon the following recitals.

2. RECITALS

2.1 Water rights have been adjudicated in the Six Basins Area according to the Judgment in Los Angeles County Superior Court Case No. KC 029152, entitled Southern California Water Company v. the City of La Verne.

2.2 Said Judgment establishes the Watermaster as the court empowered entity responsible for managing the Six Basins Area. Under the provisions of Paragraph VI.B.10 of the Judgment, Watermaster is authorized to enter into Storage and Recovery Agreements with any party holding a base annual production right.

2.3 Pomona is a party holding a base annual production right. In addition, Pomona has historically replenished the Six Basins Area. While Pomona is under no obligation to replenish the Six Basins Area, to the extent that it does augment groundwater supplies in excess of its historical replenishment as provided in Paragraph VI.B.9 of the Judgment, Pomona is authorized to recover such water.

2.4 Spreading and injecting or otherwise recharging groundwater in the Six Basins Area is restricted according to Paragraph IV.B of the Judgment; however, pursuant to Paragraph VI.B.10,

Watermaster is authorized to enter into storage and recovery agreements for the utilization of groundwater storage capacity and for subsequent recovery use or credit by the storing entity.

2.5 Pomona and Water master desire to enter into an agreement for the storage and recovery of water.

3. AGREEMENTS

In consideration for the mutual promises and conditions contained herein and for other valuable consideration, the parties agree as follows:

3.1 Pomona may, subject to the conditions hereinafter set forth, spread and cause to be spread water which would be stored for Pomona's account. The amount of water stored and recovered shall be all amounts it has spread or caused to be spread in the Six Basins Area in excess of 130 acre feet annually as specifically provided in Paragraph VI.B.9 of the Judgment. Without limitation on accumulations, Pomona shall acquire and retain ownership of all such storage in excess of the historical replenishment of 130 acre feet per year until such water is produced by Pomona or transferred as a credit toward any Replacement Water obligation.

3.2 Pomona shall issue a report to Watermaster on a quarterly basis indicating the amount of water which Pomona has spread. The report shall be due the last day of the month next following the end of the relevant quarter.

3.3 Recovery of water by Pomona shall be accounted for as follows:

3.3.1 The first water Pomona produces in a calendar year shall be the carryover of unused rights in accordance with Paragraph III.B.2.

3.3.2 The next such water produced shall be Pomona's Base Annual Production Right.

3.3.3 The next such water produced shall be water stored pursuant to this storage and Recovery Agreement.

3.4 This Agreement shall be effective upon court approval of the Judgment in the above-referenced case.

3.5 Any notices required hereunder may be given by mail postage prepaid and addressed as follows:

TO WATERMASTER:

TO CITY OF POMONA:

Henry Pepper, Director of Utilities
Public Works Department
City of Pomona
505 S. Garey Avenue
Pomona, CA 91769-0660

EXECUTED this _____ day of _____, 1998, at _____, CA.

CITY OF POMONA

By: _____

WATERMASTER

By: _____

EXHIBIT G

INITIAL OPERATING PLAN

1. Replenishment. PVPA shall continue to replenish the basin as it has historically done. PVPA shall curtail replenishment when the Index Water Level is at 1455 or higher, where the Index Water Level is the average of the water level elevations above Mean Sea Level for the following five Key Wells:

Upland-Foothill No. 3 (Owner: WECWC)
Mountain View No. 4 (Owner: WECWC)
Miramar No. 3 (Owner: SCWC)
College No. 1 (Owner: Pomona College)
Tunnel Well No. 3 (Owner: Pomona)

On the second Monday of each month owners of the Key Wells shall measure and report to Watermaster and to PVPA the water level elevations in the Key Wells. Water level elevations shall be measured using protocols specified by Watermaster.

2. Production Measurement and Reporting. Within 180 days following Entry of Judgment each producer shall have installed on all of its producing wells a calibrated device to measure production. Such devices shall conform to, and be regularly calibrated in accordance with, specifications developed by Watermaster. Each producer shall record the monthly production from each well in acre feet and shall report such monthly production for each well and the total for all wells for the month and for the year to date to Watermaster by not later than the third working day following the end of the month.

3. Operating Safe Yield. The initial Operating Safe Yield of the Four Basins is 24,000 acre feet per year.

PROOF OF SERVICE

I am a resident of the State of California, over the age of eighteen years, and not a party to the within action. My business address is 21 East Carrillo Street, Santa Barbara, California 93101-2782. On December 21, 1998, I served the within document:

NOTICE OF ENTRY OF JUDGMENT

by transmitting via facsimile the document(s) listed above to the fax number(s) set forth below on this date before 5:00 p.m.

by placing the document listed above in a sealed envelope with postage thereon fully prepaid, in the United States mail at Santa Barbara, California as set forth below.

by causing personal delivery by _____ of the document(s) listed above to the person(s) at the address(es) set forth below.

by personally delivering the document(s) listed above to the person(s) at the address(es) set forth below.

SEE ATTACHED LIST

I am readily familiar with the firm's practice of collection and processing correspondence for mailing. Under that practice it would be deposited with the U.S. Postal Service on that same day with postage thereon fully prepaid in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

(State) I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

Executed on December 21, 1998, at Santa Barbara, California.

GINA M. LANE

GINA M. LANE

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3 HATCH AND PARENT, PC
21 East Carrillo Street
Santa Barbara, CA 93101
Telephone: (805) 963-7000

4 Attorneys for Plaintiff,
5 Special Counsel for Southern California Water Company

ALL
ANGELES SUPERIOR

DEC 18 1998

JOHN A. CLARKE, CLERK
John A. Clarke

8 SUPERIOR COURT OF THE STATE OF CALIFORNIA
9 FOR THE COUNTY OF LOS ANGELES

10 SOUTHERN CALIFORNIA WATER COMPANY)
11)
12 Plaintiff,)
13 vs.)
14 CITY OF LA VERNE, CITY OF CLAREMONT,)
15 CITY OF POMONA, CITY OF UPLAND,)
16 POMONA COLLEGE, POMONA VALLEY)
17 PROTECTIVE ASSOCIATION, SAN ANTONIO)
18 WATER COMPANY, SIMPSON PAPER)
19 COMPANY, THREE VALLEYS MUNICIPAL)
20 WATER DISTRICT, WEST END)
21 CONSOLIDATED WATER COMPANY, and)
22 DOES 1 through 1,000, Inclusive,)
23 Respondents and Defendants.)

CASE NO. KC029152

Assigned for All
Purposes to Judge
William O. McVittie

Department 0

(Complaint Filed, September 28,
1998)

JUDGMENT

24
25 THE DOCUMENT TO WHICH THIS CERTIFICATE IS
26 ATTACHED IS A FULL, TRUE, AND CORRECT COPY
OF THE ORIGINAL ON FILE AND OF RECORD IN
MY OFFICE.

DEC 18 1998

27 ATTEST _____

28 JOHN A. CLARKE

Executive Officer/Clerk of the
Superior Court of California, County of
Los Angeles

By _____, Deputy

C. MORALES

144876.1:6774.54

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1 PRELIMINARY FINDINGS

2 A. Complaint.

3 The Southern California Water Company ("SCWC"), (or "Plaintiff"), and the City of La Verne
4 ("La Verne"), City of Claremont ("Claremont"), City of Pomona ("Pomona"), City of Upland
5 ("Upland"), Pomona College ("Pomona College"), Pomona Valley Protective Association ("PVPA"),
6 San Antonio Water Company ("San Antonio"), Simpson Paper Company ("Simpson"), Three Valleys
7 Municipal Water District ("TVMWD"), West End Consolidated Water Company ("West End"),
8 collectively (Defendants) either:

- 9 i. account for essentially all of the current production of groundwater from or the
10 replenishment to the Canyon Basin, the Upper Claremont Heights Basin, the
11 Lower Claremont Heights Basin, the Pomona Basin, the Live Oak Basin and
12 the Ganesha Basin ("Six Basins Area"), located in Los Angeles and San
13 Bernardino Counties, and described in Exhibits "A," and "B" attached hereto,
14 and further defined in Judgment Section I(A) below; or
- 15 ii. are public agencies with an interest in the efficient and responsible
16 management of groundwater resources within the Six Basins.

17 On or about September 28, 1998 the Plaintiff filed a complaint against Defendants and Does 1
18 through 1,000 requesting a declaration of their individual and collective rights to groundwater and
19 a mandatory and prohibitory injunction requiring the reasonable use and equitable management of
20 groundwater within the Six Basins pursuant to *Article X, Section 2 of the California Constitution*.
21 The pleadings further allege that the Plaintiff and Defendants collectively claim substantially all
22 rights of groundwater use, replenishment and storage within the Six Basins Area, that the available
23 Safe Yield (as defined in Judgment Section I(A), below) is being exceeded and that the groundwater
24 supply to the Six Basins Area is inadequate to meet the current and long term demands of Plaintiff
25 and Defendants without the imposition of a physical solution. Plaintiff requests a determination of
26 all groundwater rights, including replenishment and storage rights, of whatever nature within the
27 boundaries of the Six Basins and request the imposition of an equitable physical solution.
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1 **B. Answers and Cross-Complaints.** On or before November 13, 1998, Plaintiff and
2 Defendants filed a stipulation for entry of judgment.

3 **C. Jurisdiction.** This Court has jurisdiction to enter judgment declaring and adjudicating
4 the Plaintiff's and Defendants' ("the Parties") rights to the reasonable and beneficial use of
5 groundwater by the Parties in the Six Basins Area pursuant to *Article X, Section 2 of the California*
6 *Constitution* and to impose a complete physical solution. All pre-existing rights to groundwater
7 within the Basin held or claimed by any Party (as defined in Section I(A) of the Judgment below) are
8 hereby settled and defined as the production allocations and the other rights and obligations set forth
9 under this judgment ("Judgment"). The respective allocations for each Party are expressly set forth
10 in Exhibit "D."

11 **D. Parties.**

12 1. SCWC is an investor-owned public utility incorporated under the laws of the
13 State of California. (*See Public Utilities Code Section 1001 et seq. and 2701 et seq.*) SCWC produces
14 groundwater from the Six Basins and delivers it for use on land within its certificated service area
15 that predominantly overlies some portion of the Six Basins, and otherwise is within the Counties of
16 Los Angeles and San Bernardino.

17 2. Pomona is a charter city situated in the County of Los Angeles. Pomona
18 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
19 boundaries, on land lying outside its incorporated boundaries within the County of Los Angeles and
20 on City owned lands that predominantly overlies some portion of the Six Basins. Pomona owns and
21 controls land in the Six Basins Area upon which it has historically diverted, for direct use and
22 spreading, surface water from San Antonio Creek and Evey Canyon.

23 3. La Verne is a general law city situated in the County of Los Angeles. La Verne
24 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
25 boundaries, on land lying outside its incorporated boundaries within the County of Los Angeles and
26 on City owned lands that predominantly overlies some portion of the Six Basins.

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1 4. Upland is a general law city situated in the County of San Bernardino. Upland
2 produces groundwater from the Six Basins and delivers it for use on land within its incorporated
3 boundaries some portion of which overlie the Six Basins. It possesses a majority of the shares of
4 stock in San Antonio and West End.

5 5. San Antonio is a mutual water corporation incorporated under the laws of the
6 State of California, with its principal place of business in San Bernardino County. San Antonio
7 produces groundwater from the Six Basins and delivers it for use by its shareholders.

8 6. West End is a mutual water corporation, incorporated under the laws of the
9 State of California, with its principal place of business in San Bernardino County. West End
10 produces groundwater from the Six Basins and delivers it for use by its shareholders.

11 7. Claremont is a general law city situated in the County of Los Angeles.
12 Claremont's incorporated boundaries and City owned lands overlie a portion of the Six Basins. The
13 City has executed an agreement with SCWC with respect to its groundwater rights.

14 8. Pomona College is a California corporation, with a principal place of business
15 in the County of Los Angeles. Pomona College owns land and groundwater production facilities that
16 overlie the Six Basins Area and it has executed operating leases with SCWC regarding these
17 facilities. Pomona College has executed an agreement with SCWC with respect to its groundwater
18 rights.

19 9. Simpson is a Washington corporation, which is doing business in the State of
20 California and the County of Los Angeles. Simpson produces groundwater from the Six Basins for
21 its own use and also purchases water service from Pomona.

22 10. PVPA is a California corporation, operating on a non-profit basis for the mutual
23 benefit of its members with its principal place of business in the County of Los Angeles.
24 Shareholders of PVPA include Pomona, Pomona College, San Antonio, SCWC, Simpson, Upland
25 and West End. PVPA owns the primary spreading grounds and recharge facilities for the Six Basins
26 and owns other lands which also overlie the Six Basins. PVPA has undertaken ongoing studies and
27 evaluation of groundwater conditions in the Six Basins Area.

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1 11. TVMWD is a California Municipal Water District formed pursuant to the
2 provisions of the municipal water district act and with the power to acquire, control, distribute, store,
3 and spread water for beneficial purposes within its boundaries.

4 E. Settlement Negotiations.

5 1. Importance of Groundwater. Groundwater is an important water supply
6 source for businesses, individuals and public agencies that overlie or extract groundwater from the
7 Six Basins. The Parties have a mutual and collective interest in the efficient and reasonable use of
8 groundwater and the coordinated management of water resources to ensure the prudent use of the
9 resource. The Parties have a further collective interest in furthering the efficient and reasonable use
10 of groundwater and the coordinated and comprehensive management of water resources to ensure that
11 the common resource may be sustained and enhanced.

12 2. Coordinated Study. PVPA has conducted and continues to conduct technical
13 studies of the Six Basins and has developed groundwater models of the Six Basins. To achieve the
14 goals of coordinated basin management and to ensure and promote the sustainable and enhanced use
15 of the groundwater resources of the Six Basins, the Parties joined in a collaborative process, reviewed
16 prior groundwater production reports and hydrologic studies, other historical data and engaged in new
17 technical studies to supplement the previous work of PVPA. Substantial engineering, hydrologic and
18 geologic data not previously known have been collected and jointly analyzed and verified by the
19 Parties. Included therein are estimates of production and reported production from the Six Basins
20 and further refinement of PVPA's groundwater models. The results of these efforts provide the
21 technical foundation for this Judgment.

22 3. Overdraft.

23 a. Native Safe Yield. The Native Safe Yield (as defined in Judgment,
24 Section I(A), below) of the Six Basins Area has historically been augmented generally by the
25 spreading activities conducted by PVPA, Pomona and La Verne and from return flows from water
26 imported to the Six Basins Area through TVMWD. There is no precise estimate of the Native Safe
27 Yield; however, without augmentation comprised of the substantial spreading operations conducted
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1 by PVPA and others, and the return flows from imported water, the amount of groundwater
2 comprising the Native Safe Yield is substantially less than the Safe Yield which is allocated to the
3 parties pursuant to this Judgment.

4 **b. Safe Yield.** Safe Yield (as defined in Judgment, Section I(A), below)
5 for all groundwater supplies within the Six Basins, including the benefits of historic augmentation
6 is nineteen thousand three hundred (19,300) acre feet per year.

7 **c. Groundwater Production.** Reports filed with the State of California
8 pursuant to *Water Code Section 4999 et seq.*, production records reported to PVPA by its members,
9 and independent verification by the Parties all demonstrate that the cumulative groundwater
10 production of the Parties from the Six Basins Area annually has been greater than twenty thousand
11 (20,000) acre feet in each of the five years immediately preceding the filing of this action. Therefore,
12 groundwater production has exceeded the available Safe Yield and *a fortiori* the Native Safe Yield
13 in each of the last five years.

14 **F. Stipulation.** The Parties, whose production from the Six Basins cumulatively comprise
15 essentially all of the groundwater production in the Six Basins Area, which have engaged in long-
16 standing groundwater replenishment activities or otherwise have an interest in the efficient and
17 coordinated management of groundwater, have stipulated to the entry of this Judgment. Each of the
18 Parties stipulate that this Judgment is a physical solution (as defined in Judgment, Section I(A),
19 below) which provides due consideration to the environment, the respective groundwater rights of
20 the Parties, and that this Judgment will not cause substantial material injury to any Party under these
21 circumstances of a lengthy period of overdraft and the competing claims to groundwater. The Parties
22 further stipulate that the Judgment is a fair and equitable allocation of water in accordance with the
23 provisions of *Article X, Section 2 of the California Constitution*.

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1 JUDGMENT

2 IT IS HEREBY ORDERED, ADJUDGED AND DECREED:

3 I. INTRODUCTION

4 A. Definitions.

5 1. "Base Annual Production Right" means the average annual production , in acre-feet,
6 for each Party for the twelve year period beginning on January 1 of 1985 and ending on
7 December 31 of 1996 as set forth in Exhibit "D".

8 2. "Carryover Rights" means the maximum percentage of a Party's annual allocation
9 of Operating Safe Yield production of which may be deferred until the following Year free
10 of any Replacement Water Assessment.

11 3. "Effective Date" means January 1, 1999.

12 4. "Four Basins or Four Basins Area" means the following groundwater basins and
13 the area overlying them: Canyon, Upper Claremont Heights, Lower Claremont Heights and
14 Pomona as shown on Exhibit "A" and further described in Exhibit "B".

15 5. "Groundwater" means all water beneath the ground surface and contained
16 within any one of the Six Basins except as provided in Article IIIA Section 1.

17 6. "Imported Water" means water that is not naturally tributary to the Six Basins Area
18 and which is delivered to the Six Basins Area.

19 7. "In Lieu Procedures" means a method of either providing Replacement Water or
20 water to be stored under a Storage and Recovery Agreement whereby a Party receives direct
21 deliveries of Imported Water or water other than Replenishment Water in exchange for
22 foregoing the production of an equivalent amount of such Party's share of the Operating Safe
23 Yield.

24 8. "Minimal Producers" means any producer whose production is less than 25 acre
25 feet each Year.

26 9. "Native Groundwater" means groundwater within the Six Basins Area that
27 originates from the deep percolation of rainfall, natural stream flow or subsurface inflow, and
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1 expressly excluding groundwater which originates from (a) the Parties' replenishment
2 activities and (b) return flows from both imported water and the Parties' replenishment
3 activities, and water described in Article IIIA Section 1.

4 **10. "Native Safe Yield"** means the amount of Native Groundwater, in acre feet, that can
5 be extracted from the Six Basins Area on an annual basis without causing an undesirable
6 result. Expressed as a formula: Native Safe Annual Yield = Annually Available Groundwater
7 - (Replenishment Water + return flows from Imported Water and Replenishment Water).

8 **11. "Native Water"** means water which is naturally tributary to the Six Basins Area.

9 **12. "Non-party"** means any person or entity which is not a party to this Judgment.

10 **13. "Operating Plan"** means the plan, developed by Watermaster (as defined in
11 Judgment, Article V below) for the Four Basins Area, by which the purpose and objectives
12 of the Physical Solution will be implemented and realized.

13 **14. "Operating Safe Yield"** means the amount of groundwater, in acre feet, which the
14 Watermaster shall determine can be produced from the Four Basins Area by the Parties during
15 any single year, free of any replacement obligation under the Physical Solution herein.
16 Because of the benefits created by coordinated management of groundwater provided by the
17 Physical Solution, the Operating Safe Yield set by Watermaster may exceed the Safe Yield
18 that would otherwise be available for production by the Parties. The Two Basins Area is
19 excluded from the Operating Safe Yield allocated pursuant to this Judgment with its annual
20 Safe Yield being equivalent to the amount of groundwater La Verne may reasonably produce
21 from the Two Basins Area on an annual basis without causing substantial injury to any other
22 Party.

23 **15. "Overdraft"** means a condition wherein the total annual production from a
24 groundwater basin exceeds the Safe Yield.

25 **16. "Party or Parties"** means any person(s) or entity(ies) named in this action, who
26 has/have intervened in this case or has/have become subject to this Judgment through
27 succession, stipulation, transfer, default, trial or otherwise.

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17. **"Physical Solution"** means the efficient and equitable coordinated management of groundwater within the Six Basins Area to maximize the reasonable and beneficial use of groundwater resources in a manner that is consistent with the public interest, *Article X, Section 2 of the California Constitution*, and with due regard for the environment.

18. **"Producer"** means a person, firm, association, organization, joint venture, partnership, business, trust, corporation or public entity who, or which, produces or has a right to produce groundwater from the Six Basins Area.

19. **"Production"** means the process of pumping groundwater; also, the gross amount of groundwater pumped.

20. **"Replacement Water"** means imported water or water other than Replenishment Water supplied through in-lieu procedures that is acquired by the Watermaster or provided by a Party to replace production by such Party in excess of the amount of its share of the Operating Safe Yield, Carry-Over Rights and Storage and Recovery rights authorized by Watermaster.

21. **"Replacement Water Assessment"** means an assessment levied by Watermaster pursuant to Article XII A, Section 4 of this Judgment.

22. **"Replenishment"** means a program to spread or inject Replenishment Water into the Six Basins Area. A description of the current replenishment programs is attached hereto as Exhibit "E."

23. **"Replenishment Water"** means native water which augments the Native Safe Yield and thereby comprises a portion of the Operating Safe Yield pursuant to a historical replenishment program as described in Article VIB, Section 9 and Exhibit E.

24. **"Return Flows"** means water which percolates, infiltrates or seeps into the Six Basins after having been previously applied to some end use by one of the Parties or any user of water.

25. **"Safe Yield"** means the amount of groundwater, including Replenishment and return flows from Imported Water, that can be reasonably produced from the combined Two Basins

1 and the Four Basins Areas on an annual basis without causing an undesirable result, including
2 but not limited to land subsidence, water quality degradation, and harm from high
3 groundwater levels, i.e. 19,300 acre feet per year.

4 **26. "Six Basins or Six Basins Area"** means the Four Basins Area plus the Two Basins
5 Area, as shown on Exhibit "A" and further described in Exhibit "B."

6 **27. "Spreading"** means a method of groundwater recharge whereby water is placed in
7 permeable impoundments and allowed to percolate into a basin.

8 **28. "Storage and Recovery"** means a program administered under an agreement
9 between the Watermaster and a Party to store water either directly by sinking, spreading or
10 injecting or by in-lieu procedures, into the Four Basins, and subsequently recovering such
11 water without regard to the limitations imposed by the Party's Base Annual Production Right.

12 **29. "Storage and Recovery Agreement"** means an agreement between Watermaster and
13 a Party for Storage and Recovery of water by such Party. An acceptable pre-approved
14 Storage and Recovery Agreement between Watermaster and Pomona is listed on Exhibit "F."

15 **30. "Transfer"** means temporary or permanent assignment, sale, contract or lease of any
16 Party's Base Annual Production Right and its associated percentage of the Safe Yield, Carry-
17 Over Rights or rights to recover water stored under a Storage and Recover Agreement to any
18 other Party or a person that becomes a Party. A lease shall not be considered a "permanent
19 transfer" unless both the Lessee and Lessor jointly agree to such characterization.

20 **31. "Two Basins or Two Basins Area"** means the Live Oak and Ganesha Basins and
21 the areas overlying them, as shown on Exhibit "A" and further described in Exhibit "B."

22 **32. "Water Shortage Emergency"** means the substantial impairment, which cannot be
23 promptly mitigated, of the ability of the Parties to provide sufficient water for human
24 consumption, sanitation and fire protection because of: (a) a sudden occurrence such as
25 storm, flood, fire, unexpected equipment outage; or (b) an extended period of drought.

26 **33. "Watermaster"** means the committee with the powers and duties defined in Article
27 V of this Judgment.
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1 **34. "Year"** means a calendar year.

2 **B. Exhibits.** Each exhibit is expressly incorporated herein and made part of this
3 Judgment.

4 Exhibit A: Six Basin Map

5 Exhibit B: General Description of the Six Basins Area

6 Exhibit C: Memorandum of Agreement between Watermaster and PVPA

7 Exhibit D: Base Annual Production Rights of Parties

8 Exhibit E: Description of Replenishment Programs

9 Exhibit F: City of Pomona Storage and Recovery Agreement

10 Exhibit G: Initial Operating Plan

11 **II. FINDINGS AND HYDROLOGIC CONDITIONS**

12 **A. Safe Yield.** Prior to the imposition of this Physical Solution, the Safe Yield of the Six
13 Basins is historically found to be 19,300 acre feet per year.

14 **B. Overdraft and Prescriptive Circumstances.** For a period in excess of five
15 consecutive Years prior to the filing of the complaint herein, the Native Safe Yield and the Safe Yield
16 have been exceeded by the aggregate Production therefrom and the Six Basins have been in a
17 continuous state of Overdraft. The court finds that the Production constituting such Overdraft has
18 been open, notorious, continuous, adverse, hostile, and under claim of right. The court further finds
19 that the groundwater Production has exceeded the Native Safe Yield and the Safe Yield in each of
20 the last five years and thus all the required elements necessary to establish prescription have been
21 satisfied.

22 **1. Adversity.** The Native Safe Yield of the Six Basins Area has been continuously
23 exceeded for decades. It is only through the ongoing Replenishment undertaken by PVPA, Pomona
24 and La Verne coupled with the availability of and return flows from Imported Water that a further
25 decline in water levels has been averted. An unmanaged downward decline in water levels is known
26 to have severe adverse impacts on the rights of groundwater producers and groundwater quality, to
27 cause land subsidence and to cause increased pump-lifts. Moreover, the Court finds that presently
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1 estimated Safe Yield of 19,300 acre feet, with the full benefit of the Replenishment carried on by the
2 Parties has been exceeded and if Production is not managed pursuant to this Physical Solution, severe
3 adverse impacts will result.

4 **2. Continuity.** The Native Safe Yield has been continuously exceeded for at least two
5 decades. For each of the last five Years the Safe Yield has been exceeded. The Court finds that
6 cumulative total Production from the Six Basins Area for the Years 1993 through 1997 is as follows:

7	1993	21,020 acre feet
8	1994	20,313 acre feet
9	1995	22,959 acre feet
10	1996	23,584 acre feet
11	1997	21,902 acre feet

12 **3. Notice.** Each of the Parties with a Base Annual Production Right, or their agents, have
13 filed groundwater production reports with the State Department of Water Resources pursuant to
14 *Water Code Section 4999*. These reports are public records and are available for inspection by any
15 member of the public. SCWC is an investor-owned public utility subject to regulation by the
16 California Public Utilities Commission (PUC). Its records, reports and filings with the PUC regularly
17 include information regarding the wells used and groundwater produced from the Six Basins Area.
18 The PUC has held publicly noticed rate hearings which have been attended by the public and
19 representatives from Claremont. Pomona, La Verne and Upland are all public entities and their
20 groundwater production information are public records and open to public inspection upon reasonable
21 notice. PVPA has frequently published reports which indicate the nature of its Replenishment and
22 the volume of groundwater produced in the Six Basins Area. At least two settlement agreements
23 have been entered between certain Parties on matters related to the adverse impacts of increased
24 groundwater production. Both of these agreements were approved by a public entity and are public
25 records. Moreover, the negotiations leading up to the entry of this Judgment were open to all persons
26 claiming the right to produce groundwater by virtue of their owning overlying land or having
27 corporate boundaries overlying the Six Basins Area. Regular meetings concerning these negotiations
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1 have been held at the headquarters of TVMWD, a public agency, and were personally attended by
2 representatives from each of the Parties. These meetings have taken place at regular intervals for
3 more than twelve consecutive months and the contents of this Judgment and the status of groundwater
4 conditions in the Six Basins Area has remained readily available. Accordingly, the Court finds that
5 all persons claiming the right to produce had actual notice, constructive notice or could have easily
6 determined upon reasonable diligence that the Six Basins Area was in Overdraft and of each Party's
7 claim to groundwater. The circumstances of such Overdraft and water use are such that each of the
8 Parties either: (i) had actual knowledge of such circumstances; or (ii) should have discovered such
9 circumstances upon the exercise of reasonable diligence or (iii) received constructive notice of the
10 adverse nature of such aggregate production through the public record filings with the State of
11 California pursuant to *Water Code Section 4999* and through the various reports published by the
12 Parties.

13 **C. High Groundwater Levels.** There are cienegas and springs in the Four Basins Area
14 and there is a potential for groundwater to rise to the surface regardless of the replenishment,
15 replacement or storage operations of the Watermaster and carried out by the Parties. Periodically,
16 though not in the past twelve years, high groundwater levels have constituted an important causative
17 factor, in creating damage in the Four Basins Area.

18 **D. Water Quality Problems.** Some of the Six Basins have experienced problems of high
19 concentrations of nitrates and volatile organic compounds (VOC's) in groundwater. Potential sources
20 of the nitrate are historical agricultural practices and individual wastewater disposal systems, most
21 of which have been abandoned. The Two Basins Area and some of the Four Basins Area have been
22 adversely impacted by high concentrations of nitrates and VOC's and may also require remediation.

23 **III. DECLARATION OF RIGHTS AND RESPONSIBILITIES**

24 **A. General Provisions.**

25 **1. Surface Water Rights.** Pomona and San Antonio have prior and paramount pre-
26 1914 water rights, superior to the rights of any other party, to the surface water and supporting
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1 subsurface flows historically and presently diverted therefrom in San Antonio and Evey Canyon,
2 except as provided in Article VIB Section 9 and as referenced in Article IIIA Section 1d.

3 a. Historically, Pomona and San Antonio have diverted, and presently are
4 diverting, surface waters and supporting subsurface flows from San Antonio Canyon.

5 b. Historically, Pomona has diverted, and presently is diverting, surface water
6 and supporting subsurface flows from Evey Canyon.

7 c. Pomona and San Antonio are under no obligation to spread such waters.

8 d. Surface waters and supporting subsurface flows diverted in San Antonio and
9 Evey Canyons at existing diversion locations are excluded from (i) the operation of this Judgment
10 and (ii) the determination of Operating Safe Yield, except to the extent of the portion of such waters
11 which are spread by Pomona at its Pedley Treatment Plant, which portion is governed by the
12 provisions of Article VIB, Section 9.

13 e. The diversion and the use of surface waters and supporting subsurface flows
14 shall not be subject to this Judgment.

15 f. The above-referenced surface waters and supporting subsurface flows shall
16 not be subject to allocation among the Parties pursuant to this Judgment.

17 g. Surface waters and supporting subsurface flows may be used by Pomona and
18 San Antonio to satisfy Replacement Water obligations as provided in Article VIB, Section 5.

19 **2. Loss of Priorities.** By reason of the long continued overdraft in the Six Basins, and
20 in light of the complexity of determining appropriate priorities and the need for conserving and
21 making maximum beneficial use of the water resources of the State, each and all of the Parties listed
22 in Exhibit "D" are estopped and barred from asserting special priorities or preferences *inter se* to
23 groundwater except as expressly provided herein. All the Parties' rights to groundwater are
24 accordingly deemed and considered to be of equal priority unless otherwise expressly stated herein.

25 **3. Limitations on Export.** Other than the limitation on Pomona's use of 109 acre feet
26 as further described in Exhibit "D", any Party's share of the Operating Safe Yield, including
27 Carryover Rights and Transfers, may be produced and exported for use outside the Six Basins Area.

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1 However, groundwater stored and recovered pursuant to a Storage and Recovery Agreement may be
2 produced and exported only in accordance with the terms and conditions of the Storage and Recovery
3 Agreement.

4 **4. No Abandonment of Rights.** It is in the interest of reasonable beneficial use of the
5 Six Basins Area and its water supply, that no Party be encouraged to take and use more water in any
6 Year than is actually required. Failure to produce all of the water to which a Party is entitled
7 hereunder shall, in and of itself, not be deemed to be, or constitute an abandonment of such Party's
8 right, in whole or in part.

9 **5. Pre-Existing Rights.** This Judgment controls each Party's rights to the Production,
10 Replenishment, Storage and Recovery of groundwater and expressly supersedes other rights, claims
11 or defenses arising from agreement, operation of law, prior use or a prior judgment to the extent that
12 they are inconsistent with this Judgment. However, nothing in this Judgment shall alter or affect any
13 rights or remedies that any Party may have under any contract or agreement with any other Party on
14 matters which are not inconsistent with or are unrelated to the provisions of this Judgment or as
15 provided in Article IVC herein.

16 **6. Physical Solution.** This Judgment represents a total and complete Physical Solution
17 for the Six Basins Area and all basins included therein. Although prior hydrologic and physical
18 conditions limited the Safe Yield to 19,300 acre feet per year, through the coordinated and equitable
19 management of the Four Basins and Two Basins Areas provided under this Judgment, an Operating
20 Safe Yield, Operating Plan and Base Annual Production Rights shall be independently established
21 for the Four Basins Area. However, La Verne shall be entitled to produce groundwater from the Two
22 Basins Area in addition to its equitable share of the Four Basins Operating Safe Yield, as provided
23 in accordance with the terms of this Judgment.

24 **7. Portability Between the Two Basins and Four Basins Areas.** A Party's right to
25 produce, store or recover groundwater accruing under this Judgment in the Four Basins Area may not
26 be transferred, exchanged or exercised in the Two Basins Area. A Party's right to produce, store or
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1 recover groundwater accruing under this Judgment in the Two Basins Area may not be transferred,
2 exchanged or exercised in the Four Basins Area.

3 **B. Rights of the Parties to Produce Groundwater from the Four Basins.**

4 1. **Declaration of Rights.** The Parties listed in Exhibit "D" are the owners of
5 appropriate rights, including rights by prescription, and exercised and unexercised overlying rights
6 of equal priority, and each Party shall be entitled to produce groundwater under the Physical Solution
7 and to share in the Operating Safe Yield of the Four Basins according to the percentages set forth in
8 Exhibit "D" as Base Annual Production Rights in a manner consistent with the provisions of this
9 Judgment.

10 2. **Carryover Rights.** Any Party that produces less than its share of the Operating Safe
11 Yield in any Year shall have the right to carry the unproduced portion forward to be produced in the
12 following year subject to the following limitations: (a) the first water produced in any Year shall be
13 deemed to be an exercise of any Carryover Right; (b) a Party's Carryover Right cannot exceed 25
14 (twenty-five) per cent of such Party's share of the current Operating Safe Yield for the prior Year;
15 and (c) Carryover Rights may be lost in the event replenishment is discontinued or curtailed as
16 provided below in Article IIIB, Section 7.

17 3. **Transferability of Rights.** Subject to the limitations set forth in his Judgment, a Base
18 Annual Production Right and its associated percentage of the Operating Safe Yield, as well as any
19 Carryover Rights and water stored under a Storage and Recovery Agreement, may be transferred, in
20 whole or in part, among existing Parties or to any other person that becomes a Party on either a
21 temporary or permanent basis provided that no Party is substantially injured by the Transfer. Pro-
22 duction pursuant to any such Transfer shall be subject to the limitations on carryover and portability
23 set forth in Article IIIB, Section 4. Any such Transfer shall become effective upon being recorded
24 with Watermaster. Watermaster shall revise Exhibit "D" annually, to reflect any permanent
25 Transfers. The permanent Transfer of any Party's full Base Annual Production Right shall require
26 Watermaster approval. Upon Watermaster approval the permanent Transfer of a Party's full Base
27 Annual Production Right may require an adjustment in the Party representatives to the Watermaster
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1 and the number of votes of the Party's representatives as provided in Article V. Notwithstanding the
2 provision of this Article IIIB, Section 3, Pomona shall not be entitled to Transfer 109 acre feet of its
3 Base Annual Production Right and its associated percentage of Operating Safe Yield.

4 **4. Portability of Rights Among the Four Basins.** Any Party with a Base Annual
5 Production Right, shall have the right to produce its share of the Operating Safe Yield of the Four
6 Basins, including any Carryover Rights or Transfers, from any or all of the Four Basins, subject to
7 the following conditions.

8 **a. No Substantial Injury.** Any groundwater production from a "new" location
9 shall not cause substantial injury to another Party.

10 **b. Advance Written Notice to Watermaster.** Any Party that intends to
11 undertake any of the following actions shall provide thirty (30) days' advance written notice to the
12 Watermaster: (i) acquire, construct or operate a "new" groundwater production facility in any one
13 of the Four Basins in which it is then producing groundwater; (ii) change the point of extraction from
14 an existing groundwater production facility to a "new" groundwater production facility where the old
15 and the new groundwater production facilities are both within the Canyon or Upper Claremont
16 Heights or Lower Claremont Heights Basins; (iii) change the point of extraction from an existing
17 groundwater production facility on one side of the Indian Hill Fault to a "new" facility on the other
18 side of the Indian Hill Fault.

19 **c. Prior Watermaster Approval.** Any Party that changes the point of extraction
20 from an existing groundwater production facility on one side of the Indian Hill Fault to a "new"
21 facility located on the other side of the Indian Hill Fault and increases the cumulative rate of annual
22 extraction therefrom by more than 2,000 acre feet per year shall be required to obtain the prior written
23 approval of the Watermaster.

24 **d. New Facility Defined.** "New" as used in this Section 4 means either (i) an
25 increase or enlargement in the pre-existing design capacity of a groundwater production facility or
26 (ii) a movement in the location of a groundwater extraction facility by more than three hundred (300)
27 feet or from one legal parcel to another legal parcel.

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1 e. **Procedure for Resolution of Disputes.** The Watermaster shall make all
2 necessary determinations and resolve all disputes arising under this Article IIIB, Section 4 in
3 accordance with the provisions of Article VIII.

4 5. **Rights to Unused Groundwater Storage Capacity.** From time to time there may
5 exist in the Four Basins, unused storage capacity. Parties holding Base Annual Production Rights
6 pursuant to this Judgment and TVMWD for the sole purpose of storing Imported Water, shall have
7 the exclusive rights to use such storage capacity, and subject to the complete discretion of the
8 Watermaster, may sink, spread or inject water into the Four Basins Area pursuant to a Storage and
9 Recovery Agreement.

10 6. **Priorities for Use of Groundwater Storage Capacity.** In directing spreading and
11 controlling the use of groundwater storage capacity, the Watermaster shall give first priority to
12 Replenishment Water; second priority to Carryover Rights; third priority to Storage and Recovery
13 of water which is naturally tributary to the Six Basins Area; fourth priority to Storage and Recovery
14 of Imported Water, and fifth priority to Storage and Recovery of other water.

15 7. **Loss of Stored and Carryover Water.** After providing notice and opportunity to be
16 heard to any affected Party pursuant to Article IXA, if the Watermaster reasonably determines that
17 Replenishment had to be terminated or curtailed in any year, or that Replenishment Water was
18 rejected because of insufficient storage capacity, some or all of a Party's unproduced Carryover
19 Rights or Storage and Recovery rights may be deemed lost. The amount of water subject to loss shall
20 be equal to that quantity of Replenishment Water which was curtailed or rejected solely because of
21 insufficient storage capacity in the Four Basins.

22 The burden of a determination by Watermaster that rejected recharge has occurred and that
23 there shall be a loss of stored and Carryover water, shall be shared proportionately by each Party to
24 the extent the quantity of water held by each Party at the time of the loss bears to the total quantity
25 of water within each of the classification. Any losses shall be charged first to the storage of other
26 water, then to the storage of Imported Water, then to the storage of Native Water, then to Carryover
27 Water as expressly set forth below.

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- a. Highest priority shall be given to Replenishment Water.
- b. Second priority against loss shall be given to Carryover Water.
- c. Third priority against loss shall be given to storage of Native Water.
- d. Fourth priority against loss shall be given to storage of Imported Water.
- e. Fifth priority against loss shall be given to storage of other water.

8. **Consideration of Groundwater Levels.** Watermaster shall make every reasonable effort to establish water operations limits so that the spreading of Replenishment or Replacement water, groundwater storage pursuant to a Storage and Recovery Agreement, or the determination of Operating Safe Yield shall not cause high groundwater levels that result in material damage to overlying property (not including sand and gravel excavations or operations) or cause groundwater to surface above the undisturbed natural terrain.

C. **The Parties' Rights to Groundwater and Storage in the Two Basins.**

1. **Declaration of Rights.** In recognition of the remediation efforts that are likely to be necessary to maximize groundwater production from the Two Basins; because of the detected high nitrate concentrations and in recognition that La Verne is uniquely situated to remedy these water quality conditions and exploit future opportunities; because of the minimal hydrologic communication between the Four Basins and Two Basins, and in furtherance of a complete and total physical solution for the Six Basins Area, La Verne shall have the right to produce as much groundwater as it may reasonably withdraw from the Two Basins Area on an annual basis so long as it does not substantially injure the rights of any other Party.

2. **Storage and Recovery.** La Verne has the sole right to use available storage capacity in the Two Basins in its complete discretion for the Storage and Recovery of groundwater so long as it does not cause substantial injury to any other Party. La Verne shall not be required to obtain a Storage and Recovery Agreement from the Watermaster for Storage and Recovery programs carried out within the Two Basins Area provided that (i) such production or use of storage capacity shall not cause substantial injury to any other Party and (ii) La Verne provides 60 (sixty) days' advance written notice to Watermaster before initiating such a Storage and Recovery program.

1 **3. Transferability of Rights.** Subject to the limitations set forth in Article III A,
2 Section 7, La Verne's right to produce groundwater from the Two Basins Area may be transferred,
3 in whole or in part, among existing Parties or to any other person that becomes a Party, on either a
4 temporary or permanent basis provided that no Party is substantially injured by the Transfer. The
5 permanent Transfer of the right to produce groundwater from the Two Basins Area shall not be
6 effective until approved by Watermaster.

7 **D. Rights and Responsibilities of PVPA.**

8 **1. Spreading Operations.** PVPA and the other Parties have negotiated a Supplemental
9 Memorandum of Agreement, attached hereto as Exhibit "C". This Supplemental Memorandum of
10 Agreement and all modifications or amendments thereto shall include a provision for Watermaster's
11 indemnity of PVPA for all Replenishment activities undertaken by PVPA at the direction of the
12 Watermaster. Within sixty (60) days of entry of this Judgment, Watermaster and PVPA shall execute
13 the Agreement. Upon execution, the Agreement shall become part of the Physical Solution. PVPA
14 shall not be required to execute a Storage and Recovery Agreement with Watermaster for its
15 Replenishment activities carried out under the direction of the Watermaster. The Spreading
16 operations conducted by PVPA may result in incidental Replenishment to the Two Basins Area and
17 none of the Parties have a right to object thereto. This Replenishment is authorized under the
18 Judgment.

19 **2. Waiver of Claims Against PVPA.** The Parties expressly waive any and all claims
20 against PVPA arising from facts, conditions or occurrences in existence before the Effective Date and
21 arising from PVPA's spreading operations including but not limited to water quality degradation,
22 subsurface infiltration, high groundwater or groundwater Overdraft within the Six Basins Area.

23 **E. Non-parties.**

24 **1. Minimal Producers.** Minimal producers are not bound or affected by this Judgment.
25 No person may produce twenty-five acre feet or more in any Year without becoming a Party.
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1 2. Parties' Rights Versus Non-parties Reserved. The Parties expressly reserve all
2 rights, without limitation, concerning any and all claims raised by persons not a Party to this
3 Judgment as provided in Article IV C Section 1.

4 **IV. REMEDIES**

5 A. Injunctions.

6 1. Injunction Against Unauthorized Production. Each and every Party, its officers,
7 agents, employees, successors and assigns is enjoined and restrained from producing water from the
8 Six Basins except as authorized herein.

9 2. Injunction Against Unauthorized Storage. Each and every Party, its officers,
10 agents, employees, successors and assigns is enjoined and restrained from storing water in the Six
11 Basin Area except as authorized herein.

12 3. Injunction Against Unauthorized Replenishment. Each and every Party, its
13 officers, agents, employees, successors and assigns is enjoined and restrained from replenishing water
14 in the Six Basin Area except as authorized herein.

15 B. Continuing Jurisdiction

16 1. Jurisdiction Reserved. Full jurisdiction, power and authority are retained by and
17 reserved to the Court upon the application of any Party, by a motion noticed in accordance with the
18 review procedures of Article XIA, Section 6 hereof, to make such further or supplemental order or
19 directions as may be necessary or appropriate for interpretation, enforcement or implementation of
20 this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to
21 the provisions thereof consistent with the rights herein decreed; provided that nothing in this
22 paragraph shall authorize a reduction of the Base Annual Production Right of any Party except
23 pursuant to a Transfer.

24 2. Intervention After Judgment. Any Non-party who proposes to produce
25 Groundwater from the Six Basins Area in an amount equal to or greater than 25 acre feet per Year,
26 may seek to become a Party to this Judgment through (a) a stipulation for intervention entered into
27 with Watermaster or (b) any Party or Watermaster filing a complaint against the Non-party requesting
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1 that the Non-party be joined in and bound by this Judgment. Watermaster may execute said Stipu-
2 lation on behalf of the other Parties herein, but such stipulation shall not preclude a Party from
3 opposing such intervention at the time of the Court hearing thereon. A stipulation for intervention
4 must thereupon be filed with the Court, which will consider an order confirming said intervention
5 following thirty (30) days' notice to the Parties. Thereafter, if approved by the Court, such intervenor
6 shall be a Party bound by this Judgment and entitled to the rights and privileges accorded under the
7 Physical Solution herein, including a Base Annual Production Right in an amount equal to its average
8 annual production in the twelve-year period beginning on January 1, of 1985 and ending on
9 December 31, 1996, or any Base Annual Production Right it may obtain by a transfer.

10 C. **Reservation of Other Remedies.**

11 1. **Claims By and Against Non-parties.** Nothing in this Judgment shall expand or
12 restrict the rights, remedies or defenses available to any Party in raising or defending against claims
13 made by any Non-party. Any Party shall have the right to initiate an action against any Non-party
14 to enforce or compel compliance with the provisions of this Judgment.

15 2. **Claims Between Parties on Matters Unrelated to the Judgment.** Nothing in this
16 Judgment shall either expand or restrict the rights or remedies of the Parties concerning subject
17 matter which is unrelated to the quantity and quality of groundwater allocated and equitably managed
18 pursuant to this Judgment other than as provided in Article IIIA, Section 1.

19 3. **Groundwater Levels.** Except as expressly provided herein, nothing in this Judgment
20 shall either expand or restrict the rights or remedies at law that any Party may have against any other
21 Party for money damages to real or personal property resulting from high groundwater or defenses
22 thereto for events or occurrences after the Effective Date.

23 V. **WATERMASTER**

24 A. **Composition, Voting and Compensation.** The Watermaster shall be a committee
25 composed of one representative of each of the following Parties, and each representative shall have
26 the authority to cast the indicated number of votes on any question before the committee:

27 City of La Verne 5 votes

1	City of Pomona	5 votes
2	City of Upland	5 votes
3	Southern California Water Company	5 votes
4	City of Claremont	2 votes
5	TVMWD	2 votes
6	PVPA	2 votes
7	Simpson Paper	1 vote
8	Pomona College	1 vote
9	San Antonio	1 vote

10 Committee representatives having the combined authority to cast twenty votes shall constitute a
11 quorum for the transaction of affairs of Watermaster and seventeen affirmative votes shall be required
12 to constitute action by Watermaster. Representatives shall be compensated for their services by their
13 respective appointing authorities. Representatives may be reimbursed by Watermaster for out of
14 pocket expenses incurred on authorized Watermaster business.

15 **B. Nomination and Appointment Process.** Each of the Parties named in Article VA,
16 above, shall within thirty (30) days of entry of this Judgment submit to the Court its nominees for its
17 representative member of the Watermaster Committee and one alternate and the Court shall in the
18 ordinary course confirm the same by an appropriate order of appointment. Once appointed
19 representatives and their alternates shall normally serve until a replacement is designated by the Party
20 or until removed by the Court. If a representative or alternate is no longer willing or able to serve
21 for any reason the Party represented by such member or alternate shall promptly submit a
22 replacement for the member or their alternate. There shall be no need for replacement representative
23 members or alternates to be approved by the Court. In its annual report to the Court, Watermaster
24 shall update the list of its representative members and alternates.

25 **C. Succession.** For the purpose of determining whether a permanent Transfer of a Base
26 Annual Production Right shall affect whether a Party shall have a Representative on the Watermaster
27 Committee and the number of votes held by the representative, the following guidelines shall apply:
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1 1. **Partial Succession.** The permanent Transfer of less than any Party's full Base
2 Annual Production Right shall be considered a "partial" succession. A partial succession shall not
3 create any new or additional voting rights in the successor Party or require any modifications to the
4 rules and procedures under this Article V. The full Base Annual Production Right of any Party shall
5 be equal to the entire quantity of the Base Annual Production Right for that Party set forth in Exhibit
6 D on the Effective Date.

7 2. **Non-Party Successor.** A permanent Transfer of the full Base Annual
8 Production Right of any Party to a Non-Party shall automatically include the authority to cast the
9 number of votes held by the Party. In addition, the Non-Party shall succeed to all other rights and
10 responsibilities of their predecessor Party under this Judgment.

11 3. **Party Successor.** A permanent Transfer of the full Base Annual Production
12 Right between Parties shall automatically include the authority to cast a number of votes equal to the
13 greater of: (a) the number of votes indicated for the acquiring Party on the Effective Date or (b) the
14 number of votes indicated for the Party whose Base Annual Production Right has been acquired at
15 the time the Transfer is approved by the Watermaster. The number of votes equal to the lesser of 3(a)
16 or 3(b) shall be extinguished. The acquisition of one Party's full Base Annual Production Right by
17 another Party shall not cause a change in the number of votes required to constitute a quorum or to
18 take an action under this Article. However, in the event more than two votes are eliminated, any
19 Party or the Watermaster upon its own motion, may petition the Court to revise the required number
20 of votes to constitute a quorum or to take action under this Judgment.

21 D. **Powers and Duties.** Subject to the continuing supervision and control of the Court
22 and the limitations set forth in this Judgment, Watermaster shall have and may exercise the following
23 express powers, and shall perform the following duties, together with any specific powers, authority
24 and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the
25 Court in the exercise of its continuing jurisdiction:

- 26 1. Developing, Maintaining and Implementing the Operating Plan.
27 2. Adopting Rules, Regulations, Procedures, Criteria and Time Schedules.

- 1 3. Acquiring or Investing in Facilities or Facility Improvements.
- 2 4. Acquiring or Investing in Monitoring Facilities.
- 3 5. Inspecting and Testing Measuring Devices.
- 4 6. Levying Assessments
- 5 7. Requiring the Acquisition of and Recharge of Replacement Water.
- 6 8. Contracting for Necessary Services. (Including the execution of agreements regarding
- 7 spreading and groundwater modeling.)
- 8 9. Employing Agents, Experts and Legal Counsel provided that Watermaster shall not
- 9 contract with or otherwise engage a Party with a Base Annual Production Right to
- 10 perform directly or indirectly, administrative services. However, this limitation shall
- 11 not apply to spreading services under Exhibit C, and meter reading.
- 12 10. Adopting an annual budget for monitoring and reporting legal and administrative
- 13 costs.
- 14 11. Managing Watermaster Funds.
- 15 12. Cooperating with Federal, State and Local Agencies.
- 16 13. Entering and Administering Storage and Recovery Agreements.
- 17 14. Maintaining a Notice List.
- 18 15. Reporting Annually to the Court.
- 19 16. Engaging in Dispute Resolution.
- 20 17. Prosecuting litigation against Non-parties in furtherance of the Judgment.
- 21 18. Limiting groundwater production to Operating Safe Yield during a Water Shortage
- 22 Emergency.

23 **E. Organization and Meetings.** At its first meeting in each Year Watermaster shall elect
24 a chair, vice chair, secretary and treasurer and such other officers as may be appropriate. Watermaster
25 shall hold regular meetings at places and times specified in its rules and regulations, and may hold
26 such special meetings as may be required. Watermaster shall provide notices of all regular and special
27 meetings to all parties and any person requesting notice in writing. Any meeting may be adjourned
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1 to a time and place specified in the order of adjournment. Meetings shall be conducted to the extent
2 practicable in accordance with the provisions of the California Open Meetings Law ("Brown Act")
3 *California Government Code Section 54950*, et seq as it may be amended from time to time.

4 F. **Limits on Assessments.** Watermaster shall not have the authority to levy assessments
5 beyond those specifically described herein.

6 **VI. PHYSICAL SOLUTION FOR THE SIX BASINS AREA**

7 **A. General Purposes and Objectives.**

8 1. **Physical Solution is Consistent With the Public Interest.** The Physical Solution
9 is consistent with each Party's full enjoyment and the reasonable exercise of its respective water
10 rights will not materially injure the interests of any Parties and will promote coordinated groundwater
11 management with due regard for the environment and it is therefore consistent with the public interest
12 and the reasonable and beneficial use of water.

13 2. **Balance of Equities.** This Physical Solution constitutes a legal and practical means
14 for balancing the needs of the Parties for a reliable water supply, providing an appropriate incentive
15 for remediation of poor water quality conditions, managing the available groundwater storage
16 capacity to protect against loss of available groundwater and against damage from high groundwater
17 levels with due regard for the environment .

18 3. **Flexibility.** It is essential that this Physical Solution provides maximum flexibility
19 so that the Watermaster and the Court may be free to adapt and accommodate future changed
20 conditions or new institutional or technological considerations. To that end the Court's retained
21 jurisdiction may be utilized to augment or adjust the Physical Solution without adjustment to a Party's
22 Base Annual Production Right.

23 **B. Guidelines for Operation of Four Basins Area.**

24 All production, replenishment, replacement, and Storage and Recovery of water in the Four
25 Basins Area must be conducted pursuant to the Operating Plan adopted by Watermaster in accordance
26 with the principles and procedures contained in this Judgment. The following general pattern of
27 operations is contemplated:
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1 **1. Replenishment.** Groundwater will be replenished pursuant to Exhibit "E" or under
2 any other replenishment program or activity to the extent water which is naturally tributary to the Six
3 Basin Area, is available for that purpose and can safely be spread.

4 **2. Storage and Recovery.** Other Native Water, imported water or other water may be
5 stored and recovered pursuant to Storage and Recovery Agreements.

6 **3. Operating Safe Yield.** Watermaster will annually, not later than September 15,
7 establish the Operating Safe Yield for the Four Basins for the following Year, taking into
8 consideration the amount of water in storage and the need to control water table elevations.
9 Watermaster shall review the condition of the Four Basins at least quarterly during the Year and may
10 make any appropriate adjustments of the Operating Safe Yield.

11 **4. Production.** In any Year, each Party will be free to produce its share of the Operating
12 Safe Yield, including any Carryover Rights or Transfers, plus any water authorized to be recovered
13 pursuant to a Storage and Recovery Agreement. Except upon Transfer, no change shall be made to
14 any Party's Base Annual Production Rights.

15 **5. Replacement Water.** Notwithstanding any limitation contained in this Judgment, a
16 Party may produce and export water from the Four Basins in excess of its Base Annual Production
17 Right and its share of the Operating Safe Yield, plus unused Carryover rights and recoverable
18 groundwater pursuant to an approved Storage and Recovery Agreement, subject to the requirement
19 to provide Replacement Water in the manner set forth herein.

20 **a. Obligation to Provide Replacement Water.** To the extent a Party's
21 production in the Four Basins or in any basin exceeds that Party's share of the Operating Safe Yield,
22 plus unused Carryover rights and recoverable groundwater pursuant to an approved Storage and
23 Recovery Agreement, the Party shall arrange for delivery of Replacement Water in an amount equal
24 to the Party's excess production by any of the following: (i) acquiring Replacement Water directly
25 from TVMWD except Upland which may also acquire Replacement Water from the Inland Empire
26 Utilities Agency ("the Empire"); (ii) arranging for delivery of a Native water supply other than
27 Replenishment Water; or (iii) paying a Replacement Water Assessment to Watermaster for the
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1 purpose of acquiring Replacement Water directly from TVMWD except as to Upland for which
2 Watermaster may acquire replacement water from the Empire.

3 **b. In Lieu Procedures.** Replacement Water may be supplied through In-Lieu
4 Procedures, spreading or other method at a place, time and manner, acceptable to Watermaster, for
5 a price and upon terms to be determined by TVMWD except as to Upland for which the price and
6 terms may be determined by the Empire.

7 **c. Replacement Water Assessment.** Watermaster will use Replacement Water
8 Assessment proceeds to acquire Replacement Water from TVMWD, or as to Upland, the Empire.

9 **6. Development, Maintenance and Implementation of the Operating Plan.** Water-
10 master is directed to maintain and implement the Operating Plan such that Production, Replenishment
11 and Storage and Recovery of water are consistent with and implement the purpose and objectives of
12 the Physical Solution herein. The Operating Plan shall include rules, regulations, procedures, criteria,
13 and time schedules, as appropriate, for at least the following elements:

- 14 a. Establishing and adjusting the Operating Safe Yield.
 - 15 b. Replenishment.
 - 16 c. Execution of supplemental agreements with PVPA regarding spreading
17 grounds and the funding thereof.
 - 18 d. Acquisition and delivery of Replacement Water.
 - 19 e. Standard terms and conditions of Storage Agreements.
 - 20 f. Replenishment, replacement and storage limits needed to protect against high
21 groundwater levels.
 - 22 g. Remediation of water quality problems.
 - 23 h. Monitoring systems and protocols, including such for groundwater levels.
 - 24 i. Monitoring, reporting and verification programs.
 - 25 j. Transfers.
 - 26 k. Annual budgets.
 - 27 l. Financial management.
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1 m. Reporting to the Court.

2 n. Levying Assessments.

3 7. **Initial Operating Plan.** Within six months of the effective date of this Judgment
4 Watermaster shall submit to the Court for approval an initial Operating Plan. An outline of the Initial
5 Operating Plan is attached as Exhibit "G."

6 8. **Annual Review of the Operating Plan.** Watermaster shall review the Operating Plan
7 at least annually and, subsequent to each such review, submit to the Court for its approval any
8 proposed amendments or revisions.

9 9. **Replenishment.** PVPA and Pomona historically augmented the Native Safe Yield
10 within the Four Basins Area through replenishment programs or activities. For many years these
11 replenishment programs or activities have resulted in the spreading and percolation of native waters
12 originating in the San Antonio Canyon and Evey Canyon. To the extent such waters have been
13 historically spread, they comprise a portion of the Safe Yield and Operating Safe Yield subject to
14 management under this Physical Solution.

15 a. All Replenishment shall be at the direction of the Watermaster.

16 b. At the direction and sole discretion of the Watermaster PVPA shall, pursuant
17 to the Memorandum of Agreement set forth in Exhibit "C" or any subsequent
18 amendments thereto, continue to spread such native waters as it receives.

19 c. Unless it is acting for the benefit of another Party pursuant to a Storage and
20 Recovery Agreement approved by the Watermaster, except for Replacement Water,
21 all water PVPA spreads, sinks or injects shall be considered Replenishment and shall
22 comprise a portion of the Operating Safe Yield.

23 d. Although Pomona has no continuing obligation to spread or replenish, all
24 waters spread in excess of its "historical replenishment" shall not be considered
25 Replenishment and a part of the Operating Safe Yield of the Four Basins Area. The
26 "historical replenishment" of Pomona shall be equal to a twelve (12) year annual
27 average for the twelve (12) years immediately preceding the filing of the complaint
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1 (1985-1996), which is determined to be one-hundred and thirty) acre feet. All water
2 Pomona spreads, sinks or injects, or causes to be spread, sunk or injected (collectively
3 augmentation) in excess of the historical replenishment shall not be considered a
4 portion of the Operating Safe Yield, and shall not be allocated among the Parties
5 pursuant to their Base Annual Production Rights. Pomona shall be entitled to produce
6 such excess quantity in addition to its Base Annual Production Right under a pre-
7 approved Storage and Recovery Agreement as provided in Article VIA, Section 10
8 in a form substantially similar to Exhibit F hereto, which is ordered to be executed by
9 Watermaster and Pomona within sixty (60) days from the Effective Date.
10 Measurement of Pomona's rights to recover water under any Storage and Recovery
11 Agreement shall be administered as follows:

- 12 i. Pomona shall be entitled to recover the amount by which its
13 augmentation of water over the twelve (12) year period ending with
14 the current year exceeds 1,560 acre feet.
- 15 ii. If less than twelve (12) years have elapsed since the effective date of
16 this Judgment, Pomona shall have the right to recover the amount by
17 which the total number of acre feet of groundwater augmented by
18 Pomona exceeds one hundred thirty (130) acre feet times the number
19 of years elapsed.
- 20 iii. The amount in excess of Pomona's historical replenishment may be
21 recovered by Pomona as provided in the Storage and Recovery
22 Agreement.

23 **10. Storage and Recovery Pursuant to Storage and Recovery Agreements.**

24 Watermaster may enter a Storage and Recovery Agreement with any Party holding a Base Annual
25 Production Right or TVMWD so long as the Storage and Recovery of groundwater will not cause an
26 unreasonably high groundwater table and physical damage. A Storage and Recovery Agreement
27 shall contain uniform terms and conditions as set forth in the Operating Plan and may also contain
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1 special terms and conditions as deemed appropriate by Watermaster. Water that may be stored
2 pursuant to a Storage Agreement includes any water other than Replenishment Water including
3 augmentation in excess of historical replenishment as expressly set forth under Article VIB, Section
4 9.

5 **11. Special Projects.** Any Party may propose for Watermaster approval, special projects
6 including projects for controlling water levels or for remediation of water quality problems. Any such
7 proposal shall be accompanied by an analysis that identifies the benefits of the project as well as any
8 potential adverse impacts on any Party and any proposed mitigation measures. After notice to all
9 Parties, if any Party files a written objection to the proposed project, Watermaster shall hold a hearing
10 to determine whether the objections to the proposed project can be resolved. If there are no
11 objections or if objections are resolved to the satisfaction of the Parties or if Watermaster determines
12 that the objections are without merit, then Watermaster shall approve the proposed project.
13 Groundwater produced under authorization as a Special Project shall not be eligible for the accrual
14 of Carryover Rights unless authorized by Watermaster.

15 **12. Temporary Surplus Groundwater.** From time to time it may be in the best interest
16 of the Parties, for the control of high groundwater, water quality remediation or other reasons, to
17 produce groundwater over and above the then declared Operating Safe Yield. Therefore, from time
18 to time, the Watermaster may declare a Temporary Surplus of groundwater to be available for
19 production. The Parties' rights to the Temporary Surplus shall be in the same percentages as the Base
20 Annual Production Right bears to the Operating Safe Yield. A Party's rights to temporary surplus
21 shall not be eligible for the accrual of Carryover Rights set forth in Article IIIB, Section 2.

22 **C. Guidelines for Operation of the Two Basins Area.** All Production, Replenishment
23 and Storage and Recovery rights for groundwater in the Two Basins Area are reserved to La Verne.
24 However, La Verne's Production, Replenishment and Storage and Recovery of groundwater must not
25 substantially injure other Parties.

26 **1. Replenishment.** La Verne shall have sole and complete discretion in the operation
27 of Replenishment programs in the Two Basins Area provided that no other Party is substantially
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1 injured by the program. La Verne shall provide written notice to Watermaster sixty (60) days in
2 advance of any Replenishment program being undertaken.

3 **2. Storage and Recovery.** La Verne shall have sole and complete discretion in the
4 operation of a Storage and Recovery program in the Two Basins Area provided that no other Party
5 is substantially injured by the program. La Verne shall provide written notice to Watermaster sixty
6 (60) days in advance of any Storage and Recovery program being undertaken. La Verne shall
7 annually report the quantity of groundwater stored pursuant to a Storage and Recovery Program in
8 the Two Basins Area.

9 **3. Production.** La Verne shall have sole and complete discretion to produce
10 groundwater from the Two Basins Area provided that no other Party is substantially injured by such
11 production. La Verne shall report its groundwater production to the Watermaster on a monthly basis.

12 **VII. ASSESSMENTS**

13 **A. Ground Rules**

14 **1. Authorization.** Subject to the continuing supervision of the Court and the limitations
15 set forth in the Judgment, Watermaster is authorized to levy assessments to fund Replacement Water
16 acquisition costs, administrative costs and other costs determined by Watermaster to be necessary for
17 the implementation of the physical solution.

18 **2. Assessment Spread.** Excluding Replacement Water Assessments, all assessments
19 levied by the Watermaster shall be spread such that Claremont, Pomona College and TVMWD
20 (collectively, the "Minor Parties") shall each individually be assessed three and one half (3.5) percent
21 of the total assessment , and eighty-nine and one half (89.5) percent of the total assessment is spread
22 among La Verne, Pomona, Upland, San Antonio, West End, ~~Simpson~~ and SCWC (collectively, the
23 "Major Parties") in proportion to their then-current holdings of Base Annual Production Rights,
24 provided that for assessments other than for Replacement Water or administration (a) the total amount
25 spread among Minor Parties shall not exceed sixty-thousand \$60,000, escalated, in any year without
26 their unanimous consent and (b) the total amount spread among the Major Parties in any year shall
27 not exceed ten dollars (\$10.00), escalated, per acre foot of their Base Annual Production Rights
28

1 without their unanimous consent. "Escalated" shall mean an annual adjustment in the specified dollar
2 value based upon the Consumer Price Index for Southern California in the immediately preceding
3 Year. No escalation adjustment shall be made until the Judgment has been in effect for twelve
4 consecutive calendar months. PVPA shall not have any obligation to pay any assessments.

5 **3. Administrative Assessment.** Watermaster is authorized to levy an annual assessment
6 that is sufficient to fund the costs of administering the Judgment. The administrative assessment shall
7 not exceed the cost of Watermaster's administrative budget and shall be due and payable according
8 to a schedule established by Watermaster. The administrative assessment for the first Year following
9 entry of Judgment shall be \$8.00 ^{per AF} and shall be due and payable on January 15, 1999. Late payment
10 shall bear an interest penalty to be established annually by Watermaster. (*escalated?*)

11 **4. Replacement Water Assessments.** To the extent Watermaster must acquire and
12 recharge the groundwater with Replacement Water pursuant to the terms of this Judgment, in order
13 to fund the costs thereof, Watermaster is authorized to levy Replacement Water Assessments.
14 Replacement Water Assessments levied against any Party shall be sufficient to pay the costs to
15 replace such Party's production in excess of the sum of such Party's share of the Operating Safe Yield,
16 any Carryover Right or Transfers and any storage recovery, Production of Temporary Surplus or
17 pursuant to Special Project authorization, during the prior Year, minus any Replacement Water
18 provided to Watermaster by the Party. Any Replacement Water Assessment shall be paid within
19 sixty (60) days from the date of the written invoice from Watermaster.

20 **VIII. DISPUTE RESOLUTION**

21 **A. Entity for Resolution of Dispute.** All disputes arising under this Judgment initially
22 shall be submitted to Watermaster for resolution in accordance with the provisions of this Article.

23 **B. Determination Regarding Substantial Injury.** Any Party having a right to be
24 protected against "substantial injury" caused by any other Party; the right to proceed so long as not
25 causing substantial injury to another party; or any other claim, right or remedy against any other
26 Party arising under the provisions of this Judgment may file a written request with the Watermaster
27 to hold a hearing.

28

1 C. Notice and Hearing. Upon receipt of the written request, Watermaster shall provide
2 written notice to each Party which generally describes the nature of the dispute. Thereafter,
3 Watermaster shall cause an item to be placed on the agenda for the next regularly scheduled meeting
4 of the Watermaster or if requested by the moving Party, call a special meeting for the purpose of
5 providing a full hearing of the dispute and providing the interested Parties with notice and
6 opportunity to be heard. No later than 30 days following the conclusion of the hearing(s)
7 Watermaster shall issue a written decision which is dispositive of the dispute and which is supported
8 by written findings. Any Party may seek review of an adverse decision of the Watermaster in
9 accordance with the provisions of Article IX.

10 **IX. ADDITIONAL PROVISIONS**

11 A. Procedure

12 1. Designation of Address for Notice and Service. Each Party shall designate the name
13 and address to be used for purposes of all subsequent notices and service herein, either by its
14 endorsement on the Stipulation for Judgment or by a separate designation to be filed within thirty
15 (30) days after Judgment has been entered. Said designation may be changed from time to time by
16 filing a written notice of such change with Watermaster. Any Party desiring to be relieved of
17 receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by
18 Watermaster. Watermaster shall maintain at all times a current list of Parties to whom notices are
19 to be sent and their address for purposes of service. Watermaster shall also maintain a full current
20 list of names and addresses of all Parties or their successors, as filed herein. Copies of such lists shall
21 be available to any person. If no designation is made, a Party's designee shall be deemed to be, in
22 order of priority: (i) the Party's attorney of record; (ii) if the Party does not have an attorney of
23 record, the Party itself at the address on the Watermaster list.

24 2. Service of Documents. Delivery to or service upon any Party by Watermaster, by any
25 other Party, or by the Court, of any document required to be served upon or delivered to a Party under
26 or pursuant to this Judgment shall be deemed made if made by deposit thereof (or by copy thereof)

27
28

1 in the mail, first class postage prepaid, addressed to the designee of the Party and at the address
2 shown in the latest designation filed by that Party.

3 **3. Recordation of Notice.** Within sixty (60) days following entry of this Judgment,
4 Watermaster shall record in the office of the County Recorder of the Los Angeles and San Bernardino
5 Counties a notice substantially complying with the notice content requirements set forth in *Section*
6 *2529 of the California Water Code* as it exists on the Effective Date.

7 **4. Judgment Binding on Successors.** Subject to specific provisions hereinbefore
8 contained, this Judgment and all provisions thereof are applicable to and binding upon and inure to
9 the benefit of not only the Parties to this action, but also to their respective heirs, executors,
10 administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in
11 fact of any such Persons.

12 **5. Costs.** No Party stipulating to this Judgment shall recover any costs or attorneys fees
13 in this proceeding from another stipulating Party. In any future proceedings, the costs of notice or
14 service, shall be levied in accordance with the provisions of Article XIA, Section 6.

15 **6. Review Procedures.** Any action, decision, rule or procedure of Watermaster pursuant
16 to this Judgment shall be subject to review by the Court on its own motion or on timely motion by
17 any Party, as follows:

18 **a. Effective Date of Watermaster Action.** Any order, decision or action of
19 Watermaster pursuant to this Judgment on noticed specific agenda items shall be deemed to have
20 occurred on the date of the order, decision or action.

21 **b. Notice of Motion.** Any Party may, by a regularly noticed motion, petition the
22 Court for review of Watermaster's action or decision pursuant to this Judgment. The motion shall
23 be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to
24 Watermaster together with the service fee established by Watermaster sufficient to cover the cost to
25 photocopy and mail the motion to each Party. Watermaster shall prepare copies and mail a copy of
26 the motion to each Party or its designee according to the official service list which shall be
27 maintained by Watermaster according to Article XIA, Section 1, a Party's obligation to serve notice
28

1 of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless
2 ordered by the Court, any such petition shall not operate to stay the effect of any Watermaster action
3 or decision which is challenged.

4 c. **Time for Motion.** A motion to review any Watermaster action or decision
5 shall be filed within ninety (90) days after such Watermaster action or decision, except that motions
6 to review Watermaster Assessments hereunder shall be filed within thirty (30) days of mailing of
7 notice of the Assessment.

8 d. **De Novo Nature of Proceeding.** Upon filing of a petition to review
9 Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take
10 evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or
11 action shall have no evidentiary weight in such proceeding.

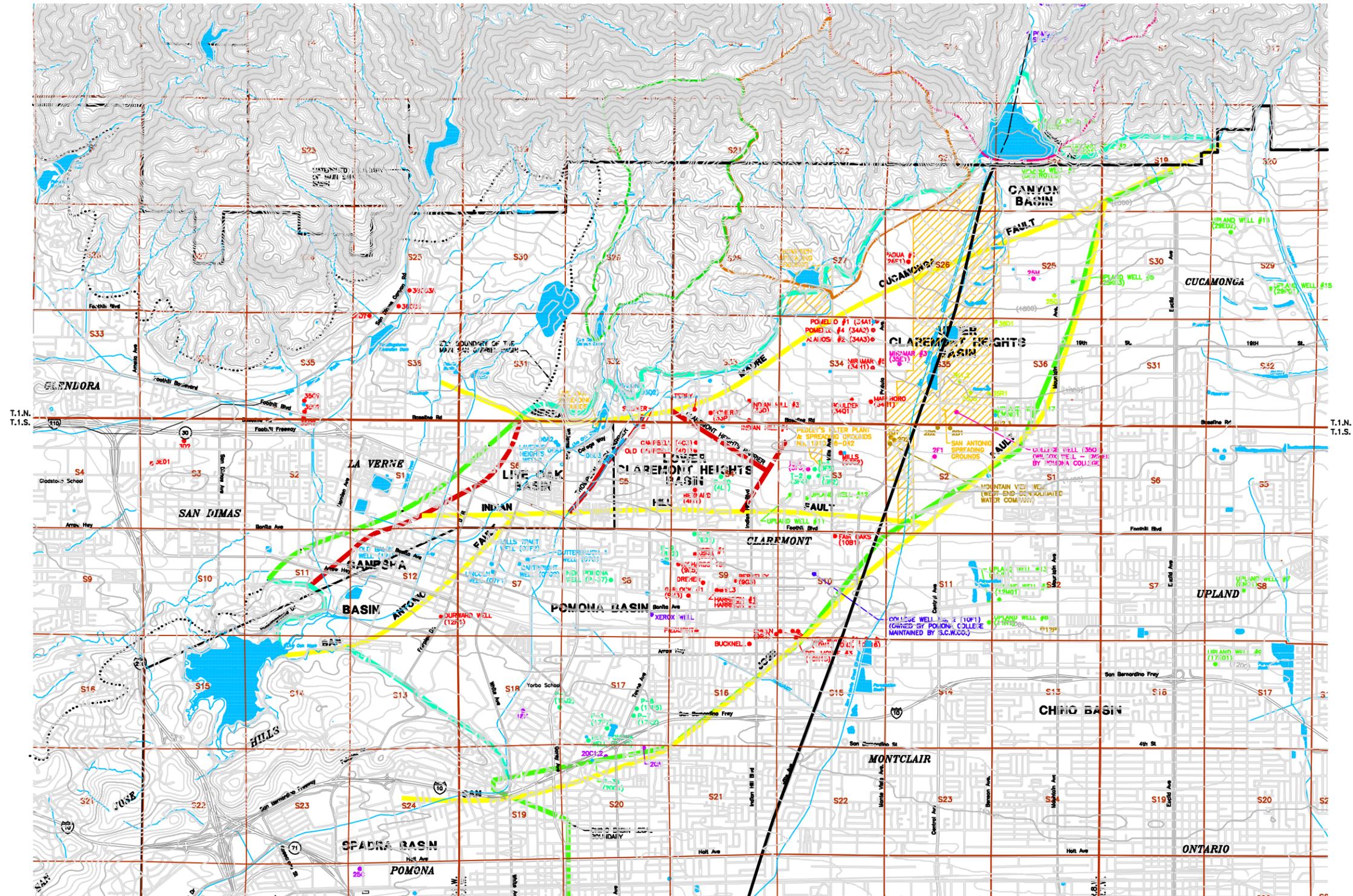
12 e. **Payment of Assessments.** Payment of Assessments levied by Watermaster
13 hereunder shall be made when due, notwithstanding any motion for review of Watermaster action,
14 decision, rules or procedures, including review of Watermaster Assessments.

15
16 B. **Entry of Judgment.** The Clerk shall enter this Judgment.

17
18 Dated: DEC 18 1998 1998.

19 
20 _____
21 Judge of the Superior Court
22 **WILLIAM J. McVITTIE**

23
24
25
26
27
28



T.1.N.
T.1.S.

T.1.N.
T.1.S.

LEGEND

- THOMPSON CREEK WATERSHED BOUNDARY
- LIVE OAK WATERSHED BOUNDARY
- SAN ANTONIO WATERSHED BOUNDARY
- FAULT LINE
- LEGAL BOUNDARY OF ADJACENT BASIN
- GEOLOGIC FEATURE
- ALLUVIUM BOUNDARY
- MAIN SAN GABRIEL BASIN WATERSHED BOUNDARY
- - - MAIN SAN GABRIEL BASIN
- GROUNDWATER RECHARGE FACILITY



SCALE: 1" = 2000'

CITY OF UPLAND WELLS

18J02	WELL AND NUMBER
24L1	UPLAND WELL #1 (DESTROYED)
24E02	UPLAND WELL #1A
24E01	UPLAND WELL #2
12M01	UPLAND WELL #3 (INACTIVE)
25K03	UPLAND WELL #5
8N01	UPLAND WELL #7
11R1	UPLAND WELL #8 (INACTIVE)
17E01	UPLAND WELL #9
3M3	UPLAND WELL #11 (DESTROYED)
3M1	UPLAND WELL #12 (DESTROYED)
11J01	UPLAND WELL #13 (INACTIVE)
29P01	UPLAND WELL #15
29E02	UPLAND WELL #16
38N01	UPLAND WELL #17

SAW.C. WELLS

18J02	WELL AND NUMBER
2501	SAWC WELL #17 (INACTIVE)
35R1	SAWC WELL #25 (INACTIVE)
35L3	SAWC WELL #26
3K1,2	SAWC WELL #27 (INACTIVE)
38D1	SAWC WELL #28 (INACTIVE)

CITY OF POMONA WELLS

18J02	WELL AND NUMBER
17P7	P-1
18J2	P-3
17K2	P-7
17R5	P-8
8H2	P-9
9D1	P-13
4L1	P-20
17P3	P-32
20C1	P-33
8F1	P-37
3F2	T-1
3F4	T-2
3F3	T-3
3F5	T-4

SIMPSON PAPER CO. KEY MONITORING WELLS

18J02	WELL AND NUMBER
18K	WELL 5
20A	WELL 1
20C1	WELL 2A
20C2	WELL 2B
29C	WELL 3

S.C.W.Co. WELLS

18J02	WELL AND NUMBER
34A3	ALAMOSA #2
9G3	BERKELEY
4M1	BERNARD
34D1	BOULDER
4C3	CAMPBELL
3501	COLLEGE WELL
10N1	DEL MONTE #1
10N3	DEL MONTE #2
10N15	DEL MONTE #3
10N16	DEL MONTE #4
9F	DREHER
12R1	DURWARD WELL
1081	FAIR OAKS
9E2	FORD #1

KEY MONITORING WELLS

18J02	WELL AND NUMBER
12M01	UPLAND WELL #3
2F1	ML VIEW #4
35E1	MIRAMAR #3
35C1	COLLEGE WELL No. 1
3F3	T-3

POMONA COLLEGE

18J02	WELL AND NUMBER
9M3	GARLOCK #1
9R1	GREEN
9L3	HARRISON #1
9L2	HARRISON #2
33Q	INDIAN HILL #3
34R1	MARLBORO
3Q2	MILLS #1
33E1	MIRAMAR #3
34H1	MIRAMAR #5
28E1	PADUA #1
34A1	POWELLO #1
34A2	POWELLO #4
33P	POWEROY
9E5	RICHARDS 180

POMONA COLLEGE

18J02	WELL AND NUMBER
3501	COLLEGE WELL No. 1
10F1	COLLEGE WELL No. 2

CITY OF LAVERNE WELLS

18J02	WELL AND NUMBER
07G2	CARTWRIGHT
07F1	LINCOLN
05D2	MALONE 2 (INACTIVE)
07F2	MILLS TRACT
12A	OLD BALDY
08A2	LAVERNE HEIGHTS 1
08A1	LAVERNE HEIGHTS 2
05D3	LAVERNE HEIGHTS 3
07G1	BUTTERBAUGH 1 (DESTROYED)

PREPARED BY:

SIX BASINS AREA

FINAL BOUNDARY MAP

DESIGN: JM/MR	CHECKED: WDB	SCALE: 1" = 2000'
DRAWN: PWH	J.N. 97106	SHEET 1 OF 1

EXHIBIT 'A'

EXHIBIT B

DESCRIPTION OF SIX BASINS AREA

The Six Basins Area lies between the San Jose Hills on the south, the Chino Basin on the east, the San Gabriel Mountains on the north and the Main San Gabriel Basin on the west. The boundaries of the Main San Gabriel Basin are set forth in the Judgment in the case of the *Upper San Gabriel Valley Municipal Water District vs. City of Alhambra, et al.*, Superior Court of the State of California, Los Angeles County, Case No. 924128, and the boundaries of the Chino Basin are set forth in the Judgment in the case of *Chino Basin Municipal Water District vs. City of Chino, et al.*, Superior Court for the State of California, San Bernardino County, Case No. 164327. The Area consists of six interconnected groundwater basins. Each basin consists of all alluvium or other water-bearing formations lying beneath the surface of the basin. The approximate boundaries of the surface of each basin are shown on EXHIBIT A and are described generally as follows:

Canyon Basin. The surface of the Canyon Basin is bounded on the south and east by the surface trace of the Sierra Madre/Cucamonga Fault and on the north and west by the surface trace of the bedrock/alluvium interface between (a) the point of intersection in Township 1 North, Range 8 West, Section 31, SBB&M, of the Sierra Madre/Cucamonga Fault with easterly boundary of the Main San Gabriel Basin and (b) the point of intersection in Township 1 North, Range 8 West, Section 20, SBB&M, of the Sierra Madre/Cucamonga Fault with the San Gabriel Mountains. The northernmost extent of the bedrock/alluvium interface is assumed to be at the southern boundary of Township 1 North, Range 8 West, Section 13, SBB&M in San Antonio Canyon.

Upper Claremont Heights Basin. The surface of the Upper Claremont Heights Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the westerly boundary of the Chino Basin, on the north by the surface trace of the Sierra Madre/Cucamonga Fault and on the west by the surface trace of the Claremont Heights Barrier.

Lower Claremont Heights Basin. The surface of the Lower Claremont Heights Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the surface trace of the Claremont Heights Barrier, on the north by the surface trace of the Sierra Madre/Cucamonga Fault on the west by the surface trace of the Thompson Wash Barrier.

Live Oak Basin. The surface of the Live Oak Basin is bounded on the south by the surface trace of the Indian Hill Fault, on the east by the surface trace of the Thompson Wash Barrier, on the north by the surface trace of the Sierra Madre/Cucamonga Fault and on the west by the easterly boundary of the Main San Gabriel Basin.

Ganesha Basin. The surface of the Ganesha Basin is bounded on the south and east by the surface of the San Antonio Fault, on the north surface trace of the Indian Hill Fault, and on the west by easterly boundary of the Main San Gabriel Basin and by the surface trace of the bedrock/alluvium interface between (a) the point of intersection in Township 1 South, Range 9 West, Section 11, SBB&M, of the easterly boundary of the Main San Gabriel Basin with the San Jose Hills and (b)

the point of intersection in Township 1 South, Range 9 West, Section 14, SBB&M, of the surface trace of the San Antonio Fault with the San Jose Hills.

Pomona Basin. The surface of the Pomona Basin is bounded on the south by the surface trace of the bedrock/alluvium boundary between (a) the intersection in Township 1 South, Range 9 West, Section 14, SBB&M, of the surface trace of the San Antonio Fault with the San Jose Hills and (b) the intersection in Township 1 South, Range 8 West, Section 19, SBB&M, of the boundary of the Chino Basin, on the north by the surface trace of the Indian Hill Fault on the west by the surface of the San Antonio Fault.

1 MEMORANDUM OF AGREEMENT
2 BETWEEN THE POMONA VALLEY PROTECTIVE ASSOCIATION
3 AND WATERMASTER OF THE SIX BASINS RELATING TO
4 WATER SPREADING AND RELATED ACTIVITIES
5

6 THE AGREEMENT, made, entered into, and executed as of this ____ day of _____,
7 1999, by and between the Pomona Valley Protective Association ("PVPA"), and Watermaster of the
8 Six Basins ("Watermaster"), relating to water spreading and related activities in connection with the
9 Canyon Basin, the Upper Claremont Height Basin, the Lower Claremont Heights Basin, the Live
10 Oak Basin, the Ganesha Basin and the Pomona Basin (collectively, the "Six Basins").

11 RECITALS

12 WHEREAS, the rights to groundwater in connection with the Six Basins were adjudicated
13 by the court in an action entitled "*Southern California Water Company v. City of La Verne, et al.*,"
14 Case No. KC029152 in the Superior Court of the State of California, County of Los Angeles, (the
15 "Judgment"); and

16 WHEREAS, the Judgment requires the Watermaster to determine annually an Operating Safe
17 Yield of the Six Basins and to develop an Operating Plan, which will include the monitoring and
18 direction of all production, replenishment, replacement and storage of groundwater in the Six
19 Basins; and

20 WHEREAS, PVPA, a California corporation, formed in 1910 by various water interests in
21 Pomona Valley, engages in water conservation activities for the benefit of its shareholders, which
22 include the City of Upland, Southern California Water Company, the City of Pomona, Simpson
23 Paper Co., Pomona College, the San Antonio Water Company, and the West End Water Company;
24 and

25 WHEREAS, PVPA owns certain real property in and around the Six Basins area primarily
26 consisting of two spreading grounds: the San Antonio Spreading Grounds and the Thompson Creek
27 Spreading Grounds together with appurtenant diversion and conveyance facilities (the "Spreading
28 Grounds" herein); and

1 WHEREAS, in connection with its water conservation activities, PVPA has conducted
2 several technical studies of the Six Basins including the development of a numerical groundwater
3 model which assists in the prediction of the Six Basins' response to PVPA's spreading activities, and
4 is used to control the groundwater resources for the Six Basins and to mitigate high groundwater in
5 the Six Basins; and

6 WHEREAS, the parties to the Judgment have conducted additional studies including the
7 enhancement and refinement of the PVPA groundwater model.

8 NOW, THEREFORE, in consideration of mutual promises, agreements, and covenants of
9 Watermaster and PVPA collectively referred to herein as "the Parties" agree as follows:

10 **I. DEFINITIONS**

11 A. The Judgment defines certain important terms. Except as to the definitions provided
12 in this Agreement, the terms used in this Agreement which have been defined in the Judgment shall
13 have the meaning set forth in the Judgment and the definitions set forth in the Judgment are
14 incorporated herein by this reference

15 B. "Emergency" shall mean a sudden event which threatens life or property.

16 C. "Models" shall mean the spreadsheet and the basin wide models used by PVPA in
17 development of an Operating Plan and any subsequent version or improvement thereof.

18 D. "Parties" written with an upper case P, refer to the Watermaster and to PVPA.
19 Parties written with a lower case p, refer to the parties to the Judgment as defined therein.

20 **II. SPREADING GROUNDS AND SPREADING OPERATIONS**

21 A. Watermaster Direction and PVPA Reservation. PVPA shall use and operate the
22 Spreading Grounds primarily for the spreading of replenishment, replacement and storage water
23 under the direction of the Watermaster Plan. PVPA reserves the right to use the Spreading Grounds
24 for other lawful activities consistent with its water spreading activities so long as doing so does not
25 impair PVPA's ability to spread replenishment water in quantities substantially comparable to
26 historic quantities.

27 B. Impossibility and related defenses. PVPA shall not be liable, in breach or in default
28 of the Agreement if PVPA is unable, either temporarily or permanently, to perform its obligations

1 under the Agreement for reasons beyond PVPA's reasonable control, including but not limited to,
2 acts of God, eminent domain, impossibility or impracticability of performance, interference of a
3 third party and natural disasters, including without limitation, floods, earthquakes, and fires.

4 C. PVPA Discretion. PVPA shall have discretion to make operational decisions in
5 discharging its obligation hereunder within the scope of Watermaster direction.

6 D. Common conditions of spreading. In addition to the direction of Watermaster PVPA
7 shall spread replenishment, replacement or storage waters subject to the following conditions.

8 1. Cessation of Spreading for Emergencies. PVPA reserves the right to cease
9 spreading at any time, without prior notice to Watermaster if, in the discretion of PVPA, such action
10 shall be warranted by, and in connection with, any emergency condition. PVPA will give
11 Watermaster immediate notice of any such cessation.

12 2. Water Quality. PVPA bears no responsibility for the quality of replenishment,
13 replacement or storage water or the impacts of spreading such water upon water quality of the Six
14 Basins.

15 3. High Groundwater. PVPA bears no responsibility for high groundwater due
16 to any spreading of replenishment, replacement or storage water.

17 4. Rejected water. PVPA bears no responsibility for loss of replenishment,
18 replacement or storage water which is rejected or otherwise lost.

19 5. Measurement and Reporting. Watermaster shall provide adequate measuring
20 devices to measure the spreading of replenishment, replacement and storage waters and any such
21 water rejected or lost. PVPA will keep, maintain and furnish to Watermaster on a monthly basis,
22 records of the quantities of replenishment waters spread and rejected.

23 6. Record of Deliveries and Spreading. Watermaster shall keep, maintain and
24 furnish to PVPA records of the quantities and quality of replacement or storage waters delivered
25 within 30 days following delivery of such waters. PVPA shall keep, maintain, and furnish to
26 Watermaster the quantities of replacement and storage waters spread within 30 days following
27 delivery of such water together with an estimate of the quantities of water bypassing the spreading
28 facilities, if any.

1 7. Compensation. Subject to review by the court under its continuing
2 jurisdiction in Case No. KC029152, Watermaster shall pay PVPA's actual, reasonable and necessary
3 costs incurred by PVPA in spreading replenishment, replacement and storage water. PVPA will
4 bill Watermaster such costs on a quarterly basis and such bill will include a reasonably detailed
5 accounting of such costs under generally accepted accounting principles (GAAP). Payment is due
6 upon billing. PVPA's costs may be subject to review or audit by an outside accounting firm selected
7 and paid by Watermaster (within thirty days following billing). Within thirty (30) days following
8 billing, Watermaster shall either contest the billing or accept said billing.

9 E. Replenishment water. In addition to the above, PVPA shall spread replenishment
10 water as it becomes available. PVPA has no control over the availability of replenishment waters
11 and is under no obligation to spread any specific quantity of replenishment water.

12 F. Replacement Water. In addition to the above, PVPA shall spread Replacement
13 Water on the Spreading Grounds under the following terms and conditions. Pursuant to the
14 Judgment, only qualified parties under the Judgment may store water in the Six Basins upon entry
15 into a Storage and Recovery Agreement with Watermaster. Upon request, PVPA shall spread
16 storage water under the following terms and conditions:

17 1. Terms of Delivery. Watermaster shall deliver and PVPA shall spread storage
18 water under the same terms and conditions as replacement waters.

19 2. Replacement Water Flows. PVPA will assist Watermaster in determining the
20 allowable daily rates and the duration of replacement water deliveries, based upon conditions
21 existing from time to time, including any unused capacity available at and in PVPA spreading
22 facilities.

23 3. Notice of New or Changed Replacement Water Flows. Watermaster, at least
24 seven (7) days prior to any anticipated delivery of replacement water, shall notify PVPA that water
25 will be available for transport and spreading and shall give PVPA at least forty-eight (48) hours
26 notice of any anticipated change in previously established flow rates of delivery for such water.

27 4. Spreading Grounds Limitations. PVPA may require changes in delivery flow
28 rates when, in PVPA's opinion, continued spreading (in whole or in part) cannot be carried out

1 hereunder due to operational and/or maintenance problems, including, but not limited to, trespassing,
2 insect infestations, scarification, weed abatement, and/or construction in or at PVPA's conveyance
3 and spreading facilities. When it is reasonable to do so, PVPA will give Watermaster at least twenty-
4 four (24) hours' notice of any such changes.

5 III. OWNERSHIP AND IMPROVEMENTS OF SPREADING GROUNDS

6 A. No Dedication. Nothing in this Agreement shall be construed as a dedication of the
7 PVPA Spreading Grounds or its facilities to Watermaster, the other parties to the Judgment, or to
8 the public use or benefit. The spreading grounds and appurtenant facilities are, and remain, the sole
9 property of PVPA. PVPA may sell, lease, or otherwise dispose of portions of its spreading grounds
10 at its own discretion but not inconsistent with this Agreement.

11 B. Spreading Grounds Improvements. Nothing in this Agreement obligates or otherwise
12 requires PVPA to construct new or additional facilities in connection with its spreading operations.
13 PVPA may at its discretion construct new or additional facilities. Watermaster may propose
14 improvements to PVPA's spreading grounds and facilities at its own expense.

15 C. Condemnation. Watermaster agrees to and does waive and disclaim any interest in
16 any award or settlement which may be made in any proceeding in eminent domain concerning all
17 or part of the Spreading Grounds whether the taking be total or partial, or for easement purposes.
18 If the taking be such as to render the Spreading Grounds totally unfit and unsuitable for the above
19 use, then, pursuant to Paragraph II,^B~~A~~ PVPA is not in default or breach.

20 IV. GROUNDWATER MODEL

21 A. License for use. PVPA grants Watermaster a license to use its Spreadsheet Models
22 pursuant to the terms and conditions of this agreement for the development of an Operating Plan.
23 In developing the initial operating plan, Watermaster has used PVPA's Groundwater Models. In
24 developing subsequent operating plans or revising such plans, Watermaster shall use PVPA's
25 Groundwater Models and any subsequent version or improvement thereof, or other criteria at
26 Watermaster's discretion.

27

28

1 1. Custody of the PVPA's Groundwater Models. Watermaster shall have
2 physical custody of a copy of the model. However, PVPA shall have the right to access the Models
3 for any purpose which is not inconsistent with the Judgment or the direction of the Watermaster.

4 2. Updates to Model.

5
6 Said license shall include, following consultation with PVPA, the right to make changes,
7 modifications, improvements, updates, or refinements in or to PVPA's Groundwater Model at the
8 sole expense of Watermaster and without any contribution from PVPA.

9 B. Terms and Conditions. For daily operations, Watermaster shall be responsible for
10 keeping, maintaining and reporting on the data base necessary for use of PVPA's Groundwater
11 Models. Watermaster shall collect water level and quality data necessary, including key well levels
12 and rainfall data, to use the Groundwater Models to implement the Physical Solution. Watermaster
13 shall provide this data to PVPA by the fifteenth day of each month. PVPA shall provide
14 Watermaster readings of replenishment water spread, on a daily basis. PVPA then shall provide
15 Watermaster with a monthly report on available storage and water levels of monitoring wells.

16 1. Compensation. PVPA grants Watermaster this license at no cost other than
17 the continuing costs which may be incurred by PVPA as a result of Watermaster operating the
18 Models.

19 2. No Warranty. PVPA makes no warranty and disclaims all warranties
20 regarding PVPA's Groundwater Model and its subsequent updates or improvements.

21 3. Field Conditions. PVPA shall report to Watermaster any field conditions that
22 may have an impact on Spreading Operations.

23 **V. INDEMNIFICATION**

24 A. Watermaster Obligations. To the extent which is allowed by law, Watermaster shall
25 indemnify and hold harmless, PVPA, its officers, directors, employees, agents, and representatives
26 against any and all claims, demands, costs, and/or liabilities due to, or arising from any act or
27 omission by PVPA, its officers, directors, employees, or agents arising from any activities not
28 connected with the spreading of water under the direction of Watermaster.

1 Such Notices shall be deemed made when personally delivered or, when mailed, forty-eight
2 (48) hours after deposit in the U.S. mail, first class postage pre-paid and addressed to the Party at
3 its applicable address.

4 E. Successors and Assigns. This Agreement is binding on and shall inure to the benefit
5 of the Parties, their respective successors in interest and assigns.

6 F. Assignment. No Party shall have the right to assign its rights or delegate any of its
7 obligations hereunder without the express written consent of the other Party.

8 G. Construction. Each Party and/or its respective counsel has taken part in the
9 negotiation, drafting, and preparation of this Agreement, and, therefore, any ambiguity or
10 uncertainty in this Agreement shall not be construed against any Party. To ensure that this
11 Agreement is not construed against any Party, the Parties expressly agree that any common law or
12 statutory provision providing that an ambiguous or uncertain term will be construed against the
13 drafter of an Agreement is waived and shall not apply to the construction of this Agreement.

14 H. Entire Agreement. This Agreement embodies the entire and final Agreement and
15 understanding of the Parties pertaining to the subject matter of this Agreement, and supersedes all
16 prior Agreements, understandings, negotiations, representations, and discussions pertaining to that
17 subject matter, whether verbal or written, of the Parties. The Parties acknowledge that there are no
18 representations, promises, warranties, conditions, or obligations of any Party, or counsel (or any
19 Party), pertaining to that subject matter other than is contained in this Agreement, and that no Party
20 has executed this agreement in reliance on any representation, promise, warranty, condition, or
21 obligation, other than is contained in this Agreement.

22 I. Execution. The Parties to this Agreement acknowledge that they have executed this
23 Agreement voluntarily and without any duress or undue influence. The Parties further acknowledge
24 that they (1) have been represented by counsel of their own choice in connection with the
25 negotiation and execution of this Agreement, or have been advised to seek independent counsel of
26 their own choice prior to executing this agreement; (2) have read this Agreement in its entirety; and
27 (3) have entered into this Agreement of their own volition and not as a result of any representations
28 or advice by other Party or counsel for any other Party.

1 J. Counter Parts. This Agreement may be executed in one or more counterparts, each
2 of which shall be deemed an original, but all of which together shall constitute one and the same
3 instrument. This agreement shall become effective and binding immediately upon its execution by
4 both Parties. This Agreement consists of nine (9) pages, including the signature page.

5 K. Termination. Upon motion made by either Party to this Agreement in accordance
6 with the procedures set forth in Article IX, Section A of the Judgment and approval of the Court,
7 this Agreement shall be terminated.

8
9 DATED: _____ WATERMASTER
10
11 _____

12 By:

13
14 DATED: _____ POMONA VALLEY PROTECTIVE ASSOCIATION
15
16 _____

17 By:

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27
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EXHIBIT D

**BASE ANNUAL GROUNDWATER PRODUCTION IN EACH BASIN, 1985- 1996
AND TOTAL BASE ANNUAL GROUNDWATER PRODUCTION, 1985- 1996
FOR EACH PARTY, AND EACH PARTY'S PERCENTAGE OF THE AGGREGATE OPERATING SAFE
YIELD FOR THE CANYON, UPPER CLAREMONT HEIGHTS, LOWER CLAREMONT HEIGHTS AND POMONA BASINS**

Party	<u>Base Annual Production, Acre Feet per Year</u>				Percentage of Aggregate Operating Safe Yield
	Canyon Basin	Upper Claremont Heights Basin	Lower Claremont Heights Basin	Pomona Basin	
				Total	
City of La Verne	0	0	0	1,492	7.731
City of Pomona*	0	1,234	961	3,323	17.218
Simpson Paper	0	0	0	691	3.580
Southern Cal. Water Co.	56	2,895	107	3,647	34.741
City of Claremont	0	267	0	268	2.772
Pomona College	0	357	0	0	1.850
City of Upland	408	1,434	0	1,842	9.544
West End Consolidated Water Company	0	2,972	0	0	15.399
San Antonio Water Company	0	1,383	0	0	7.166
TOTAL	464	10,542	1,068	7,226	19,300
					100.000%

* Pomona shall have the right to produce an additional 109 acre feet of groundwater per year subject to the following:

(a) Pomona shall provide at least 436 acre feet of recycled water to the property presently designated by the Los Angeles County Assessor as Assessor's Parcel Nos. 834-800-8001, 834-800-8002, 834-800-8009, 834-800-5013 and 834-800-6001.

(b) Pomona's additional production right shall be added to its Base Annual Production Right and shall be subject to all provisions of the Judgment relating to Base Annual Production Rights; provided however, such additional right shall not be subject to transfer or the water produced delivered for use outside the Pomona service area.

(c) To the extent in any year Pomona provides less than 436 acre feet of recycled water to the above described property, the additional right of Pomona shall be reduced to an amount equal to one fourth (1/4) of the amount of recycled water provided. However, no reduction shall occur to the extent the failure to deliver recycled water is the result of sudden occurrences such as storms, floods, fires, earthquakes, accidents or unexpected equipment outage) or acts or omissions of the Los Angeles County Sanitation District which impair the ability of Pomona to make recycled water deliveries.

EXHIBIT E

DESCRIPTION OF REPLENISHMENT PROGRAMS

San Antonio Spreading Grounds

Owned and operated by the Pomona Valley Protective Association (PVPA), this private facility is comprised of 600 acres of spreading grounds on both the east and west sides of San Antonio channel. The grounds consist of ditches, check levees, gates, metering stations, shallow basins and deep basins. The primary source of water for this facility is from San Antonio Creek by way of controlled releases from San Antonio Dam which is owned and operated by the U.S. Army Corps of Engineers. Water is released from the dam directly into San Antonio Flood Control Channel. Upon entering the channel, water is diverted into an underground basin where control gates allow regulated flow onto the spreading grounds. Additional sources of water include uncontrolled surface flows from adjacent properties in San Bernardino and Los Angeles Counties. The Corps coordinates its releases with PVPA. Four metering stations are used for flow measurements, and a series of ditches, check levees, gates and appurtenances allow the water to be directed into shallow and deep basins. Since 1896, PVPA has regularly spread water at its facility.

Thompson Creek Spreading Grounds

Owned and maintained by PVPA, this private facility is comprised of approximately 53 acres of spreading grounds south of Thompson Creek Dam and east of Thompson Creek. PVPA operates this facility with the cooperation of the Los Angeles County Flood Control District. The grounds consist of ditches, check levees, gates, shallow and deep basins. The sources of water for this facility are Cobal, Williams, Palmer, and Padua Creeks which are diverted to the grounds by PVPA with the cooperation of the Los Angeles County Department of Public Works through the Palmer Diversion. Surface runoff is diverted onto the grounds by way of Chicken Creek through a diversion located directly north of the grounds. PVPA's facility can also receive water from Thompson Creek Dam when the reservoir exceeds the elevation of 1625 feet above sea level. Since 1918, PVPA has spread water at this facility.

Pomona Spreading Grounds

Owned and operated by the City of Pomona, this facility is comprised of 8 acres of spreading grounds adjacent to the City's Pedley Water Treatment Plant. The City acquired this property in October 1926. The present deep basin configuration of the facility was completed in 1957. The source of water for this facility is San Antonio Creek water delivered through the Loop Merserve Canyon Water Company pipeline and Evey Canyon water. This facility also receives some local runoff. Water has been spread in this vicinity on and off since about 1897.

Live Oak Spreading Grounds

Owned and operated by the Los Angeles County Department of Public Works, this facility consists of approximately 5 acres of spreading grounds. Approximately 1.5 acres north of Baseline Road and 3.5 acres south of route 30 freeway extension. The source of water for this facility is controlled releases from Live Oak Dam and Live Oak Debris Basin. This facility was first used in the 1961-62 water year.

WATER STORAGE AND RECOVERY AGREEMENT

1. IDENTIFICATION

THIS AGREEMENT dated _____ by and between the CITY OF POMONA, a chartered municipal corporation (Pomona), and the SIX BASINS WATERMASTER, a court appointed entity established by the Los Angeles County Superior Court (Watermaster), and is based upon the following recitals.

2. RECITALS

2.1 Water rights have been adjudicated in the Six Basins Area according to the Judgment in Los Angeles County Superior Court Case No. KC 029152, entitled Southern California Water Company v. the City of La Verne.

2.2 Said Judgment establishes the Watermaster as the court empowered entity responsible for managing the Six Basins Area. Under the provisions of Paragraph VI.B.10 of the Judgment, Watermaster is authorized to enter into Storage and Recovery Agreements with any party holding a base annual production right.

2.3 Pomona is a party holding a base annual production right. In addition, Pomona has historically replenished the Six Basins Area. While Pomona is under no obligation to replenish the Six Basins Area, to the extent that it does augment groundwater supplies in excess of its historical replenishment as provided in Paragraph VI.B.9 of the Judgment, Pomona is authorized to recover such water.

2.4 Spreading and injecting or otherwise recharging groundwater in the Six Basins Area is restricted according to Paragraph IV.B of the Judgment; however, pursuant to Paragraph VI.B.10,

Watermaster is authorized to enter into storage and recovery agreements for the utilization of groundwater storage capacity and for subsequent recovery use or credit by the storing entity.

2.5 Pomona and Water master desire to enter into an agreement for the storage and recovery of water.

3. AGREEMENTS

In consideration for the mutual promises and conditions contained herein and for other valuable consideration, the parties agree as follows:

3.1 Pomona may, subject to the conditions hereinafter set forth, spread and cause to be spread water which would be stored for Pomona's account. The amount of water stored and recovered shall be all amounts it has spread or caused to be spread in the Six Basins Area in excess of 130 acre feet annually as specifically provided in Paragraph VI.B.9 of the Judgment. Without limitation on accumulations, Pomona shall acquire and retain ownership of all such storage in excess of the historical replenishment of 130 acre feet per year until such water is produced by Pomona or transferred as a credit toward any Replacement Water obligation.

3.2 Pomona shall issue a report to Watermaster on a quarterly basis indicating the amount of water which Pomona has spread. The report shall be due the last day of the month next following the end of the relevant quarter.

3.3 Recovery of water by Pomona shall be accounted for as follows:

3.3.1 The first water Pomona produces in a calendar year shall be the carryover of unused rights in accordance with Paragraph III.B.2.

3.3.2 The next such water produced shall be Pomona's Base Annual Production Right.

3.3.3 The next such water produced shall be water stored pursuant to this storage and Recovery Agreement.

3.4 This Agreement shall be effective upon court approval of the Judgment in the above-referenced case.

3.5 Any notices required hereunder may be given by mail postage prepaid and addressed as follows:

TO WATERMASTER:

TO CITY OF POMONA:

Henry Pepper, Director of Utilities
Public Works Department
City of Pomona
505 S. Garey Avenue
Pomona, CA 91769-0660

EXECUTED this _____ day of _____, 1998, at _____, CA.

CITY OF POMONA

By: _____

WATERMASTER

By: _____

EXHIBIT G

INITIAL OPERATING PLAN

1. **Replenishment.** PVPA shall continue to replenish the basin as it has historically done. PVPA shall curtail replenishment when the Index Water Level is at 1455 or higher, where the Index Water Level is the average of the water level elevations above Mean Sea Level for the following five Key Wells:

Upland-Foothill No. 3 (Owner: WECWC)

Mountain View No. 4 (Owner: WECWC)

Miramar No. 3 (Owner: SCWC)

College No. 1 (Owner: Pomona College)

Tunnel Well No. 3 (Owner: Pomona)

On the second Monday of each month owners of the Key Wells shall measure and report to Watermaster and to PVPA the water level elevations in the Key Wells. Water level elevations shall be measured using protocols specified by Watermaster.

2. **Production Measurement and Reporting.** Within 180 days following Entry of Judgment each producer shall have installed on all of its producing wells a calibrated device to measure production. Such devices shall conform to, and be regularly calibrated in accordance with, specifications developed by Watermaster. Each producer shall record the monthly production from each well in acre feet and shall report such monthly production for each well and the total for all wells for the month and for the year to date to Watermaster by not later than the third working day following the end of the month.

3. **Operating Safe Yield.** The initial Operating Safe Yield of the Four Basins is 24,000 acre feet per year.

1 **PROOF OF SERVICE**

2 I am a resident of the State of California, over the age of eighteen years, and not a party to the within
3 action. My business address is 21 East Carrillo Street, Santa Barbara, California 93101-2782. On
4 December 21, 1998, I served the within document:

4 **NOTICE OF ENTRY OF JUDGMENT**

5

6 by transmitting via facsimile the document(s) listed above to the fax number(s) set
7 forth below on this date before 5:00 p.m.

8

9 by placing the document listed above in a sealed envelope with postage thereon
10 fully prepaid, in the United States mail at Santa Barbara, California as set forth
11 below.

12

13 by causing personal delivery by _____ of the document(s) listed
14 above to the person(s) at the address(es) set forth below.

15

16 by personally delivering the document(s) listed above to the person(s) at the
17 address(es) set forth below.

18 **SEE ATTACHED LIST**

19 I am readily familiar with the firm's practice of collection and processing correspondence for
20 mailing. Under that practice it would be deposited with the U.S. Postal Service on that same day
21 with postage thereon fully prepaid in the ordinary course of business. I am aware that on motion
22 of the party served, service is presumed invalid if postal cancellation date or postage meter date is
23 more than one day after date of deposit for mailing in affidavit.

24

25 (State) I declare under penalty of perjury under the laws of the State of California
26 that the above is true and correct.

27 Executed on December 21, 1998, at Santa Barbara, California.

28 

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Optimum Basin Management Program



Draft Phase I Report

Prepared for
Chino Basin Watermaster

August 19, 1999

WE Wildermuth
Environmental,
Inc.

Optimum Basin Management Program

Phase I Report



Prepared for the
Chino Basin Watermaster

August 19, 1999

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 - 2-56 Wells with One or More Historical Dibromochloropropane Values Above ½ the Existing MCL
 - 2-57 Wells with One or More Historical Lindane Values Above ½ the Existing MCL
 - 2-58 Locations of Known Point Sources in the Chino Basin
 - 2-59 Locations of Known Point Sources and Areas with Impaired Water Quality in the Chino Basin
-
- 4-1 Preferred Area for Location of New Recharge Basins
 - 4-2 Subsidence Contours and Ground Fissures in the Chino Area
 - 4-3 Management Zone 1 Hydrogeology, Hydrology and Subsidence
 - 4-4 Groundwater Flow Direction and Relative Flow Velocity within Chino Basin

SECTION 1

INTRODUCTION

An Optimum Basin Management Program (OBMP) for the Chino Basin (Figure 1-1) is being developed pursuant to a Judgment entered in the Superior Court of the State of California for the County of San Bernardino and a February 19, 1998 ruling as described below. Pursuant to the Judgment, the Chino Basin Watermaster (Watermaster) files an annual report of Watermaster activities with the Court each year. The information presented below regarding the Judgment, Watermaster, and the events leading up to the February 19, 1998 ruling was obtained from these annual reports.

THE CHINO BASIN JUDGMENT AND WATERMASTER

The Chino Basin Watermaster was established under a Judgment entered in the Superior Court of the State of California for the County of San Bernardino, entitled “Chino Basin Municipal Water District v. City of Chino *et al.*,” (originally Case No. SCV 164327, file transferred August 1989, by order of the Court and assigned new Case No. RCV 51010). The Honorable Judge Howard B. Wiener signed the Judgment on January 27, 1978. The effective date of this Judgment for accounting and operations was July 1, 1977.

The Judgment resulted from studies and discussions that began in the early 1970's and continued for several years. The initial action to formalize the producers' intentions was the passage in 1974 of a “Memorandum of Agreement on the Chino Basin Plan.” In January 1975, Senator Ruben S. Ayala introduced Senate Bill 222 (S.B. 222) in the California Legislature. This bill authorized a production assessment levy of \$2.00 per acre-foot per year for a period of three years. The funds were utilized to finance the essential studies and negotiations to implement a water management program for the Chino Groundwater Basin.

S.B. 222 was subsequently renumbered as a part of the Municipal Water District Law at Section 74120 of the Water Code. It was approved by Governor Ronald Reagan and filed with the Secretary of State on June 28, 1975. Three major groups that represented the majority of the producer's interests became active in the early negotiations under S.B. 222. The groups formalized into committees and eventually became known as the: Overlying (Agricultural) Pool, including the State of California and minimal producers; Overlying (Non-Agricultural) Pool representing industries; and Appropriative Pool, representing cities, water districts and water companies. Engineering, legal and other working sub-committees were formed to analyze and define specific problem areas. Representatives of the three pools, when acting together, were called the “Watermaster Advisory Committee.” The Watermaster Advisory Committee forwarded recommendations for formal action to the Chino Basin Municipal Water District (CBMWD), which was assigned the responsibility of administering S.B. 222. Socio-economic, safe yield and other studies were conducted to provide the information necessary to reach an agreement regarding the allocation of rights between and within the pool committees.

The Watermaster Advisory Committee was established as the policy setting body and charged with oversight of Watermaster's discretionary activities. Members of each of the three pool committees met regularly to transact the business concerns of its respective producers. Decisions affecting more than one pool committee were forwarded to the Watermaster Advisory Committee. The Judgment provided a method to determine the voting power of the producers on the committees, through a formula based on assessments paid in the prior year and allocated safe yield.

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The Judgment declares that the safe yield of the Chino Basin is 140,000 acre-ft/yr, which is allocated among the three pools as follows:

Overlying agricultural pool	82,800 acre-ft/yr
Overlying non-agricultural pool	7,366 acre-ft/yr
Appropriative pool	49,834 acre-ft/yr

A fundamental premise of the Judgment (aka the physical solution) is that all Chino Basin water users will be allowed to pump sufficient water from the Basin to meet their requirements. To the extent that pumping exceeds the share of the safe yield, assessments are levied by the Watermaster to replace the overproduction. The Judgment recognizes that there exists a substantial amount of available groundwater storage capacity in the Chino Basin that can be utilized for storage and conjunctive use of supplemental water and basin waters; makes utilization of this storage subject to Watermaster control and regulation; and provides that any person or public entity, whether or not a party to the Judgment, may make reasonable beneficial use of the available storage, provided that no such use shall be made except pursuant to a written storage agreement with the Watermaster.

EVENTS LEADING UP TO THE FEBRUARY 19, 1998 RULING

During fiscal year 1995-96, it was determined that the reappointment of the CBMWD board as Watermaster had not been submitted to the Court for approval in 1993. In January 1996, a motion was made and supported by a majority of the Advisory Committee to appoint the Advisory Committee to serve as Watermaster. Initially, this motion was supported by 71.64% of the Advisory Committee and as provided in Paragraph 16 of the Judgment, Watermaster Counsel was directed by the Advisory Committee to file the motion with the Court. A Watermaster Ad Hoc Transition Committee of pool members and interested parties was formed to work out the logistics involved with changing the Watermaster. Shortly after the motion was filed, the case was assigned to the Honorable Judge J. Michael Gunn. Fifteen committee members attended the first Ad Hoc Transition Committee meeting on January 31, 1996, and agreed unanimously to propose that an arbitrator or an arbitration process be put in place to address initial concerns raised by some parties to the Judgment regarding the Advisory Committee serving as Watermaster.

By early March, the Overlying (Agricultural) Pool and a few appropriators had reconsidered their positions and were opposed to the motion to appoint the Advisory Committee as Watermaster, even with an arbitration process. As a result, the motion was taken off calendar and additional Ad Hoc Transition Committee meetings were held. These meetings resulted in the development of a proposal for a nine-member board, which was approved by the Advisory Committee in April 1996. Watermaster Counsel was directed to file a motion to appoint the nine-member board, which was set for hearing on June 18, 1996.

On June 3, 1996, CBMWD filed an ex-parte motion to shorten the time on a motion to appoint itself as Interim Watermaster, to appoint itself "*nunc pro tunc*" Watermaster and to disqualify Watermaster Counsel based on the allegation that Counsel had a conflict of interest in serving both Watermaster and the Advisory Committee. The motion to shorten time was granted and the hearing was set for June 18, 1996. At the June 18, 1996 hearing, the Honorable Judge J. Michael Gunn granted the motions to appoint CBMWD *nunc pro tunc* and Interim Watermaster, and denied the motion to disqualify Watermaster Counsel. The Judge also ordered the parties to meet and confer regarding the nine-member board

SECTION 1 INTRODUCTION

proposal, which continued the matter to a *meet and confer* among all the interested parties, held July 29, 1996.

July 29, 1996, was the first of two *meet and confers*, held at the City of Chino Council Chambers. Although there was much discussion on that date, the only substantive decision made was to hold an additional *meet and confer* on August 28, 1996.

As a result of the second *meet and confer*, a three-member Watermaster Board proposal was submitted to the Court for hearing on September 18, 1996. As of the Court hearing date, only two of the three municipal water districts invited to participate on the proposed three-member Watermaster Board had responded affirmatively. CBMWD was expected to agree to participate after consideration at their October board meeting and the Court continued the motion until November 20, 1996. CBMWD did not take action to participate on the three-member Watermaster Board as anticipated and the motion was taken off calendar in November of 1996. Four additional workshops were held during late 1996 and into the early months of 1997. As a result, the original nine-member Watermaster Board proposal was modified and approved by the Watermaster Advisory Committee on January 30, 1997, by a majority vote of 67.99 percent.

On March 11, 1997, a new motion to appoint a nine-member Watermaster Board was heard by the Honorable Judge J. Michael Gunn. On April 29, 1997, Judge Gunn issued a ruling which:

- Appointed Anne J. Schneider, Esq. as Special Referee to make a recommendation to the Court regarding the issues raised by the motions.
- Ordered CBMWD, the Advisory Committee, and the DWR (Department of Water Resources) to negotiate terms for the DWR to serve as Interim Watermaster.
- Granted a motion submitted on March 6, 1997, by the law firm of Cihigoyenette, Grossberg & Clouse, general counsel for CBMWD, to disqualify Watermaster Counsel.

Negotiations began regarding the DWR serving as interim Watermaster through Special Counsel to the Watermaster Advisory Committee, James L. Markman, CBMWD Counsel, Jean Cihigoyenette, and the attorneys for the DWR.

Anne Schneider accepted the Court's appointment to become a Special Referee and began the process necessary to make a recommendation to the Court. No substantial decisions were reached by fiscal year end and the matter continued into fiscal year 1997-98.

The Special Referee held a special hearing on October 21, 1997, at the Watermaster offices. By mid December 1997, the Special Referee filed her written *Report and Recommendation* with the Court. Based on the *Report and Recommendation*, the Honorable J. Michael Gunn entered a ruling on February 19, 1998 which:

- Appointed the Nine-Member Board as Interim Watermaster.
- Directed that an Optimum Basin Management Program be developed.
- Directed negotiation with DWR be resumed.
- Set hearing dates regarding:
 - The Optimum Basin Management Program (October 28, 1999).
 - Continuance of the Nine-Member Board (October 28, 1999).

SECTION 1 INTRODUCTION

- Status of negotiations with DWR to serve as Watermaster and to carry out Watermaster operations (September 30, 1999).

This report documents the development of the OBMP for the Chino Basin pursuant to the Honorable J. Michael Gunn's February 19, 1998 ruling.

PROCESS TO DEVELOP THE OBMP

Since the ruling, the Watermaster, the producers, and other interested parties have met twice a month and held special workshops to develop the scope of work to prepare an OBMP and to cooperatively develop the OBMP. The Court officially accepted the scope of work to develop the OBMP on November 5, 1998.

Development of the OBMP required three parallel processes: institutional, engineering, and financial. The institutional process defined the management agenda, directed the engineering and financial processes, and built an institutional support for OBMP implementation. The engineering process developed planning data and management elements, and evaluated the technical and economic performance of the management elements. The financial process was supposed to develop alternative financing plans for the OBMP through its evolution. However because of institutional complexity involved in developing regional water supply facilities and their related financing, most of the financial process will occur in the latter half of 1999 and into the year 2000 – after this document is submitted to the Court in October 1999.

Institutional Process

The institutional process consisted of the following tasks:

- Task 1 Identify needs and interests of interested parties.
- Task 2 Establish a meeting schedule necessary to complete the OBMP within the time frame allocated.
- Task 3 Develop and refine the scope of work based on identified needs.
- Task 4 Identify early implementation actions and develop a list of potential program (management) elements of the OBMP to balance needs and interests.
- Task 5 Evaluate program elements and develop recommended management and implementation plan.

The first three tasks were completed with the submission of the recommended scope of work to the Special Referee and the Court. Task 4 work was begun in June 1998 with several early implementation action items having already been approved and with initial management concepts submitted to begin the list of potential program elements of the OBMP. The management concepts that were submitted represented concepts or implementation plans that described the party's vision of the OBMP. Submission of management concepts continued into July and August of 1998 and reflected the needs and interests that were previously identified for the OBMP. All proposals submitted were discussed and listed.

As part of Task 5, those proposals that appeared the most promising were forwarded to the engineering and financial consultants for reconnaissance-level, technical, economic and financial analyses. The results of the engineering and financial analyses were submitted to the producers and Watermaster for

SECTION 1 INTRODUCTION

review. Working together, the producers and the Watermaster Board have developed an Optimum Basin Management Program for the Chino Basin.

Engineering Process

The engineering process consisted of the following tasks:

- Task 1 Develop Optimum Basin Management Program Criteria
- Task 2 Assess Current State of the Basin
- Task 3 Prepare Sections 1, 2, and 3 of the Optimum Basin Management Program document
- Task 4 Develop the Components of the Optimum Basin Management Program
- Task 5 Develop Implementation Plan
- Task 6 Finalize Optimum Basin Management Program document

Tasks 1 and 2 define the basin problems, planning environment, and the needs and interests of the basin producers. Tasks 1, 2, and 3 were completed in December 1998 and draft Sections 1, 2, and 3 of the OBMP were provided to all interested parties for review. A matrix was developed that contains the goals, impediments to the goal, action items to achieve the goals and the implications of the action items. This matrix was used to define the program elements of the OBMP. Tasks 4 and 5 were engineering efforts to develop these elements and to describe the implementation process.

Over time, the institutional process Tasks 4 and 5, and engineering process Tasks 4 and 5 merged and became one seamless process. Completion of engineering process Task 6 will be completed when the financial process is completed sometime in the year 2000.

ORGANIZATION OF THE OPTIMUM BASIN MANAGEMENT PROGRAM REPORT

The OBMP report is being presented in two phases. This document is the Phase I report and contains a description of the OBMP and the following additional sections:

Section 2 – Current Physical State of the Basin – This section describes the state of the Basin in terms of historical groundwater levels, storage, production, water quality, and safe yield. Current and projected water demands and water supply plans are described. Problems in these areas are identified and potential solutions or solution processes are described.

Section 3 – Goals of the Optimum Basin Management Program – This section describes the major issues defined by stakeholders in the OBMP process, the mission statement for the OBMP process and the goals for the OBMP process.

Section 4 – Management Plan – This section describes program elements to achieve the goals of the OBMP, a management plan, and a process to periodically review and update the OBMP.

Appendix A – Public Comments. This appendix contains written correspondence and a transcript of public comments on the OBMP from a Watermaster hearing held on September 15, 1999 (bound separately).

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The technical memoranda produced to support the program elements and implementation process described in Section 4 are on file at the Watermaster offices. Copies are available upon request.

The Phase II report consists of more detailed descriptions of capital-intensive and institutionally complex features of the OBMP. The Phase 2 report will be bound separately.

SECTION 2

STATE OF THE BASIN

This section has been prepared for the OBMP stakeholders so that they will have a common starting point or frame of reference from which to develop the OBMP. The stakeholders developed the outline of this section with input from the Special Referee.

This section of the OBMP report describes the Basin, its physical state, future water demands in the Chino Basin area, and concludes with a summary of problems within the Basin. The physical state of the Basin includes a description of groundwater levels, groundwater storage, production patterns, groundwater quality, and safe yield. These characteristics of the Basin are intimately related, as are the solutions to the problems associated with these characteristics. Water demands in the Chino Basin area include an estimate of current water usage and future water demand projections for groundwater and other sources, an assessment of water quality conditions, and future projections of wastewater generation – including the relationship of source water quality and wastewater quality.

DESCRIPTION OF THE BASIN

The Chino Basin consists of about 235 square miles of the upper Santa Ana River watershed. [Figure 1-1](#) illustrates the boundary of the Chino Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District vs. the City of Chino *et al.* Figure 1-1 also shows the hydrologic boundary of the Basin, which is slightly different from the adjudicated boundary. Chino Basin is an alluvial valley that is relatively flat from east to west and slopes from the north to the south at a one to two percent grade. Valley elevation ranges from about 2,000 feet in the foothills to about 500 feet near Prado Dam. Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra area and the Temescal basin; and
- on the west by the Chino Hills, Puente Hills, and the Pomona and Claremont Basins.

The Chino Basin is one of the largest groundwater basins in southern California with about 5,000,000 acre-ft of water in the Basin and an unused storage capacity of about 1,000,000 acre-ft. Cities and other water supply entities produce groundwater for all or part of their municipal and industrial supplies; and about 300 to 400 agricultural users produce groundwater from the Basin. The Chino Basin is an integral part of the regional and statewide water supply system. Prior to 1978, the Basin was in overdraft. After 1978, the Basin has been operated as described in the 1978 Judgment in Chino Basin Municipal Water District vs. City of Chino *et al.* (Chino Judgment or Judgment).

SURFACE WATER RESOURCES

The principal drainage course of the Chino Basin is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir where it is eventually discharged through the outlet at Prado Dam. Chino Basin is traversed by a series of ephemeral and perennial streams that include: Chino Creek, San Antonio Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. [Figure 2-1](#)

SECTION 2 STATE OF THE BASIN

illustrates the stream system in the Chino Basin. San Antonio Creek joins Chino Creek and along with Cucamonga Creek, discharges directly into the Prado Reservoir. Cucamonga Creek changes its name to Mill Creek just north of the Prado Reservoir. Deer Creek was realigned and now discharges into Cucamonga Creek. Currently, Etiwanda Creek discharges into Day Creek at Wineville Basin. In the near future, Etiwanda Creek will be joined with San Sevaine Creek. Day Creek and San Sevaine Creek flow south and enter the Santa Ana River upstream of the Prado Reservoir.

These creeks carry significant flows only during, and for a short time after, intermittent storms that typically occur from November through March. Year-round flow occurs along the entire reach of the Santa Ana River due to year round surface inflows at Riverside Narrows, discharges from municipal water recycling plants that discharge in the River between the narrows and Prado Dam, and rising groundwater. Rising groundwater occurs in Chino Creek, in the Santa Ana River at Prado Dam, and potentially other locations on the Santa Ana River depending on climate and season. The rising groundwater in Chino Creek and the Santa Ana River contains high concentrations of total dissolved solids (TDS). Year-round discharges are sustained:

- in Chino Creek from the Inland Empire Utilities Agency (IEUA) Regional Plant No. 2 (RP2) to the Prado Reservoir, the source of which is from recycled water discharges from RP2; and
- in Cucamonga Creek from IEUA Regional Plant No. 1 (RP1) to the Prado Reservoir, the source of which is from recycled water discharges from RP1.

Significant nuisance flows have developed in Cucamonga Creek above RP1, the source of which is excess landscape irrigation and other outside urban uses. Some of the storm water runoff from the San Gabriel Mountains and urban areas is diverted for recharge in flood retention and spreading basins. These basins are shown in [Figure 2-1](#).

Geology

Chino Basin was formed when eroded sediments from the San Gabriel Mountains, the Chino Hills, Puente Hills, and the San Bernardino Mountains filled a structural depression. The formation of the Basin is described in detail in the *Final* Task 2.2 and 2.3 Report, Describe Watershed Hydrology and Identify Current TDS and TIN Inflows in the Watershed (Wildermuth, 1997). The bottom of the Basin – the effective base of the freshwater aquifer – consists of impermeable sedimentary and igneous rocks. The base of the aquifer is overlain by older alluvium of the Pleistocene period followed by younger alluvium of the Holocene period.

The younger alluvium varies in thickness from over 100 feet near the mountains to a just few feet, south of Interstate 10 and generally covers most of the north half of the Basin in undisturbed areas. The younger alluvium is not saturated and thus does not yield water directly to wells. Water percolates readily in the younger alluvium and most of the large spreading basins are located in the younger alluvium.

The older alluvium varies in thickness from about 200 feet thick near the southwestern end of the Basin to over 1,100 feet thick southwest of Fontana, and averages about 500 feet throughout the Basin. Well capacities range between 500 and 1,500 gallons per minute (gpm). Well capacities exceeding 1,000 gpm are common, with some modern production wells test-pumped at over 4,000 gpm (e.g., Ontario Wells 30 and 31 in southeastern Ontario). In the southern part of the Basin where sediments tend to be more clayey, wells generally yield 100 to 1,000 gpm. Three main water-bearing (hydrostratigraphic) units were identified by Montgomery Watson (1992) during the development of a three-dimensional groundwater model of the Basin. [Figure 2-2](#) shows the locations of two (of seven) generalized cross-sections through

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the Chino Basin. These generalized cross-sections illustrate these main aquifer units and are shown in Figures 2-3 and 2-4.

Faults are one of the principal agents in the development of the landscape and restriction of groundwater flow in the Chino Basin. The basin is bounded by major fault systems along which the mountains and hills have been uplifted. The location of fault and groundwater barriers, and displacements in the effective base of the aquifer at faults are shown in Figure 2-2. The faults and groundwater barriers are significant in that they define the external boundaries of the Basin and influence the magnitude and direction of groundwater flow near the boundaries.

MAJOR FLOW SYSTEMS

While considered one basin from geologic and legal perspectives, the Chino Basin can be hydrologically subdivided into at least five flow systems that act as separate and distinct basins. Figure 2-5 is a groundwater elevation contour map for fall of 1997. Figure 2-5 also shows the location of five groundwater flow systems developed during the *TDS and Nitrogen Study* (Wildermuth, 1999) of which the Watermaster, the Chino Basin Water Conservation District (CBWCD), and the IEUA are study participants. Each flow system has a unique hydrology, and water resource management activities that occur in each flow system have little or no impact on the other systems. Each flow system can be considered a management zone. These management zones can be subdivided further if necessary to define and manage flow systems at a finer scale. These management zones are used to characterize the groundwater level, storage, production, and water quality conditions. Figure 2-6 shows these management zones relative to the subbasins used in the 1995 Regional Water Quality Control Plan (Basin Plan) for the Santa Ana Watershed. The Regional Water Quality Control Board, Santa Ana Region (Regional Board) has established water quality objectives for these subbasins and writes waste discharge requirements for waste dischargers based in part on these objectives. Presently, the Basin Plan subbasin boundaries and objectives are being rigorously reviewed. New boundaries similar to the management zone boundaries have been proposed. Revised boundaries and water quality objectives should be adopted sometime in the year 2000.

Management Zone 1. Management Zone 1 is bounded:

- on the southwest by the Chino and Puente Hills,
- on the northwest by the San Jose fault that separates Chino Basin from the Pomona and Claremont Heights Basins,
- on the north by an unnamed non-echelon fault system associated with the Cucamonga and Red Hill faults and separates the Chino Basin from the Cucamonga Basin,
- and on the east by a line that stretches from the southern most edge of the Red Hill fault to Prado Dam.

Groundwater in Management Zone 1 flows generally south with some localized flows to the west in response to groundwater production. Sources of water to Management Zone 1 include direct percolation of precipitation, returns from irrigation, recharge of storm flows and imported water in spreading basins, and subsurface inflow from the Pomona, Claremont Heights, and Cucamonga Basins. Discharge is through groundwater production and as rising groundwater in Chino Creek and the Santa Ana River.

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Management Zone 2. Management Zone 2 is bounded:

- on the west by Management Zone 1,
- on the north by the Red Hill fault that separates the Chino Basin from the Cucamonga Basin,
- on the northeast by a segment of the Rialto-Colton fault,
- and on the east by a segment of Barrier J and a line extending from Barrier J in a southwesterly direction to a point of convergence with other management zone boundaries near Prado Dam.

Groundwater in Management Zone 2 flows generally in a southwesterly direction in the northern half of the management zone and then due south in the southern half of the zone. Sources of water to Management Zone 2 include direct percolation of precipitation, returns from irrigation, recharge of storm flows and imported water in spreading basins and subsurface inflow from the part of the Rialto Basin northwest of Barrier J and the Cucamonga Basin. Discharge is mainly through groundwater production and potentially small amounts of rising groundwater in the Prado Reservoir area.

Management Zone 3. Management Zone 3 is bounded:

- on the west by Management Zone 2,
- on the northeast by the Rialto-Colton fault that separates the Chino Basin from the Rialto Basin,
- on the southeast by the Bloomington divide, Jurupa Hills and line projecting from the most western extension of the Jurupa Hills to a point of convergence with other management zone boundaries near Prado Dam.

Groundwater in Management Zone 3 flows generally in a southwesterly direction. Sources of water to Management Zone 3 include direct percolation of precipitation, returns from irrigation, and subsurface inflow from the part of the Rialto Basin southeast of Barrier J. Discharge is mainly through groundwater production and potentially small amounts of rising groundwater in the Prado Reservoir area.

Management Zone 4. Management Zone 4 is bounded

- on the west by Management Zone 3,
- on the north by the Jurupa Hills,
- on the southeast by the Pedley Hills, and
- on the south by Management Zone 5.

Groundwater in Management Zone 4 flows west. Sources of water to Management Zone 4 include direct percolation of precipitation, and returns from irrigation. Discharge is through groundwater production.

Management Zone 5. Management Zone 5 is bounded:

- on the north and west by the Management Zones 3 and 4, Prado Dam,
- on the east by the Riverside Narrows, and
- on the south by the La Sierra area and Temescal Basin.

Sources of water to Management Zone 5 include streambed percolation in the Santa Ana River, direct percolation of precipitation, returns from irrigation and subsurface inflow from the Temescal Basin. Discharge is through groundwater production, consumptive use by phreatophytes, and rising groundwater

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in the Prado Reservoir area, and potentially other locations on the Santa Ana depending on climate and season.

GROUNDWATER LEVELS AND STORAGE

Historical Groundwater Level Monitoring

Various entities have collected groundwater-level data in the past. Municipal and agricultural water supply entities have historically collected groundwater-level data in programs that range from irregular, study-oriented measurements to long-term periodic measurements. Groundwater-level measurements were made for specific investigations such as various California Department of Water Resources (DWR) studies, the 1969 Judgment on the Santa Ana River (Orange County Water District vs. City of Chino *et al.*), and the Chino Basin Judgment (Chino Basin Municipal Water District vs. City of Chino *et al.*). The spatial extent and temporal history of groundwater-level measurements south of State Route 60 have always been less than north of State Route 60. The DWR and the San Bernardino County Flood Control District (SBCFCD) were very active in collecting groundwater-level measurements in the Chino Basin prior to the settlement of the Chino Basin adjudication. After the Judgment was entered in 1978, the water level monitoring south of State Route 60 stopped almost completely except for the cities of Chino, Chino Hills, and the Jurupa Community Services District (JCSD). Most of the pre-1978 measurements were digitized by the DWR.

Watermaster conducted its first mass groundwater-level monitoring program for the Chino Basin in the spring of 1986. In 1989, Watermaster initiated a more regular monitoring program for the Basin with groundwater-level measurements obtained in 1990, and periodically thereafter through 1997. Watermaster's program relies on municipal producers and other government agencies supplying their groundwater-level measurements on a cooperative basis. Watermaster staff supplements these data with groundwater-level measurements collected by staff, primarily south of State Route 60. In addition to Watermaster staff efforts, private contractors conducting well efficiency tests collect groundwater-level measurements and submit these measurements to Watermaster. Watermaster has digitized all of these recent measurements. Watermaster has combined digitized groundwater-level measurements from all known sources into a database structure that is maintained at Watermaster's office.

Watermaster began a process to develop a comprehensive groundwater-level monitoring program in the spring of 1998. The process consists of collecting groundwater-level data at all wells in the Basin from which groundwater-level measurements can be obtained for fall 1999, spring 2000, fall 2000, and spring 2001. These data will be mapped and reviewed. Based on this review and Watermaster management needs, a long-term water-level monitoring program will be developed and implemented in the fall of 2001.

Historical Groundwater Levels

This section describes the groundwater-level time histories in the Chino Basin by management zone and characterizes the differences between management zones. [Figure 2-7](#) illustrates the location of wells whose groundwater-level time histories are discussed herein and the management zone boundaries described in Section 1. The wells were selected based on length of record, completeness of record, and geographical distribution. Wells discussed herein are identified by their state well number. The behavior of groundwater-levels at specific wells is compared to climate, to pre- and post-Judgment periods, and to other factors as appropriate.

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Management Zone 1. Wells 01S07W08N01 (Figure 2-8) and 01S08W11R01 and 01S08W14A03 (Figure 2-9) illustrate typical groundwater-level time histories in the northern end of Management Zone 1. The accumulated departure from mean precipitation (ADFM) curve is plotted on Figures 2-8 and 2-9 to illustrate climatic conditions. Positive sloping lines on the ADFM curve imply wet years or wet periods. Negatively sloping lines imply dry years or dry periods. For example, the period between 1937 to 1944 and 1978 to 1983 are extremely wet periods, and are represented as positively sloping lines. The period 1945 through 1977 is a drought period and is represented as a negatively sloping line, punctuated with a few wet years (positively sloped in 1952, 1958 and 1969). Short-term groundwater-level fluctuations shown in these figures are caused by including static and dynamic observations in the groundwater-level time histories. These time histories follow the climatic trends very closely with the 01S08W11R01 and 01S08W14A03 (westernmost wells) being slightly more sensitive to high rainfall years than 01S07W08N01 (eastern well). The groundwater-level response in well 01S07W08N01 lags the 1937 to 1944 and the 1978 to 1983 wet periods by about three to four years. By comparison, wells 01S08W11R01 and 01S08W14A03 responded to the 1978 to 1983 wet period within a year. The difference in response time is due to proximity of recharge to the area near the wells. Wells 01S08W11R01 and 01S08W14A03 are relatively close to the Upland and Montclair Basins. Well 01S07W08N01 is two miles east of wells 01S08W11R01 and 01S08W14A03 with no significant recharge facilities nearby. In addition, the Metropolitan Water District of Southern California (MWDSC) recharged large quantities of State Water Project (SWP) water in the Montclair Basins during the period 1978 to 1983. The depth to water in the vicinity of these wells ranged from about 460 feet in the late 1920s to about 600 feet in 1996.

Wells 01S08W28E01 (Figure 2-10) and 01S08W31J01 and 01S08W33D01 (Figure 2-11) are about three miles south of wells 01S08W11R01 and 01S08W14A03 (Figure 2-9). These wells follow the general climatic trend, but show essentially no response to intermittent wet years in 1952, 1958, and 1969. The post-1977 groundwater-level increase is due to the 1978 to 1983 wet period, the reduction in overdraft following the implementation of the Chino Basin Judgment, the initiation of groundwater replenishment with imported water, and the reduction in pumping due to increased use of imported surface water. The groundwater-level response in these wells responded to the 1978 to 1983 wet period within a year. The depth to water in the vicinity of these wells ranged from about 130 to 160 feet in the late 1920s to about 150 to 280 feet in 1996 with well 01S08W28E01 showing the greatest depth to water. Well 01S08W28E01 is a municipal production well owned by the City of Pomona and is located in an area of regionally depressed groundwater levels.

Wells 02S08W04P01 and 02S08W12F01 (Figure 2-12) are located about two to three miles south of well 01S08W28E01 (Figure 2-10) and wells 01S08W31J01 and 01S08W33D01 (Figure 2-11). These wells follow the general climatic trend, but show essentially no response to intermittent wet years in 1952, 1958 and 1969. The groundwater-level responses in these wells lag the 1937 to 1944 and the 1978 to 1983 wet periods by about two to three years. The response to the 1937 to 1944 wet period is surprisingly subtle compared to most other wells with contemporaneous time histories in Management Zone 1. This suggests that recharge in the area is low and that production is high. The post-1977 groundwater level increase for 02S08W04P01 is due to the 1978 to 1983 wet period, the reduction in overdraft following the implementation of the Chino Basin Judgment, the initiation of groundwater replenishment with imported water, and the reduction in pumping due to increased use of imported surface water. The depth to water in the vicinity of these wells ranged from about 20 to 40 feet in the late 1920s to about 200 feet in 1982.

From north to the south, the following observations can be made regarding time histories of groundwater levels in Management Zone 1:

- groundwater levels are down from observed period of record highs in the late 1920s;
- the lowest groundwater levels were observed around 1977;

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- groundwater levels have recovered slightly since 1977 due in part to the wet period of 1978 to 1983, reduction in overdraft after 1977, the initiation of groundwater replenishment with imported water, and the reduction in pumping due to increased use of imported surface water;
- a condition of long-term overdraft has occurred in this management zone with groundwater levels dropping by about 100 to 140 feet between the late 1920s to the present with most of the decline prior to 1977 and the Chino Basin Judgment (1978).

Management Zone 2. Figure 2-13 contains groundwater-level time histories for 01S07W14G01, 01S07W27D01, and 02S07W09M01. These wells are aligned north to south, approximately along a flow line. The groundwater-level time histories in Figure 2-13 show a general decline since before the 1937 to 1944 wet period, with little or no response to wet years until 1978. The post-1977 increase is probably due to the combination of 1978 to 1983 wet period, reduction in overdraft following the implementation of the Chino Basin Judgment, the start of artificial replenishment with imported water in the San Sevaine and Etiwanda flood control basins, and the increased use of imported surface water. The depth to water for 01S07W27D01 ranged from about 200 feet in the late 1920s to about 380 feet in 1974, a decline in groundwater levels of about 180 feet.

Management Zone 3. Figure 2-14 contains time histories for wells 01S06W11B01 and 01S05W16C01 that are located in the most upgradient part of Management Zone 3. The groundwater-level observations in these wells follow the general climatic trend. The groundwater-level time history for well 01S06W16C01 shows a general decline since the 1920s and a general non-responsiveness to significant wet years or periods. For example, there is a slight response to the 1937 to 1944 and 1978 to 1983 wet periods and no response to wet years in 1952, 1958, and 1969. Well 01S06W11B01 behaves in a similar manner with slightly less responsiveness. The lack of responsiveness is due to the lack of significant sources of recharge. There are no major streams or recharge basins in the upper part of Management Zone 3. The peak groundwater levels for both of these wells are lagged about three years behind the peaks in the ADFM curve for the 1937 to 1944 and 1978 to 1983 wet periods. The depth to water ranges from about 360 to 430 feet in the late 1920s to about 430 to 540 in 1978 for wells 01S05W16C01 and 01S06W11B01, respectively. The groundwater decline from the 1920s to the early 1990s is about 20 feet and 60 feet for wells 01S05W16C01 and 01S06W11B01, respectively. Figure 2-15 is a similar plot for wells 01S05W30L01 and 01S06W23D01. These wells have similar response characteristics as 01S06W11B01 and 01S05W16C01 with about 60 to 70 feet of groundwater decline over the period from the late 1920s to the early 1990s.

The relative amount of decline from 1920s to 1977 is less in Management Zone 3 than in Management Zone 1. This is due to greater production in Management Zone 1 than in Management Zone 3 and because of the specific yield (fraction of usable groundwater per unit volume), which is greater in the eastern portion of Chino Basin than in the western portion. The alluvium in the eastern part of the Chino Basin is derived from granitic rocks of the San Gabriel Mountains. The alluvium on the west side of Chino Basin is derived in part from the San Gabriel Mountains and marine sedimentary rocks of the Chino and Puente Hills. The latter produce finer-grained alluvium with more clay and poorer storage properties.

Figure 2-16 contains time histories for wells 02S06W05B01 and 02S07W34H01. These wells are aligned northeast to southwest, approximately along a flow line. The groundwater-level time histories end in the late 1970s or early 1980s, as is typical for agricultural wells in the southern half of the Basin. These time histories follow the general climatic trend, however, there is trend among the wells of a decreasing climatic influence from northeast to southwest. The depth to water for 02S06W05B01 ranged from 130 feet in the late 1920s, to about 200 feet in 1978, a decline in groundwater levels of about 70 feet.

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Management Zone 4. Management Zone 4 is bounded on the north by the Jurupa Hills, on the east by the Pedley Hills, on the south by Management Zone 5 and on the west by Management Zone 3. The only outflow from Management Zone 4 is by production. [Figure 2-17](#) contains groundwater-level time histories for wells 02S06W16B02 and 02S06W14C02. These wells generally follow the climatic trend. The depth to water for 02S06W14C02 ranged from about 7 feet in 1945 to about 17 feet in 1993, corresponding to an overall decline in groundwater levels of about 10 feet for this period.

Management Zone 5. Management Zone 5 is bounded on the north and west by the Management Zones 3 and 4, on the east by the Riverside Narrows and on the south by various unnamed hills. [Figure 2-18](#) contains time histories for wells 02S07W36H02, 02S06W26D02, and 03S07W03N01. Groundwater levels in these wells follow the general climatic trend. However, wells 2S07W36H02 and 03S07W03N01 are much less responsive than well 02S07W26D02 due to the stabilizing effects of being adjacent to the Santa Ana River. The depth to water for 02S07W26D02 ranged from about 24 feet in 1939 to about 28 feet in 1992, corresponding to an overall decline in groundwater levels of about 4 feet for this period.

For the most part, the response of groundwater levels in the Chino Basin to significant storms and wet climatic periods is small. There are two reasons for this. First, the mountain drainage areas tributary to the Chino Basin are relatively small compared to the size of Chino Basin (235 square miles) and the amount of water in storage (~5,000,000 acre-ft). The mountain drainage areas tributary to the Chino Basin areas are:

San Antonio Creek	17.7 sq mi
Cucamonga Creek	13.6
Deer Creek	6.4
Day Creek	7.7
Etiwanda Creek	6.7
San Sevaine Creek	<u>9.7</u>
Total	61.7 sq mi

San Antonio Creek is mostly diverted for direct use and recharge in the Claremont Heights and Cucamonga Basins. Cucamonga, Deer, and Day Creeks are diverted for direct use and recharge in the Cucamonga Basin. Large storm flows from these creeks can make it into the Chino Basin, however these channels are concrete-lined and consequently large amounts of storm flow are not recharged. In contrast, San Bernardino area groundwater basins (Bunker Hill and Lytle Basins) – located just to the east of the Chino Basin – consist of about 120 square miles of aquifer and with about 466 square miles of tributary areas in the San Gabriel and San Bernardino mountains. The groundwater level response in the Chino Basin due to wet years is small, on the order of a few feet to tens of feet. In contrast, the San Bernardino area groundwater-level response to significant wet years and climatic periods could range from 100 to 300 feet.

Regional Groundwater Level Changes

Figures [2-19](#) and [2-20](#) are groundwater elevation contour maps for the Chino Basin for 1997 and 1933, respectively. The 1997 map is based on data collected in Watermaster's ongoing monitoring programs and is representative of current conditions. The 1933 map is based on groundwater-level data compiled and mapped by the DWR. [Figure 2-21](#) shows the change in groundwater level from 1933 to 1997 based on the groundwater elevation maps for 1933 and 1997. The regional groundwater decline by management zone is:

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Management Zone	Range
1	50 to 150 feet
2	50 to 100 feet
3	50 to 100 feet
4	less than 50 feet
5	less than 50 feet

Figure 2-22 is a map similar to Figure 2-21 with the water service area boundaries shown in place of management zone boundaries. The areas of greatest regional groundwater decline underlie the city of Pomona, the Monte Vista Water District, the City of Chino, and the western half of the City of Ontario.

Figure 2-23 shows the depth to water for fall 1997. Mendenhall surveyed the Basin in 1902 and found parts of the Chino Basin to be artesian as evidenced by springs and marshy areas (Mendenhall, 1904). This artesian area is also shown on Figure 2-23. In the artesian areas, the historical groundwater level or piezometric surface was at or exceeded the ground surface. Figure 2-23 suggests that the regional groundwater decline in the western Chino Basin is up to 200 feet since 1902. Groundwater levels appear to have stabilized since the Chino Basin Judgment was implemented and groundwater production has been managed within the Basin's safe yield. However, there may still be areas experiencing localized overdraft including the area overlain by the Cities of Chino, Chino Hills, Pomona, the western portion of the City of Ontario, and the Monte Vista Water District. Todd defines the *safe yield* of a groundwater basin as the amount of water that can be withdrawn annually without producing an undesirable result. Withdrawal or production in excess of safe yield is an *overdraft*. Domenico (1972) defines undesirable results to include not only the depletion of groundwater in storage but also intrusion of water of undesirable quality, contravention of existing water rights, and the deterioration of the economic advantages of pumping. Cherry (1979) includes subsidence in the list of undesirable results.

The significant issues related to large-scale regional groundwater declines in the Chino Basin include: decline in storage, higher pumping costs, loss of production capacity, water quality degradation, and subsidence.

In the mid-1970s, ground fissuring was identified in the southwestern portion of Chino Basin. Ground fissuring in this area has continued to the present, and subsidence has been documented and identified as the cause of ground fissuring (Kleinfelder, 1993; 1996). Kleinfelder documented regional subsidence through an analysis of topographic benchmarks from 1987 to 1993, 1993 to 1995, and from 1995 to 1999. The resulting contour maps of equal differences in elevation revealed a north-south trending, elongated area of subsidence underlying the City of Chino and California Institute of Men (CIM) (see Figures 2-23 and 2-24). Maximum subsidence over the period 1987-1995 was reported to be about 2 feet located along Central Avenue between Schaefer and Eucalyptus Avenues. However, about one foot (or 50 percent) of this subsidence occurred over the period from 1993-1995 – indicating that the rate of subsidence has increased. This was confirmed independently by scientists at the Jet Propulsion Laboratories using remote sensing (see www-radar.jpl.nasa.gov/sect323/InSar4crust/LosAngeles.html). Kleinfelder (1993; 1996) concluded that regional subsidence was caused by localized groundwater overdraft and declining groundwater levels. The reasoning to support this conclusion is four-fold:

- As shown in Figure 2-23, the area of regional subsidence and ground fissuring geographically coincides with the late 1800s artesian area mapped by Mendenhall (1904, 1908) – an area that has experienced extreme declines in groundwater levels.

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- Subsidence is well documented in areas where underlying soils have experienced extensive fluid withdrawal. In saturated soils, buoyant conditions exist, where stresses between soil particles are low. But as the water level drops, the stresses between soil particles increase and overburden pressure causes soil consolidation.
- The initiation of ground fissuring temporally coincides with new groundwater production by the city of Chino Hills in the area of maximum subsidence. By 1975, groundwater levels had declined by a maximum of 200 feet in the former artesian area.
- Regional subsidence and ground fissuring is not attributable to other potential causes of subsidence. The area does not coincide with known faults or groundwater barriers and the area has not experienced significant petroleum extractions.

Methodology for Estimating Groundwater Storage

Estimating groundwater storage within the Chino Basin is a critical exercise because of the direct influence of storage upon the safe yield and reliability of the aquifer. The safe yield of a groundwater basin approximates the average annual recharge in a basin if the storage in the basin is large. The larger the storage, the more reliable the basin will be in dry period. The amount of water in storage in the Chino Basin is directly proportional to groundwater level.

The methodology for computing the volume of groundwater in storage consists of the following steps:

1. develop groundwater elevation maps for the basin;
2. obtain and map aquifer storage properties;
3. obtain and map the effective base of the freshwater aquifer;
4. divide the basin into a regular grid – with each grid cell assigned a:
 - groundwater elevation,
 - tops and bottom elevations of each aquifer
 - elevation of the effective base of the bottommost aquifer (*e.g.*, bedrock elevation), and
 - storage properties;
5. compute the volume of groundwater in storage for each grid cell, and sum the storage values of all grid cells.

In most parts of the Chino Basin, unconfined aquifers overlie confined aquifers. Thus, the storage in some grid cells consists of the sum of water in storage in confined and unconfined aquifers. The volume of groundwater in storage in each grid cell is estimated from the following equations:

volume in an unconfined aquifer in a grid cell is given by:

$$V_{i,l} = (GWE_{i,l} - B_{i,l}) * A_i * P_{i,l} \quad \text{(Equation 1)}$$

volume in a confined aquifer in a grid cell is given by:

$$V_{i,l} = [(GWE_{i,l} - T_{i,l}) * SC_{i,l} + (T_{i,l} - B_{i,l}) * P_{i,l}] * A_l \quad \text{(Equation 2)}$$

where:

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- GWE_{i,l} is the groundwater/piezometric elevation for grid cell *i* and aquifer *l*
- T_{i,l} is the effective top elevation of a grid cell *i* and aquifer *l*
- B_{i,l} is the effective bottom elevation of grid cell *i* and aquifer *l*
- A_i is the surface area of grid cell *i*
- P_{i,l} is the effective porosity of grid cell *i* and aquifer *l*
- SC_{i,l} is the storage coefficient of a grid cell *i* and aquifer *l*

Not all the water in storage is available for production. A minimum volume of groundwater must be maintained in storage to ensure that groundwater can flow to wells. This minimum storage is included in the volume computations described above.

A maximum storage could also be defined, although it is more difficult to do so. The difficulties associated with maximum storage relate to defining which high groundwater-level impacts are acceptable and to whom. An across-the-basin increase of 50 feet would probably impact only those lands near the Santa Ana River with unknown water quality impacts everywhere.

Time History of Groundwater Storage for the Basin

Groundwater-level maps were prepared using all available data for 1933, 1965, 1969, 1974, 1977, 1983, 1991, and 1997. Aquifer geometry and storage properties were developed from the Chino Basin Water Resources Management Study (CBWRMS) (Montgomery Watson, 1995). Equations 1 and 2 were used to estimate the groundwater in storage for these years. Figures 2-19 and 2-20 illustrate the spatial distribution of groundwater elevations within the Chino Basin for the fall 1997 and 1933, respectively. The estimated volume of groundwater in storage in the Chino Basin using this methodology and information was:

Year	Volume (acre-ft)
1933	6,300,000
1997	5,300,000

Groundwater storage decreased by about 1,000,000 acre-ft during the 64-year period of 1933 to 1997. Table 2-1 lists the estimated storage in each of the management zones shown in Figure 2-5 and aggregations of the management zones into the Lower Chino Basin (south of State Route 60), the Upper Chino Basin (north of State Route 60) and the Total Chino Basin. The storage estimates in Table 2-1 are shown graphically in Figures 2-25 and 2-26. The lowest level of groundwater storage during the period 1960 to the present occurred in 1977 at the end of a 33-year drought. Prior to 1977, groundwater storage was falling at a rate of about 25,500 acre-ft/yr. The decline in storage was due to drought and groundwater production in excess of sustainable yield. The period of 1978 though 1983 was an extremely wet period. The physical solution with the Chino Basin Judgment was implemented in 1978. The end of the drought and the elimination of basin-wide overdraft caused an increase in storage. Table 2-1 shows the change in storage relative to 1977 (the lowest level of storage) for the period 1965 to 1997. The losses in storage that occurred during the period 1965 to 1977 have been partially offset by gains in storage that occurred after 1977.

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Figure 2-27 shows the time history of storage in the upper and lower parts of the Chino Basin. There was a decline in storage prior to 1977. After 1977, storage in the upper basin increases, however the rate of increase declines over time. This continued increase in storage after 1983 probably is due to:

- accumulation of unproduced safe yield rights in local storage accounts;
- lagged inflows from the deep unsaturated zone in the northern half of the Basin; and
- lagged subsurface inflows from the Lytle Basin north of Barrier J and the Riverside Basin through the Bloomington divide.

After 1977, storage in the lower part of the Basin appears to have stabilized and follows the general climatic pattern.

Table 2-2 and Figure 2-28 show a comparison of the time history of total Chino Basin storage to groundwater production, volume of water stored in cyclic and local storage accounts, and climate. As of fall 1997, the combined volume of water in cyclic and local storage accounts was about 274,000 acre-ft and is greater than the increase in total storage that occurred between 1977 (pre-Judgment) and the present. The increase in storage since 1977 is about 174,000 acre-ft. This is counter intuitive, that is, the change in total storage since 1977 should be greater than the volume of water in cyclic and local storage accounts – especially given that the Basin has experienced a wetter than average period since 1977. The discrepancy may be due in part to under reporting of production in the agricultural pool, storage losses to the Santa Ana River, and inaccuracies in the methods used to compute storage herein.

Losses From Storage

The surface water discharge in the Santa Ana River consists of storm flow and baseflow. Baseflow is divided into two components: wastewater discharged from publicly-owned treatment plants (POTWs) and rising groundwater. The rising groundwater component in the Santa Ana River can be divided into two components: short-term storage water from seasonal recharge along the river, and persistent rising water caused by the regional groundwater gradient towards the river. The short-term storage component of rising water will decrease when total groundwater storage is increased either naturally (wet years) or artificially. If total groundwater storage is maintained at higher levels, recharge of surface water from the Santa Ana River will decrease.

Because of the spatial distribution of storage, the rising groundwater response to increases in groundwater storage is often lagged and variable in time. For example, the baseflow at Riverside Narrows (the location where the Santa Ana River enters the Chino Basin) peaks about five to seven years after heavy recharge years in the upstream groundwater basins. Chino Basin groundwater discharge to the river also exhibits a slight lag time. The time history of baseflow at Prado consists of a complicated mix of rising water responses from the Bunker Hill, Riverside, Chino and Temescal Basins. Analysis of the increase in rising water in the Chino Basin caused by an increase in groundwater storage requires the filtering out of these other sources of surface discharge from historical records and modeling results.

The accumulation of groundwater in storage will cause an increase in groundwater discharge in the Santa Ana River and its tributaries Chino Creek and Mill Creek – losses from storage that are not recoverable. The physics of the groundwater storage-baseflow relationship can be represented by linear reservoir theory where outflow is directly proportional to storage:

$$O = K * S \quad \text{(Equation 3)}$$

where:

O is the outflow from storage (L^3/T)

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S	is volume of water in storage (L^3)
K	is the linear reservoir coefficient (T^{-1})
L	denotes units of length and
T	denotes unites of time.

This formula can be calibrated to a specific range of storage and groundwater management conditions. The flow in the Santa Ana River in the Chino Basin was decomposed into rising water from the Chino Basin and other components. The rising water component was subdivided into short-term storage water from seasonal recharge along the river in Management Zone 5, and persistent rising water caused by the regional groundwater gradient towards the River from all management zones. This decomposition was done using simulation model results from the Chino Basin Integrated Groundwater and Surface Water Model (CIGSM) developed for the Chino Basin Water Resources Management Task Force (Montgomery Watson, 1995, and unpublished modeling results for calibration and planning simulations).

Historical Storage Losses to the Santa Ana River. Rising groundwater estimates were made for the period of model calibration 1960 to 1989, and the forecasting period of 1990 to 2040. Certain historical periods were studied to isolate the spatial effects of groundwater production patterns and hydrology on rising groundwater. For example, the period 1960 to 1977 represents the pre-Judgment period that has higher groundwater production than the period after 1978 that represents the period when the Basin was managed by Watermaster without basin-wide overdraft. Linear reservoir theory was used to develop a simple relationship of change in groundwater discharge to the Santa Ana River to incremental change in groundwater storage.

Hydrograph decomposition for the historical period was done using water balance tables from CIGSM for reaches of the Santa Ana River and its tributaries. Analysis of the hydrology of the period suggest that two periods could be used to develop a linear reservoir relationship:

- 1970 to 1977 representing a pre-Judgment period; and
- 1984 to 1989 representing a post-Judgment period.

The period 1970 to 1977 was a dry period following significant recharge along the river from the 1969 storms. The 1984 to 1989 period was also a dry period following the wet period from 1978 to 1983. Both of these periods exhibit recession flows typical of streams fed by groundwater systems. CIGSM model-estimated rising water was plotted against the model-estimated storage in the Chino Basin. The annual rising water estimates and respective storage estimates are shown graphically in Figures 2-34 and 2-35. Simple linear regressions were done for the 1974 to 1977 period and 1987 to 1989 period to estimate the linear reservoir coefficient (K) for the linear reservoir equation (Equation 3). The linear reservoir coefficient is the slope of the best-fit lines in Figures 2-34 and 2-35. The resulting linear reservoir coefficients are 0.0254 for the 1970 to 1977 period, and 0.0203 for the 1987 to 1989 period. Physically, the linear reservoir coefficient represents the fraction of the storage that annually becomes rising water. Thus, an increase in storage of 100,000 acre-ft in the 1987 will cause about 2,000 acre-ft of new rising water in the first year. Groundwater storage after the first year would be reduced to 98,000 acre-ft. In the second year, the storage would be reduced another 2.03 percent, or 1,970 acre-ft, and so on. The 0.0051 difference in linear reservoir coefficients for the pre- and post-Judgment periods is due in part to changes in groundwater production patterns, hydrology, and CIGSM modeling artifacts.

Future Storage Losses to the Santa Ana River. An estimate of the linear reservoir coefficient for the period 1990 through 2040 was estimated by comparing the total Santa Ana River flow at Prado Dam and groundwater storage for Alternatives 3 and 4 of the CBWRMS. Alternative 3 represents a specific groundwater management strategy that could be implemented. Alternative 4 is identical to Alternative 3 with the addition of a conjunctive use program and an increase in limits for local storage accounts. The

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conjunctive use program has three cycles of build up in storage to approximately 300,000 acre-ft and subsequent pump-out periods. The increase in storage in local storage accounts is gradual and incremental throughout the period. The rising water losses from the conjunctive use storage and the increase in local storage accounts are simply the difference in Santa Ana River flow between these alternatives. [Table 2-3](#) lists the differences in groundwater storage and Santa Ana River flow. The linear reservoir coefficient for future conditions is estimated to be about 0.0408, or 4.1 percent of storage – about double that of the 1984 to 1989 period. The increase in the linear reservoir coefficient was caused by changes in groundwater production patterns, hydrology, and CIGSM modeling artifacts.

Computation of Storage Losses to Santa Ana River. The linear reservoir equation can be used to estimate losses from groundwater storage accounts to the Santa Ana River:

$$q_t = K * (S_t + 0.5 * T * (I_t - Q_t)) \quad (\text{Equation 4})$$

where:

- q_t is the annual loss from a storage account in period t to $t+1$ (acre-ft/yr)
- K is the linear reservoir coefficient
- S_t is water in a storage account at the end of period t (acre-ft)
- I_t is the water put into a storage account in period t to $t+1$ (acre-ft/yr)
- Q_t is the water taken from the storage account for use in period t to $t+1$ (acre-ft/yr)
- T duration of time between t to $t+1$, assumed to be one year

The volume of water in storage accounts at the end of a period is equal to:

$$S_{t+1} = S_t + T * (I_t - Q_t - q_t) \quad (\text{Equation 5})$$

Using a linear reservoir coefficient of 0.0201 and Equation 4, the total water lost from local storage accounts and cyclic storage since the Judgment became active in 1978 is estimated to be about 50,000 acre-ft or about 18 percent of the volume that Watermaster currently assumed was in storage. The time history of accumulating storage accounts and estimated losses to baseflow are listed in [Table 2-4](#). Watermaster does not currently compute losses from storage accounts. This means that when water in storage accounts is produced, additional overdraft of the Basin will occur. Losses from conjunctive use projects could be very large. In the example in [Table 2-3](#), three filling and withdrawal cycles were done over a 40-year period with each reaching a fill capacity of 300,000 acre-ft. The model estimated losses of over 300,000 acre-ft over three fill and extraction cycles – a loss of over one-third of the water stored. If these losses were not accounted for, the Basin would be overdrafted by 300,000 acre-ft over the 40-year period.

The losses described above were developed from modeling studies. Monitoring to verify these losses has not been done in the past nor is it practical in the future. The measuring errors associated with such a program would be larger than the probable losses from storage. The only practical ways to estimate such losses are to:

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- Use a linear reservoir model as described above, or
- Calibrate a groundwater flow model over the period that water is held in cyclic, local, and conjunctive use storage and compare it to a simulation run with the same hydrology that did not have water in these storage accounts. The difference in groundwater discharge to the river would be the losses due to cyclic, local, and conjunctive use storage. Adjustments to storage accounts could be made retroactively or a new loss factor established for the next period.

GROUNDWATER PRODUCTION

Historical Groundwater Production Monitoring

Prior to 1975, groundwater production monitoring was not formally done by a single entity for the benefit of the Basin. Municipal and some industrial producers kept production records with some submitting annual production reports to the State Water Resources Control Board (SWRCB). Very few agricultural wells had meters and fewer kept records of production. During the period 1975 to 1978, production monitoring at agricultural wells improved slightly. Most of the agricultural production volumes for the period preceding 1978 are comprised of estimates provided by producers and are not based on direct measurements from in-line flow meters.

Since 1978, Watermaster has collected information to develop production estimates. Production estimates in the appropriate pool and overlying non-agricultural pool are based on totalizing in-line flow meter data provided to Watermaster on a quarterly basis by these producers. Watermaster aggregates these quarterly values to obtain annual production for these pools. Production estimates for the agricultural pool are based in part on totalizing in-line flow meter data, water duty methods, and hour-meter data combined with well efficiency tests. As with the other pools, reporting is done by the producers. However, not all agricultural pool producers provide Watermaster with estimates of their production. About one third of agricultural pool producers either did not file production reports or filed incomplete reports in fiscal year 1997/98 (telephone discussion with Jim Theirl, 1998).

Historical Groundwater Production

Table 2-4 contains estimates of annual groundwater production in the Chino Basin from three different sources: summaries of SWRCB filings and interviews with some producers; Watermaster estimates, and production estimates developed for calibration of CIGSM developed for the CBWRMS. The second column in Table 2-5 contains annual production estimates that were used to develop the safe yield in the Judgment. The third column contains Watermaster estimates of annual production that are based on production reports submitted to Watermaster by the producers. The fourth column contains annual production estimates that are based on SWRCB filings, production reports from producers, and water duty methods. In the latter case, water duty methods were used as a check on reported production and supplemented reported production data when production data was missing or under-reported at wells.

The safe yield of the Chino Basin was based on the hydrology of the period 1965 to 1974. The average annual groundwater production for that period from SWRCB filings and interviews was estimated at 152,100 acre-ft/yr. The engineer working on the historical production data knew there was *unaccounted for* production and assumed that actual production was 20 percent more than the estimate from SWRCB filings and interviews, or about 180,000 acre-ft/yr (Carroll, 1977). This estimate is close to the 189,400 acre-ft/yr average for the same period from the CBWRMS.

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In [Table 2-5](#), the period of Watermaster groundwater production estimates overlaps the period of CBWRMS production estimates. For their common period of record (1975 through 1989), the CBWRMS estimates are consistently higher. This occurs in part because some of the agricultural producers fail to report production or fail to provide production information to Watermaster. For the CBWRMS, water demands based on land use were compared to reported production. If the water demand for the land uses in a given area was greater than reported production, then reported production was increased to meet the demands based on land use. This method was validated in the CIGSM model calibration process (Montgomery Watson, 1993). In the latter years, the CBWRMS production estimates increasingly diverge from Watermaster estimates. For their common period of record, the average annual groundwater production was estimated at 147,900 acre-ft/yr by Watermaster and 174,000 acre-ft/yr by the CBWRMS – a difference of about 26,000 acre-ft/yr. Actual production is probably somewhere in between Watermaster and CBWRMS estimates.

Spatial and Temporal Changes in Groundwater Production

[Table 2-6](#) lists Watermaster's estimates of Chino Basin production by pool for the period of fiscal year 1974/75 to 1997/98, and the relative amount of production by pool. Over this period, groundwater production has ranged from a high of 181,000 acre-ft/yr (1975/76) to a low of about 122,600 acre-ft/yr (1982/83), and has averaged about 147,100 acre-ft/yr. The distribution of production by pool has shifted since 1975 with the agricultural pool production dropping from about 55 percent in 1974/75 to 28 percent in 1996/97. During the same period, appropriative pool production increased from about 40 percent in 1974/75 to 68 percent in 1996/97. The increases in appropriative pool production have kept pace with decline in agricultural production. Production in the overlying non-agricultural pool declined from about 5 percent in 1974/74 to about 2 percent in the mid-1980s, rose to about 4 percent by 1990/91 and has remained at about 4 percent of total production thereafter.

[Figure 2-29](#) is a plot that compares the change in total groundwater production in the Chino Basin to the change in urban and agricultural/other non-urban land uses. Prior to 1980, the decline in groundwater production appears proportional to the decline in agricultural and other non-urban land uses. After 1980, groundwater production appears to be relatively stable even though the decline in agricultural and other non-urban land uses is accelerating.

Figures [2-30](#) and [2-31](#) are similar to [Figure 2-29](#) except they represent the Basin north of State Route 60 and south of State Route 60, respectively. North of State Route 60, the pattern of land use change is similar to the entire basin, but the groundwater production that was declining from 1960 to 1980 rose sharply after 1980. South of State Route 60, groundwater production was generally declining throughout the period of 1960 to 1990. The rate of decline in production in the southern half of the Basin after 1980 matches the rate of increase in production north of State Route 60, such that the total annual production in the Basin after 1980 is relatively constant (see [Figure 2-29](#)).

Figures [2-32](#) through [2-36](#) illustrate the location and magnitude of groundwater production at wells in the Chino Basin for years 1960, 1970, 1980, 1989 and 1997. These maps are based on production estimates developed in the *Chino Basin Water Resources Management Study* (Montgomery Watson, 1995) and by Watermaster. Two trends are evident in the period 1960 through 1998:

- In the southern half of the Basin there is an increase in the number of active wells and a decrease in the per well production. This is due to the land use transition from predominately irrigated agriculture uses to predominately dairy uses and due to a recent well inspection program, resulting in more wells of record.

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- In the northern half of the Basin there is an increase in the number of wells producing over 2,000 acre-ft/yr. This is consistent with the land use transition from agricultural uses to urban uses and with the trend for increasing imported water costs.

Groundwater Production and Safe Yield

Recent and past studies have provided some insight into the influence of groundwater production in the southern end of the Chino Basin on the safe yield of the Basin. Three studies were done that quantified the impacts of proposed desalters in the lower Chino Basin on groundwater discharge to the Santa Ana River. The proposed desalters were first described in *Nitrogen and TDS Studies, Upper Santa Ana Watershed* (James M. Montgomery, Consulting Engineers, Inc., 1991). This study matched desalter production to meet future potable demands in the lower Chino Basin through the year 2015. The well fields were sited to maximize the interception of rising water and to induce streambed percolation in the Santa Ana River. The decrease in rising water and the increase in streambed percolation were projected to range from 45 to 65 percent of total desalter production.

Well field design studies for the SAWPA desalter provided estimates of the volume of rising water intercepted by the currently proposed desalter – scheduled for completion in March 2000 (Wildermuth, 1993). These studies used a very detailed model of the lower Chino Basin (rectangular 400-foot by 400-foot grid covering the lower Chino Basin) to evaluate the hydraulic impacts on rising water and groundwater levels at nearby wells. These studies showed the relationship of interception of rising water to well field location and well field capacity. The fraction of the desalter production composed of decreased rising water and the increased stream bed percolation water was estimated to range from 40 to 50 percent.

No formal studies and estimates of desalter well field interception of rising water were made during the *Chino Basin Water Resources Management Study* (Montgomery Watson, 1995). An informal estimate of the interception of rising water was made by Wildermuth (letter to Neil Cline, dated August 9, 1993). Wildermuth used the groundwater model developed in *Chino Basin Water Resources Management Study* for a well field similar to the SAWPA desalter well field and used the model calibration period of 1960 to 1989. This study estimated the interception of rising groundwater at about 80 percent of desalter production capacity.

These three studies suggest that the yield of the Basin could be increased by simply increasing the production near the river, and that for every two acre-ft of new, near-river production the safe yield could be increased by one acre-ft, that is the marginal change in safe yield with increased near-river production is about 0.5 acre-ft/yr per acre-ft/yr of production. The opposite is also true. That is, if production were to decrease in the southern half of the Basin, the safe yield will also decrease. Agricultural production is projected to decrease about 40,000 acre-ft/yr when current agricultural land use transitions to urban use. If the magnitude and spatial distribution of current agricultural production is not replaced with new production then the yield of the Chino basin will decrease by a comparable amount.

HISTORICAL AND CURRENT GROUNDWATER QUALITY

Historical Groundwater Quality Monitoring

Various entities have collected groundwater quality data in the past. Municipal and agricultural water supply entities have collected groundwater quality data to comply with Department of Health Services requirements under Title 22 or for programs that range from irregular study-oriented measurements to long-term periodic measurements. Groundwater quality observations have been made by the DWR, by

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participants in the 1969 Judgment on the Santa Ana River (Orange County Water District vs. City of Chino *et al.*), by dischargers under order from the Regional Board, and by the County of San Bernardino. The DWR and the SBCFCD were very active in collecting groundwater quality data in the Chino Basin prior to the settlement of the Chino Basin adjudication. After the Judgment was entered in 1978, monitoring south of State Route 60 stopped almost completely except for the cities of Chino, Chino Hills, and Norco, and the Jurupa Community Services District (JCSO). Most of the pre-1978 measurements were digitized by the DWR. In 1986, Metropolitan Water District of Southern California (Metropolitan) conducted the first comprehensive survey of groundwater quality covering all constituents regulated in California Code of Regulations Title 22.

In 1989, Watermaster initiated a regular monitoring program for the Basin with groundwater quality data obtained in 1990 and periodically thereafter to the present. Watermaster's program relies on municipal producers and other government agencies supplying their groundwater quality data on a cooperative basis. Watermaster staff supplements this data with data obtained through a Watermaster sampling and analysis program in the area south of State Route 60. Water quality data are also obtained from special studies and monitoring that takes place under orders of the Regional Board. Watermaster has combined previously digitized groundwater quality data from all known sources into a database structure that is maintained at Watermaster's office.

Watermaster plans to begin the development of a new, more comprehensive water quality monitoring program to support the OBMP starting in July 1999. The program consists of two phases. The initial phase consists of collecting and analyzing groundwater quality samples at all producing wells in the over a three year period starting in July 1999. These data will be mapped and reviewed. Based on this review and Watermaster management goals in the OBMP, a long-term monitoring program will be developed. The second phase consists of implementing the long term monitoring program and will start in July 2002.

Water Quality Conditions

Sources of water quality degradation can be classified into point and non-point sources. Point sources are confined to point discharges to the soil, groundwater, or stream systems. Examples include conventional wastewater and industrial discharges to streams or ponds, and leaky underground storage tanks. Non-point sources are areal discharges to soil, groundwater and surface waters, such as land application of waste and fertilizers and atmospheric deposition of contaminants to the soil and water bodies. The discussion below describes the water quality state of the Basin as it exists today for specific constituents of concern. The constituents described below are regulated for drinking water purposes in *California Code of Regulations, Title 22* or are regulated in the *1995 Water Quality Control Plan for the Santa Ana River Basin* (Basin Plan).

[Figures 2-37a-h](#) illustrate land uses in the Chino Basin in 1933, 1949, 1957, 1963, 1975, 1984, 1990 and 1993. These land use maps were developed from DWR land use surveys for 1933 through 1984, and from Southern California Association of Governments surveys for 1990 and 1993. The maps show a steady, dramatic change over time from agricultural to urban land uses. An exception to this occurs in the southern Chino Basin where dairies have moved in to replace irrigated and non-irrigated agriculture. These maps are useful in characterizing water quality degradation associated with non-point source loading from agriculture. The land uses shown in these maps are quantified in [Table 2-7](#).

Total Dissolved Solids (TDS). TDS is regulated as a secondary contaminant in Title 22. The recommended drinking water maximum contaminant level (MCL) for TDS is 500 mg/L, however the upper limit is 1,000 mg/L. For irrigation uses, TDS should generally be less than 700 mg/L. The Regional Board has established TDS limitations for all municipal wastewater plants that discharge

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recycled water to the Santa Ana River. A problem arises in that TDS concentrations increase through municipal use -- typically by about 150 to 250 mg/L. The TDS limitations for water recycling plants that discharge to the Santa Ana River in the Chino Basin are listed below:

Plant	TDS Limit (mg/L)
IEUA RP1	540
IEUA RP2	610
IEUA Carbon Canyon	555
IEUA RP4	505
Western Riverside Regional	625
City of Riverside	650
Jurupa Indian Hills	650

The TDS in source (drinking) water generally must be kept well below 500 mg/L (preferably less than 300 mg/L) to ensure that recycled water discharged to the Santa Ana River and its tributaries meets Regional Board limitations. The treatment cost to remove TDS from water is very expensive – about \$500 to \$700 per ton.

Table 2-9 provides the average TDS concentrations by well for five-year periods from 1961 to 1995. These wells are grouped by management zones. Figures 2-38, 2-39, and 2-40 show average TDS concentrations in groundwater measured at wells for the periods 1961 to 1965, 1971 to 1975, and 1991 to 1995. Historically, TDS has not been measured at wells on an annual basis. The choice of one year, say 1963 for example, might have only one-third as many TDS measurements at wells compared to a five-year period. Thus, averaging TDS over a five-year period was necessary to get adequate spatial coverage of measurements.

TDS concentrations in the northeast part of the Basin range from about 170 to about 300 mg/L for the period 1960 through 1990, with typical concentrations in the mid- to low-200s. TDS concentrations in excess of 200 mg/L indicate degradation from overlying land use. With few exceptions, areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated TDS concentrations. The exceptions are areas where point sources have contributed to TDS degradation, such as the former Kaiser Steel site in Fontana and the former wastewater disposal ponds near IEUA Regional Plant No. 1 (RP1) in South Ontario. The TDS anomaly from Kaiser is not shown on Figures 2-38, 2-39 and 2-40. A TDS anomaly from former municipal wastewater ponds can be seen in the east central part of Management Zone 2.

The impacts of agriculture on TDS in groundwater primarily are caused by fertilizer use on crops, consumptive use, and dairy waste disposal. The TDS impacts from the dairies located in the southern half of the Basin is reflected at least partially in Figures 2-39 and 2-40. The intensity of the TDS loading from dairy waste to the Basin is illustrated in Table 2-8 (Table 2-1 from *Final Task 6 Memorandum, Development of a Three-Dimensional Groundwater Model*, Montgomery Watson, 1994). This table shows the steady buildup of the dairy cattle population in the southern Chino Basin between 1949 and 1989. The total amount of TDS from manure discharged to the southern half of the Basin that will reach groundwater is estimated to be about 1,200,000 tons through 1989 and averages about 29,000 tons per year. The dairy loading numbers in Table 2-8 assume that half of the manure was hauled out of the Basin after 1973, which was a requirement of the Santa Ana watershed Water Quality Control Plan enacted in

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1973. The amount of manure exported out of the Basin was never verified until the late 1990's. The TDS loading to groundwater from dairy waste disposal activities could be far greater than estimated in [Table 2-8](#).

As irrigation efficiency increases, the impact of consumptive use on TDS in groundwater also increases. For example, if source water has a TDS concentration of 250 mg/L, and the irrigation efficiency is about 50 percent (flood irrigation), the resulting TDS concentration in the returns to groundwater will be 500 mg/L, exclusive of the mineral increments from fertilizer. If the irrigation efficiency were increased to 75 percent, the resulting TDS concentration in the returns to groundwater will be 1,000 mg/L, exclusive of the mineral increments from fertilizer. For modern irrigated agriculture, the TDS impacts of consumptive use are more significant than mineral increments from fertilizers.

TDS concentrations in groundwater have increased slightly or remained relatively constant in the northern parts of Management Zones 1, 2, and 3. TDS concentrations are significantly higher in the southern parts of Management Zones 1, 2, and 3, and all of Management Zone 5 where they typically exceed the 500 mg/L recommended MCL and frequently exceed the upper limit of 1,000 mg/L.

Nitrate. Nitrate is regulated in drinking water in Title 22 with an MCL of 10 mg/L (as nitrogen). [Table 2-10](#) provides the average nitrate concentrations by well for 5-year periods from 1961 to 1995. These wells are grouped by management zones. [Figures 2-41, 2-42, and 2-43](#) show the average nitrate concentrations in groundwater measured at wells for the periods 1961 to 1965, 1971 to 1975, and 1991 to 1995. Nitrate measurements in the surface water flows in the San Gabriel Mountains and in groundwater near the foot of these mountains are generally less than 0.5 mg/L (Montgomery Watson, 1993). Nitrate concentrations in excess of 0.5 mg/L indicate degradation from overlying land use. Similar to TDS, areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated nitrate concentrations. The primary areas of nitrate degradation are the areas formerly or currently overlain by:

- Citrus in the northern parts of Management Zones 1, 2 and 3; and
- Dairy areas in the southern parts of Management Zones 1, 2 and 3 and all of Management Zone 5.

Nitrate concentrations in groundwater have increased slightly or remained relatively constant in northern parts of Management Zones 1, 2 and 3 over the period 1960 to the present. These are areas formerly occupied by citrus and vineyard land uses (see [Figures 2-37a-d](#)), and nitrate concentrations underlying these areas rarely exceed 20 mg/L (as nitrogen). Over the same period, nitrate concentrations have increased significantly in the southern parts of Management Zones 1, 2 and 3, and all of Management Zone 5. These are areas where land use has progressively converted from irrigated/non-irrigated agriculture to dairy uses (see [Figures 2-37e-h](#)), and nitrate concentrations typically exceed the 10 mg/L MCL and frequently exceed 20 mg/L by 1991-1995.

There are two stable isotopes of nitrogen: ^{14}N and ^{15}N . Within the nitrogen cycle, thermodynamic and kinetic processes occur which fractionate these isotopes in various nitrogen-bearing compounds. Most biologically-mediated reactions (*e.g.*, assimilation, nitrification, and denitrification) result in ^{15}N enrichment of the substrate and depletion of the product. Nitrogen isotope chemistry is a technique to help distinguish potential sources of nitrogen in the environment (Clark and Fritz, 1997). The enrichment of ^{15}N relative to atmospheric nitrogen is expressed as $\delta^{15}\text{N}$ and has units of parts per thousand (permil). The following table shows the ranges of nitrogen isotopes of potential sources of nitrate (Battaglin *et al.*, 1997):

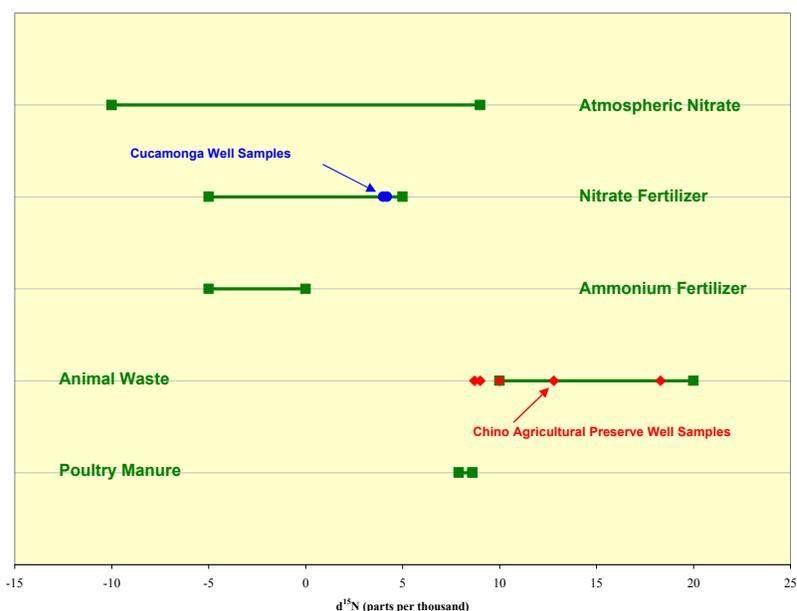
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Source of Nitrate	$\delta^{15}\text{N}$ of Nitrate (permil)
Atmospheric Nitrate	-10 to 9
Nitrate Fertilizer	-5 to 5
Ammonium Fertilizer	-5 to 0
Animal Waste	10 to 20
Poultry Manure	7.9 to 8.6

As part of the 1997 groundwater-monitoring program, samples were collected from six wells for nitrogen isotope analysis:

State Well Number	Region	Nitrate-N (mg/L)	$\delta^{15}\text{N}$ (permil)
01S07W14D01	Cucamonga – Former Citrus	3.2	4.0
01S07W14D02	Cucamonga – Former Citrus	4.0	4.2
02S07W34D	Chino Agricultural Preserve	106.0	12.8
03S07W05G	Chino Agricultural Preserve	77.3	18.3
02S07W20A	Chino Agricultural Preserve	64.5	10.0
02S07W16D	Chino Agricultural Preserve	63.6	8.7
02S07W16D - Duplicate		63.6	9.0

The samples from the wells in areas where the antecedent land use was predominantly citrus had nitrate values that were significantly below the maximum contaminant level (MCL) of 10 mg/L. Nitrate values in samples from the Chino Agricultural Preserve all exceeded the MCL by at least a factor of six. In addition, the $\delta^{15}\text{N}$ values for the Cucamonga wells were about 4 permil, while the $\delta^{15}\text{N}$ values for the Chino Agricultural Preserve wells ranged from 8.7 to 18.3 permil. The nitrogen isotope results are compared graphically with ranges from known sources in the figure below.



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The high nitrate concentrations shown in [Figure 2-43](#) probably depict the nitrate impacts from the agricultural waste disposal areas located in the southern half of the Basin.

Other Constituents of Potential Concern. Tables [2-11a](#) through [2-11c](#) summarize inorganic and organic constituents that have been analyzed for and detected in groundwater samples from wells in the Chino Basin through July 1998. [Table 2-12](#) summarizes the information in Tables [2-11a](#) through [2-11c](#) for the constituents detected at or above their MCLs. This is a synoptic analysis and includes all available data, including data from several monitoring programs and studies. The water quality data reviewed in this synoptic analysis are derived from production wells and monitoring wells. Hence, the data do not represent a programmatic investigation of potential sources nor do they represent a randomized study designed to ascertain the water quality status of the Chino Basin. The data do represent the most comprehensive information available to date.

A large subset of this data was extracted from the California Department of Health Services (DHS) database (current through July 1998). For each constituent, the tables lists:

- the number of measurements at or above one-half the applicable MCL;
- the number of wells with measurements at or above one-half the applicable MCL;
- the number of measurements at or above the applicable MCL;
- the number of wells with measurements at or above the applicable MCL; and
- the applicable MCL.

The tables are organized as follows:

- [Table 11a](#): Inorganic constituents, total trihalomethanes (THMs) and radioactivity with primary MCLs;
- [Table 11b](#): Organic chemicals with primary MCLs;
- [Table 11c](#): Inorganic constituents and organic chemicals with secondary MCLs, lead and copper rule, and California DHS Action Levels.

[Table 12](#) summarizes the constituents that were detected at concentrations greater than one-half their MCL, and are grouped by chemical type. These values represent a mixture of data from monitoring and production well samples. Monitoring wells targeted at a potential source will likely have a greater concentration than a municipal or agricultural production well. Wells with constituent concentrations greater than one-half the MCL represent areas that warrant concern and inclusion in a long-term monitoring program. Groundwater in the vicinity of wells with samples greater than the MCL may be impaired from a beneficial use standpoint.

Inorganic Constituents. Five inorganic constituents were detected at or above their MCL in more than 20 wells:

- TDS;
- nitrate;
- fluoride;
- iron; and
- manganese.

TDS and nitrate have been discussed in previous subsections. Fluoride, iron, and manganese naturally exist in groundwater. Their concentrations depend on mineral solubility, ion exchange reactions, surface

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complexations, and soluble ligands. These speciation and mineralization reactions, in turn, depend on pH, oxidation-reduction potential, and temperature. Fluoride occurs naturally in groundwater in concentrations ranging from less than 0.1 mg/L to 10-20 mg/L (Freeze and Cherry, 1979). Based on the available data, none of these constituents shows a spatial pattern throughout Chino Basin (see Figures 2-44, 2-45 and 2-46). However, site-specific monitoring wells may reveal point sources (e.g., wells near landfills have shown relatively high concentrations of manganese).

In addition, perchlorate has recently been detected in several wells in the Chino Basin (Figure 2-47), in other basins in California and other states in the West. The probable reason that perchlorate was not detected in groundwater until recently is that analytical methodologies did not previously exist that could attain a low enough detection limit. Prior to 1996, the method detection limit for perchlorate was 400 µg/L. By March 1997, an ion chromatographic method was developed with a detection limit of 1 µg/L and a reporting limit of 4 µg/L.

Perchlorate (ClO_4^-) originates as a contaminant in the environment from the solid salts of ammonium perchlorate (NH_4ClO_4), potassium perchlorate (KClO_4), or sodium perchlorate (NaClO_4). The perchlorate salts are quite soluble in water. The perchlorate anion (ClO_4^-) is exceedingly mobile in soil and groundwater environments. It can persist for many decades under typical groundwater and surface water conditions, because of its resistance to react with other available constituents. Perchlorate is a kinetically stable ion, which means that reduction of the chlorine atom from a +7 oxidation state in perchlorate to a -1 oxidation state as a chloride ion requires activation energy or the presence of a catalyst to facilitate the reaction. Since perchlorate is chemically stable in the environment, natural chemical reduction in the environment is not expected to be significant.

At very high levels, perchlorate interferes with the function of the thyroid gland and the production of hormones necessary for normal human development. In the extreme cases, it can cause brain damage in fetuses and a potentially fatal form of anemia in adults. However, effects of chronic exposures to lower levels currently detected in groundwater are not known.

Ammonium perchlorate is manufactured for use as an oxygenating component in solid propellant for rockets, missiles, and fireworks. Because of its limited shelf life, inventories of ammonium perchlorate must be periodically replaced with a fresh supply. Thus, large volumes of the compound have been disposed of since the 1950s in Nevada, California, Utah, and likely other states. While ammonium perchlorate is also used in certain munitions, fireworks, the manufacture of matches, and in analytical chemistry, perchlorate manufacturers estimate that about 90 percent of the substance is used for solid rocket fuel.

Perchlorate is of concern because of the existing uncertainties in:

- the toxicological database documenting its health effects at low levels in drinking water;
- the actual extent of the occurrence of perchlorate in ground and surface waters, which is compounded by some uncertainty in the validation of the analytical detection method;
- the efficacy of different treatment technologies for various water uses such as drinking water or agricultural application; and
- the extent and nature of ecological impact or transport and transformation phenomena in various environmental media.

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The requisite toxicology data available to evaluate the potential health effects of perchlorate are extremely limited. The US Environmental Protection Agency (EPA) Superfund Technical Support Center issued a provisional reference dose (RfD) in 1992 and a revised provisional RfD in 1995. Standard assumptions for ingestion rate and body weight were then applied to the RfD to calculate the reported range in the groundwater cleanup guidance levels of 4 to 18 ($\mu\text{g}/\text{L}$). In 1997, the DHS and California EPA's Office of Environmental Health Hazard Assessment reviewed the EPA risk assessment reports for perchlorate. Consequently, California established its provisional action level of 18 $\mu\text{g}/\text{L}$. On August 1, 1997, DHS informed drinking water utilities of its intention to develop a regulation to require monitoring for perchlorate as an unregulated chemical. Legislative action to establish a state drinking water standard for perchlorate has been introduced but has not been brought to a vote (CA Senate Bill 1033).

Volatile Organic Chemicals. Six volatile organic chemicals (VOCs) were detected at or above their MCL in more than 10 wells:

- 1,1-dichloroethene;
- 1,2-dichloroethane;
- benzene;
- tetrachloroethene (PCE);
- trichloroethene (TCE); and
- vinyl chloride.

TCE and PCE were/are widely used industrial solvents. TCE was commonly used for metal degreasing and was also used as a food extractant. PCE is commonly used in the dry-cleaning industry. About 80 percent of all dry cleaners used PCE as their primary cleaning agent (Oak Ridge National Laboratory, 1989). The areal distributions of PCE and TCE are shown in Figures 2-48 and 2-49. 1,1-Dichloroethane, 1,1-Dichloroethene, *cis*-1, 2-dichloroethene, 1,2-dichloroethane, and vinyl chloride are degradation by-products of PCE and TCE and their areal distributions are shown in Figures 2-50 through 2-54.

The spatial distributions of TCE and PCE appear to be correlatable to identified point sources in the Chino Basin (see the following subsection and Figure 2-58.) The areal distributions of 1,2-dichloroethane and vinyl chloride appear to be more extensive. 1,2-Dichloroethane is used as a lead-scavenging agent in gasoline (Oak Ridge National Laboratories, 1989) and the greater areal distribution of 1,2-dichloroethane and vinyl chloride may reflect numerous minor releases from gasoline stations, automobile service stations, *et cetera*. This hypothesis appears to be corroborated, in part, by the distribution of benzene, which is a minor contaminant in gasoline (see Figure 2-55). Gasoline used in the United States contains between 0.8 and 2 percent benzene (Oak Ridge National Laboratories, 1989).

Pesticides/herbicides. Two were detected at or above their MCL in more than 10 wells:

- dibromochloropropane (DBCP); and
- lindane.

DBCP was used as a fumigant for citrus, other orchards and some field crops prior to being banned in 1987. The areal distribution of DBCP appears to be related to historical citrus crop production in Chino Basin (see Figures 2-37a-d and 2-56). Lindane is used as an insecticide on foliar plants and fruit and vegetable crops; its areal distribution is shown in Figure 2-57.

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Point Sources of Concern

The previous water quality discussion described water quality conditions broadly across the entire basin. The discussion presented below describes the water quality anomalies associated with known point source discharges to groundwater. [Figure 2-58](#) shows the location of various point sources and areas of water quality degradation associated with these sources.

Chino Airport. The Chino Airport is located approximately four miles east of the City of Chino and six miles south of Ontario International Airport, and occupies an area of about 895 acres. From the early 1940s until 1948, the airport was owned by the federal government and used for flight training and aircraft storage. The County of San Bernardino acquired the airport in 1948 and has operated and/or leased portions of the facility ever since. Since 1948, past and present businesses and activities at the airport include modification of military aircraft, crop dusting, aircraft-engine repair, aircraft painting, stripping and washing, dispensing of fire-retardant chemicals to fight forest fires, and general aircraft maintenance. The use of organic solvents for various manufacturing and industrial purposes has been widespread throughout the airport's history (Regional Board, 1990). From 1986 to 1988, a number of groundwater quality investigations were performed in the vicinity of Chino Airport. Analytical results from groundwater sampling revealed the presence of VOCs above MCLs in six wells downgradient of Chino Airport. The most common VOC detected above its MCL is TCE. TCE concentrations in the contaminated wells ranged from 6.0 to 75.0 µg/L. [Figure 2-58](#) shows the approximate areal extent of TCE in groundwater in the vicinity of Chino Airport at concentrations exceeding its MCL as of 1990. The plume is elongate in shape, about 2,200 feet wide and extends approximately 8,000 feet from the airport's northern boundary in a south to southwestern direction.

California Institute for Men. The California Institute for Men (CIM) located in Chino is bounded on the north by Edison Avenue, on the east by Euclid Avenue, on the south by Kimball Avenue and on the west by Central Avenue. CIM is a state correctional facility and has been in existence since 1939. It occupies approximately 2,600 acres – about 2,000 acres are used for dairy and agricultural uses and about 600 acres are used for housing inmates and related support activities (Geomatrix Consultants, 1996). In 1990, PCE was detected at a concentration of 26 µg/L in a sample of water collected from a CIM drinking water supply well. Analytical results from groundwater sampling indicate that the most common VOCs detected in groundwater underlying CIM are PCE and TCE. Other VOCs detected include carbon tetrachloride, chloroform, 1,2-dichloroethene, bromodichloromethane, 1,1,1-trichloroethane, and toluene. The maximum PCE concentration in groundwater detected at an individual monitoring well (GWS-12) was 290 µg/L. The maximum TCE concentration in groundwater detected at an individual monitoring well (MW-6) was 160 µg/L (Geomatrix Consultants, 1996). [Figure 2-58](#) shows the approximate areal extent of VOCs in groundwater at concentrations exceeding MCLs as of May 1996. The plume is approximately 1,000 feet wide and extends about 3,600 feet southwest.

General Electric Flatiron Facility. The General Electric Flatiron Facility (Flatiron Facility) occupied the site at 234 East Main Street, Ontario, California from the early 1900s to 1982. Its operations consisted primarily of the manufacturing of clothes irons. Currently, the site is occupied by an industrial park. The Regional Board issued an investigative order to General Electric in 1987 after an inactive well in the City of Ontario was found to contain TCE and chromium above drinking water standards. Analytical results from groundwater sampling indicated that VOCs and total dissolved chromium were the major groundwater contaminants. The most common VOC detected at levels significantly above its MCL is TCE, which reached a measured maximum concentration of 3,700 µg/L. Other VOCs periodically detected, but commonly below MCLs, include PCE, toluene, and total xylenes, (Geomatrix Consultants, 1997). [Figure 2-58](#) shows the approximate areal extent of TCE in groundwater at concentrations exceeding MCLs, as of November 1997. The plume is approximately 3,000 feet wide and

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extends about 8,400 feet south-southwest (hydraulically downgradient) from the southern border of the site.

General Electric Test Cell Facility. The General Electric Company's Engine Maintenance Center Test Cell Facility (Test Cell Facility) is located at 1923 East Avion, Ontario, California. Primary operations at the Test Cell Facility include the testing and maintenance of aircraft engines. A soil and groundwater investigation, followed by a subsequent quarterly groundwater-monitoring program, began in 1991 (Dames & Moore, 1996). The results of these investigations showed that VOCs exist in the soil and groundwater beneath the Test Cell Facility and that the released VOCs have migrated off site. Analytical results from subsequent investigations indicate that the most common and abundant VOC detected in groundwater is TCE. Other VOCs detected include PCE, *cis*-1,2-dichloroethene, 1,2-dichloropropane, 1,1-dichloroethene, 1,1-dichloroethane, benzene, toluene and xylenes, among others. The historical maximum TCE concentration measured at an on-site monitoring well (directly beneath the Test Cell Facility) is 1,240 µg/L. The historical maximum TCE concentration measured at an off-site monitoring well (downgradient) is 190 µg/L (BDM International, 1997). [Figure 2-58](#) shows the areal extent of VOC contamination exceeding federal MCLs as of March 1997. The plume is elongate in shape, about 1,000 to 1,200 feet wide and extends approximately 8,000 feet from the Test Cell Facility in a southwesterly direction.

Kaiser Steel Fontana Steel Site. Between 1943 and 1983, Kaiser Steel Corporation (Kaiser), operated an integrated steel manufacturing facility in Fontana. During the first 30 years of the facility's operation (1945-1974), a portion of the Kaiser brine wastewater was discharged to surface impoundments and allowed to percolate into the soil. In the early 1970s, the surface impoundments were lined to eliminate percolation to groundwater (Wildermuth, 1991). In July of 1983, Kaiser initiated a groundwater investigation that revealed the presence of a plume of degraded groundwater under the facility. In August of 1987, the Regional Board issued Cleanup and Abatement Order Number 87-121, which required additional groundwater investigation and remediation activities. The results of these investigations showed that the major constituents of the release to groundwater were inorganic dissolved solids and low molecular weight organic compounds. Wells sampled during the groundwater investigations measured concentrations of total dissolved solids (TDS) ranging from 500-1,200 mg/L and concentrations of total organic carbon (TOC) ranging from 1 to 70 mg/L. [Figure 2-58](#) shows the approximate areal extent of the TDS/TOC groundwater plume as of November 1991. The plume is approximately 3,000 feet wide and extends about 17,000 feet southwest. As of November 1991, the plume had migrated almost entirely off the Kaiser site.

Milliken Sanitary Landfill. The Milliken Sanitary Landfill (MSL) is a Class III Municipal Solid Waste Management Unit located near the intersections of Milliken Avenue and Mission Boulevard in the City of Ontario. The facility is owned by the County of San Bernardino and managed by the County's Waste System Division. The facility was opened in 1958 and continues to accept waste within an approximate 140-acre portion of the 196-acre permitted area (GeoLogic Associates, 1998). Groundwater monitoring at the MSL began in 1987 with five monitoring wells as part of a Solid Waste Assessment Test investigation (IT, 1989). The results of this investigation indicated that the MSL has released organic and inorganic compounds to the underlying groundwater. At the completion of an Evaluation Monitoring Program (EMP) investigation (GeoLogic Associates, 1998), a total of 29 monitoring wells were drilled to evaluate the nature and extent of groundwater impacts identified in the vicinity of the MSL. Analytical results from groundwater sampling indicate that VOCs are the major constituents of the release. The most common VOCs detected are TCE, PCE, and dichlorodifluoromethane. Other VOCs detected above MCLs include vinyl chloride, benzene, 1,1-dichloroethane, and 1,2-dichloropropane. The historical maximum total VOC concentration in an individual monitoring well is 159.6 µg/L (GeoLogic Associates, 1998). [Figure 2-58](#) shows the approximate areal extent of VOCs in groundwater at concentrations

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exceeding MCLs as of April 1998. The plume is approximately 1,900 feet wide and extends about 2,000 feet south of the MSL's southern border (GeoLogic Associates, 1998).

Municipal Wastewater Disposal Ponds. Treated municipal wastewater has been disposed into ponds located near the current IEUA Regional Plant 1 (RP1) located in south Ontario and the former Regional Plant 3 (RP3) located in south Fontana. The ponds located just east of RP1, commonly called the Cucamonga ponds, were used to dispose of untreated effluent collected by the Cucamonga County Water District (CCWD) and IEUA. RP3 and its disposal ponds are located on the southwest corner of Beech and Jurupa Avenues in the City of Fontana. Discharge to the Cucamonga ponds and the ponds of RP3 ceased between the early 1970s and the mid-1980s. The areas downgradient of these recharge ponds typically have elevated TDS and nitrate concentrations. The locations of these ponds are shown in Figure 2-58. Contaminant plumes emanating from these ponds have never been fully characterized.

Upland Sanitary Landfill. The closed and inactive Upland Sanitary Landfill (USL) is located on the site of a former gravel quarry at the southeastern corner of 15th Street and Campus Avenue in the City of Upland. The facility operated from 1950 to 1979 as an unlined Class II and Class III municipal solid waste disposal site. In 1982, USL was covered with a 10-inch thick, low permeability layer of sandy silt over the entire disposal site (GeoLogic Associates, 1997). Groundwater monitoring at the USL began in 1988 and now includes three on-site monitoring wells (an upgradient well, a cross-gradient well, and a downgradient well) (City of Upland, 1998). The results of groundwater monitoring indicate that USL has released organic and inorganic compounds to underlying groundwater (GeoLogic Associates, 1997). Groundwater samples from the downgradient monitoring well consistently contain higher concentrations of organic and inorganic compounds than samples from the upgradient and cross-gradient monitoring wells. Analytical results from groundwater sampling indicate that VOCs are the major constituents of the organic release. All three monitoring wells have shown detectable levels of VOCs. The most common VOCs detected above MCLs are dichlorodifluoromethane, PCE, TCE, and vinyl chloride. Other VOCs that have been periodically detected above MCLs include methylene chloride, *cis*-1,2 dichloroethene, 1,1-dichloroethane, and benzene. The 1990-95 average total VOC concentration in the downgradient monitoring well is 125 µg/L (GeoLogic Associates, 1997). Figure 2-58 shows the approximate areal extent of VOCs in groundwater at concentrations exceeding MCLs as of April 1998. However, the plume is defined only by the three on-site monitoring wells. The plume extent may be greater than is depicted on Figure 2-58.

National Priorities List Sites. Three facilities in, or directly tributary to, the Chino Basin are on the current National Priorities List (NPL) of Superfund sites:

- Stringfellow;
- Dodson Brothers; and
- Pacific Polishing (Figure 2-58).

Elevated levels of TCE and its degradation by-products have been detected in groundwater in the vicinity of the Dodson Brothers Superfund site (*cf.* Tables 2-44 and 2-53).

TCE/PCE Anomaly – South of the Ontario Airport. A plume containing TCE and PCE exists south of the Ontario Airport. The plume extends from approximately State Route 60 on the north, Turner Avenue on the east to Schaeffer Avenue on the south and Vineyard Avenue on the west. Figure 2-58 shows the approximate areal extent of the plume. The plume appears to be approximately 6,000 feet wide and 9,000 feet long. The maximum reported TCE and PCE concentrations are 142 µg/L and 2 µg/L, respectively.

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Role of the Vadose Zone in Future Water Quality

The vadose zone is the unsaturated part of the aquifer that lies between the water table surface and the land surface. The vadose zone has become larger and thicker over time as the groundwater levels in the Basin have declined due to overdraft. Some of the contaminants discharged to the land surface or into ponds remain in the vadose zone. The mechanisms for retention of contaminants within the vadose zone are complex, but are generally caused by sorption and precipitation. Some contaminants move down towards the saturated zone at much lower rates (a few feet per year) than they can move once they get to the saturated zone (a few feet per day). MWDSC completed a study of the TDS and nitrate impacts in the Chino Basin from a proposed 700,000 acre-ft storage program California (MWDSC, 1988). The outcome of this study suggested that the raising of groundwater levels associated with the increase in storage would mobilize TDS and nitrates in the vadose zone and cause serious water quality problems throughout the Basin. The proposed storage program did not add contaminants – it flushed contaminants already in the vadose zone into the saturated zone. This potential effect could not be verified with more advanced modeling in the CBWRMS due to problems with the model. Real-world experiments to verify the TDS and nitrate contamination are not practical for a basin as large as the Chino Basin.

As the agricultural land uses in the Chino Basin convert, the loading of contaminants to the vadose zone will be significantly reduced, as will percolation at the land surface that drives the contaminants down towards the saturated zone. This will have the effect of reducing the rate of vadose zone loading to the saturated zone.

SAFE YIELD

The safe yield of the Chino Basin was established in the 1978 Judgment to be 140,000 acre-ft/yr. The basis for this estimate is described by William J. Carroll in his testimony on December 19 and 20, 1977, during the adjudication process. [Table 2-13](#) lists the hydrologic components developed by Carroll to estimate the safe yield of the Chino Basin. These components were developed for the period 1965 to 1974, a period that Carroll referred to as the *base period*. The hydrologic components listed in [Table 2-13](#) are described below.

Deep Percolation of Precipitation and Surface Inflow – consists of the deep percolation of precipitation and streamflow. Carroll developed the estimate of 47,500 acre-ft/yr based on an extrapolation of the early Chino Basin modeling results from the DWR.

Deep Percolation of Artificial Recharge – consists of the percolation of local runoff in spreading basins. Carroll estimated that the local runoff recharged in SBCFCD-controlled facilities to be about 2,800 acre-ft/yr during the base period. The Etiwanda Water Company also recharged about 1,000 acre-ft/yr of Deer and Day Creek water in the Chino Basin during the base period.

Deep Percolation of Chino Basin Groundwater Used for Irrigation (domestic and agricultural) – defined as the fraction of water applied for irrigation that percolates through the soil and recharges underlying groundwater. Carroll estimated that about 15 percent of the water used for domestic irrigation would percolate to groundwater; and that 45 percent of the water used for agricultural irrigation would percolate to groundwater. The volume of percolation of Chino Basin groundwater used for irrigation over the base period was estimated by Carroll to be about 61,700 acre-ft/yr.

Deep Percolation of Imported Water Used for Irrigation (domestic and agricultural) – same as deep percolation of Chino Basin groundwater except that the water used for irrigation is imported to and used

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over the Chino Basin. The volume of percolation of imported water used for irrigation over the base period was estimated by Carroll to be about 7,000 acre-ft/yr.

Recharge of Sewage – defined to be the percolation in ponds of wastewater discharged by municipal wastewater treatment plants. This component almost completely ceased during the base period and was known to be eliminated as a recharge source when the safe yield was estimated. The volume of sewage recharge over the base period was about 18,200 acre-ft/yr. The inclusion of recharge of sewage as a component of safe yield in the stipulated Judgment was therefore not hydrologically consistent with how the Basin was to be operated post-Judgment.

Subsurface Inflow – defined to be the groundwater inflow to the Chino Basin from adjacent groundwater basins and mountain fronts including:

Bloomington Divide (Riverside Basin)	3,500 acre-ft/yr
San Gabriel Mountain front	2,500 acre-ft/yr
Colton Rialto Basin	500 acre-ft/yr
Cucamonga Basin	100 acre-ft/yr
Claremont and Pomona Basins	100 acre-ft/yr
Jurupa Hills	500 acre-ft/yr
Total	7,200 acre-ft/yr say 7,000

Subsurface Outflow – defined as groundwater that rises to the ground surface in Prado Basin to become Santa Ana River flow. Estimates of subsurface outflow were based on studies by DWR, United States Geological Survey (USGS), and Carroll. Carroll estimated the subsurface outflow to average about 6,800 acre-ft/yr over the base period.

Extractions – consists of groundwater extractions from the Chino Basin. Carroll estimated the groundwater extractions to average about 180,000 acre-ft/yr during the base period.

In addition to these components, Carroll estimated the change in storage over the base period to be about 40,000 acre-ft/yr; that is, the groundwater in storage declined by about 400,000 acre-ft between 1965 and 1974. Carroll estimated the safe yield to be the equal to the average extraction over the base period minus the average annual overdraft during the base period:

$$\begin{aligned}\text{safe yield} &= \text{extraction} - \text{overdraft} \\ &= 180,000 - 40,000 \\ &= 140,000 \text{ acre-ft/yr}\end{aligned}$$

A more recent estimate the safe yield can be abstracted from the groundwater modeling work done for the *Chino Basin Water Resources Management Study -- Task 6 Memorandum Develop Three Dimensional Groundwater Model* (Montgomery Watson, 1994). The hydrologic components derived from the modeling results for a 30-year period -- October 1960 to September 1989 (water years 1961 to 1989) - are listed in [Table 2-14](#). The safe yield based on the CBWRMS results (1961 to 1989) computed in a manner similar to Carroll is:

$$\begin{aligned}\text{safe yield} &= \text{extraction} - \text{overdraft} \\ &= 183,000 - 17,000\end{aligned}$$

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= 166,000 acre-ft/yr

The safe yield based on CBWRMS modeling results for the base period (1965 to 1974) used by Carroll would be:

safe yield = extraction - overdraft
 = 189,000 - 20,000
 = 169,000 acre-ft/yr

A more conceptually correct estimate of the safe yield would include a reduction for artificial recharge of imported water and other waters that are currently not part of the yield, such as recharge of reclaimed water. The adjusted estimates would then be:

Carroll's estimate 1965 to 1974	118,000 acre-ft/yr
CBWRMS estimate 1961 to 1989	151,000 acre-ft/yr
CBWRMS estimate 1965 to 1974	156,000 acre-ft/yr

Watermaster may decide to change the safe yield of the Basin based on new information such as that developed from the CBWRMS and subsequent studies. Safe yield is used to determine the need for replenishment obligation for individual parties to the judgment. New water from the capture and recharge of storm water, from induced recharge caused by increased southern basin production (or, conversely, the reduction of yield from reduced production in the southern Chino Basin), or from other sources will enhance the yield of the Basin and thereby reduce the cost of purchasing imported water for replenishment.

At the time the Chino Judgment was implemented (1978), about 41 percent of the safe yield was estimated to come from irrigation returns. Since that time, irrigated agriculture has declined and is projected to be almost completely gone by 2020. This will result in a decline in irrigation returns to groundwater and a potential decrease in the safe yield. In addition, San Bernardino County, Riverside County, and the US Army Corps of Engineers (USACE) have constructed flood control projects that capture and convey runoff to the Santa Ana River - effectively eliminating the groundwater recharge that formerly took place in the stream channels and flood plains in the Chino Basin. This also may have resulted in a decrease in the safe yield of the Chino Basin.

Water harvesting opportunities exist that can be used to offset the yield lost to urbanization and flood control improvements. Water harvesting consists of capturing and recharging runoff caused by urbanization. Most of the precipitation falling on undeveloped land or land in agricultural uses is lost to evapotranspiration. Runoff increases dramatically with urbanization due to drainage improvements, increased impervious land cover, and decreased evapotranspiration of rainfall. The potential yield from this additional runoff is numerically equal to the increase in runoff that occurs when the land is converted to urban uses. The actual yield is equal to the additional runoff that is captured and put to beneficial use. In the Chino Basin, the best and least expensive way to put this yield to beneficial use is groundwater recharge.

Urbanization also creates reclaimed water. Presently, most of this water is discharged to the Santa Ana River. IEUA currently plans to use some of their reclaimed water for direct uses, including non-potable industrial uses, irrigation, and groundwater recharge. Increasing the yield of the Chino Basin by increased capture of local runoff will improve the dilution of reclaimed water used for groundwater recharge and reduce the cost of mitigation requirements for such reclamation.

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WATER DEMANDS AND WATER SUPPLY PLANS

Current and Future Water Demands

The purpose of this subsection is to describe the current and projected water demands and supplies for agencies that produce groundwater from the Chino Basin. This information will serve as the basis for identifying future water resources issues in the Chino Basin area. Updated forecasts of water demands and supplies were requested from each Chino Basin water agency and industrial producer. Requested data included demands, water supply plans by individual well or source, well construction and operating data, and water production and treatment costs. Many agencies provided updated information. Where responses were incomplete, previous information developed as part of the 1995 Chino Basin Water Resources Management Study (CBWRMS) was used. The planning period for this evaluation is 2000 to 2020.

Growth Projections. There are several indicators of potential growth within the Chino Basin study area. These include population, housing, employment, and land use. The Southern California Association of Governments (SCAG) periodically develops population, housing, and employment projections. SCAG prepares growth projections as part of its regional transportation planning for Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. The most recent SCAG projection is SCAG-98, which was adopted in April 1998.

The SCAG-98 projection indicates the six-county region will grow from 15.6 million people in 1994 to 22.4 million in 2015. This represents an increase 6.7 million people between 1994 and 2015 and a growth rate of 43 percent. San Bernardino and Riverside counties are projected to grow at a rate that is more than double the regional average. San Bernardino County is projected to grow from 1,558,000 people in 1994 to 2,830,000 in 2020. Riverside County is projected to increase from 1,377,000 people in 1994 to 2,816,000 in 2020.

Population. [Table 2-15](#) summarizes the population projections for the Chino Basin area by water purveyor. The SCAG projections were desegregated by city and census tract and combined by water purveyor service area. These projections indicate population will increase from 971,000 in 1994 to 1,631,000 in 2020. This is a growth rate of 68 percent or 2.6 percent per year. The population in some water service areas in the San Bernardino County portion of the Basin are projected to increase by as much as 125 percent.

Housing. Total housing is projected to increase from 284,000 units in 1994 to 496,000 in 2020, a growth rate of 75 percent. By comparing population and housing, the average occupancy is projected to decrease slightly from 3.4 to 3.3 persons per dwelling unit.

Employment. Employment is projected to increase from 316,000 jobs in 1994 to 702,000 jobs in 2020, a growth rate of 122 percent.

Water Demand Projections. Current water demands and supply projections form the basis for evaluating future water management programs in the Chino Basin area. Water demands are developed based on the water service areas shown in [Table 2-16](#).

Water demand projections can be developed by several different methods. These include per capita, water duty and units of use approaches. The most frequently used methods are the per capita consumption method and the water duty method.

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For this assessment, all water demands are based on information provided by the water agencies. In the absence of agency data, the assumptions in the CBWRMS have been used. These projections have been compared with the current SCAG projections. However, no adjustments to the demands have been made.

Projected water demands for the Chino Basin are presented in [Table 2-16](#). This table indicates that Chino Basin area water demands will reach 348,000 acre-ft/yr in 2000 to 418,000 acre-ft/yr in 2020. Significant municipal water demand growth is expected to occur in the agricultural preserve area. This will result in increased demands for the Cities of Chino, Chino Hills and Ontario, and Jurupa Community Services District. Agricultural water demands are expected to decrease during the planning period as land is converted to urban uses.

Water Supply Plans

The principal water supplies in the Chino Basin area are groundwater pumped from the Chino Basin, other local groundwater and surface water, imported water purchased from Metropolitan and recycled water. The amounts of water utilized from each source are based on data provided by each water purveyor. If data was not provided, the supplies are based on projections developed for the Chino Basin Water Resources Management Study (1995). Each of these sources is discussed below. [Table 2-17](#) presents projected water supply plans for appropriators in the Chino Basin area. [Table 2-18](#) summarizes the water demands by major source categories. The growth in demand and general source plan is shown graphically in Figure 2-60. Review of [Table 2-18](#) and Figure 2-60 shows that there will be about 40,000 to 50,000 acre-ft/yr of Chino Basin production that will incur a replenishment obligation. The replenishment obligation can be met by the recharge of imported and reclaimed water, in-lieu replenishment involving imported water, and from water in local storage accounts. In the long run, the replenishment obligation of about 40,000 to 50,000 acre-ft/yr will need to be met with imported and recycled water. Thus the imported and recycled water components in [Table 2-18](#) and [Figure 2-60](#) should sum to a total of 40,000 to 50,000 acre-ft/yr higher.

Chino Basin Groundwater. The Chino Basin is the largest groundwater basin in the Upper Santa Ana Watershed. Water is reallocated from the Overlying Agricultural Pool to the Appropriative Pool when it is not put to use by the agricultural users. As agricultural production declines, the reallocations to the Appropriative Pool will increase. Total production from the Chino Basin is projected to range between 180,000 to 190,000 acre-ft/yr over the planning period. Production in excess of safe yield must be replaced through the purchase of replenishment water, which is imported into the Chino Basin, by the Watermaster.

Other Local Supplies. Other local water sources provide a portion of the water supplies for Chino Basin water agencies. These supplies include surface water and groundwater.

Surface Water. A number of water supply agencies, which produce groundwater from the Chino Basin, obtain a portion of their water supplies from local surface water sources. These agencies include the: City of Pomona, City of Upland, Cucamonga County Water District, Fontana Water Company, San Antonio Water Company, West End Consolidated Water Company, and West San Bernardino County Water District. The principal surface water sources include San Antonio Canyon, Cucamonga Canyon, Day Creek, Deer Creek, Lytle Creek and several smaller surface sources. For the most part, these surface water sources are fully developed and no significant additional supplies are anticipated to be developed in the future. Usage is expected to remain at 16,000-17,000 acre-ft/yr.

Other Groundwater. Other local groundwater supplies represent a significant supplemental source of water for Chino Basin water agencies. Other groundwater supplies in the study area include the Claremont Heights, Live Oak, Pomona and Spadra Basins in Los Angeles County, the Riverside South

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and Temescal Basins in Riverside County, and the Colton-Rialto, Cucamonga, Lytle Creek Bunker Hill, and Riverside North Basins in San Bernardino County. Agencies using other local groundwater include: City of Pomona, City of Upland, Cucamonga County Water District, Fontana Water Company, San Antonio Water Company, Southern California Water Company, West End Consolidated Water Company, and West San Bernardino County Water District. These supplies may increase slightly in the future as additional wells are constructed. However, most of these sources are essentially fully developed. Descriptions of these groundwater basins were presented in the CBWRMS Final Report (1995). The aggregate supply from these basins is currently 63,000 acre-ft/yr and is projected to be 76,000 acre-ft/yr in 2020.

Imported Water. Two regional agencies are responsible for imported water deliveries within the study area: Metropolitan Water District of Southern California (Metropolitan) and San Bernardino Valley Municipal Water District (SBVMWD). Metropolitan is a wholesale water agency serving supplemental imported water to 27 members (city and water agencies) in portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties. This service area has a current population of more than 16 million people. Approximately one-half of the total water used throughout the entire Metropolitan service area is imported water purchased from Metropolitan to supplement the local water supplies in its service area. Metropolitan obtains imported supplies from the Colorado River and the State Water Project (SWP). The demand for direct delivery of imported water for the Chino Basin purchased from Metropolitan is projected to increase from about 68,000 acre-ft/yr in 1997 to 129,000 acre-ft/yr by 2020, an increase of about 90% percent. The demand for replenishment water in the Chino Basin could reach 40,000 acre-ft/yr by 2020 if reclaimed water is not used for replenishment or direct uses and water in local storage accounts is not available for use as replenishment.

SBVMWD is a wholesale water purveyor in the easternmost portion of the study area and adjacent portions of San Bernardino County. SBVMWD is a SWP Contractor having an entitlement of 102,600 acre-ft/yr. In addition, SBVMWD is responsible for basin management in the Bunker Hill basin. The City of Rialto and West San Bernardino County Water District obtain water from SBVMWD through its Baseline Feeder that supplies Bunker Hill groundwater (included in *other groundwater* above).

Recycled Water. There are several existing sources of recycled water in use within the Chino Basin study area. These are the Pomona Water Reclamation Plant (operated by the Los Angeles County Sanitation Districts), Regional Plants 1, 2 and 4, and Carbon Canyon Water Reclamation Plant operated by IEUA, Upland Hills Water Reclamation Plant operated by the City of Upland, CIM Water Reclamation Plant operated by the California Institution for Men at Chino, and Indian Hills Water Reclamation Plant operated by Jurupa Community Services District. For this section, only existing and planned recycled water uses that will be implemented in the next two years are included in the water supply plans. This is about 11,500 acre-ft/yr.

Summary. The plans summarized in this section represent the current non-OBMP water supply plans of each individual water agency, as qualified previously. Future evaluation of these plans may indicate problems relative to their long-term feasibility. Availability of imported water supplies will have a significant effect on plan feasibility.

WASTEWATER FLOWS, TREATMENT AND DISPOSAL

This section summarizes existing and proposed municipal wastewater treatment and disposal plans for the Chino Basin study area for the planning period of 2000 through 2020. Existing municipal wastewater treatment facilities are described briefly along with a review of present and projected wastewater flows. Future treatment and disposal plans for the study area are also discussed.

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Wastewater Flow Projections

Wastewater flow projections are made using a combination of methods similar to water demand projections. Depending on the planning data available, wastewater flow projections are made using per capita-based, EDU-based, area-based, and water consumption-based methods. The per capita method uses projected populations and average unit wastewater flows per person (90-110 gallons per day per person). EDU-based projections use unit flows per equivalent dwelling unit (EDU), where an EDU is the average amount of sewage generated by a single-family residential household (about 270 gallons per day). EDUs are estimated for commercial and industrial land uses using fixture unit counts or estimated wastewater flows. Flow projections are computed by projecting future EDUs and multiplying by the unit flow per EDU. Area-based methods typically use unit flow factors for each land use type. Flows are computed by multiplying the unit factor for each land use type by the corresponding acreage and totaling the individual flows for each land use type. Water consumption-based methods compute wastewater flows based on the difference between water demand and water consumption. Water consumption is the amount of water that does not return to the sewer system and is a function of the particular land use type and water use group. Currently, most wastewater flow projections in the study area are based on either per capita or EDU methods. Figure 2-61 illustrates the projected wastewater flows for each service area described below.

LACSD Service Area. The Los Angeles County Sanitation Districts (LACSD) furnishes wastewater services for Pomona and Claremont. Using the SCAG-98 growth projections and a wastewater generation factor of 110 gpcd, the wastewater flows for this area are estimated to increase from 22,000 acre-ft/yr to 30,000 acre-ft/yr in 2020.

IEUA Service Area. IEUA develops ten-year wastewater forecasts for its service area in conjunction with its annual capital improvement plan (CIP). As part of its current CIP, IEUA also prepared a fifty-year projection of wastewater flows. These projections indicate wastewater flows will increase from 57,000 acre-ft/yr in 1997 to 112,000 acre-ft/yr in 2020. This represents an increase of 96 percent.

Riverside County Service Area. Wastewater collection for the portion of the study area in Riverside County is provided by several agencies including Jurupa Community Services District and Norco. Other portions are unsewered. Wastewater flows for the Riverside County area are estimated to increase from 10,000 acre-ft/yr in 1997 to 15,000 acre-ft/yr by 2020 based on projected population increases. This includes wastewater generated by unsewered areas. Additional wastewater from outside the study area is expected to be treated at the Western Riverside Regional Water Reclamation Plant. However, no estimates of these additional flows were received.

Treatment and Disposal

Seven agencies are responsible for wastewater treatment and disposal for their respective areas. In Los Angeles County, LACSD is the treatment and disposal agency. In western San Bernardino County, IEUA and the City of Upland perform this role. In the easterly portion of the study area, the City of Rialto provides this service. In Riverside County, several agencies are responsible for wastewater treatment, including the Cities of Riverside and Corona, and JCSD.

There are three basic wastewater service areas within the study area. These areas include:

- LACSD System (Los Angeles County)
- IEUA System (Western San Bernardino County)
- Riverside County

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LACSD System. The LACSD provides regional wastewater collection and treatment for most of Los Angeles County. LACSD is divided into districts that handle wastewater management within their service areas. LACSD No. 21 provides this service for the Claremont, La Verne, and Pomona service areas. Urban and industrial wastewater flows from the Los Angeles County portion of the study area are collected by the cities of Claremont, La Verne, and Pomona. This wastewater is routed to LACSD No. 21 for treatment at LACSD's Pomona WRP and San Jose Creek WRP. With the exception of recycled water used by the City of Pomona from the Pomona WRP, all wastewater reaching the sewer system is exported out of the study area. The Pomona WRP has capacity of 15 MGD and is expected to operate at that level during the planning period.

IEUA System. IEUA has constructed a Regional Sewerage System within its service area to collect, treat and dispose of wastewater delivered by contracting local agencies. The contracting cities and water districts are responsible for wastewater collection within their individual service areas. A system of regional trunk and interceptor sewers that convey sewage to regional wastewater treatment plants is owned and operated by IEUA. IEUA's wastewater collection system is divided into two major service areas: the Northern Service Area and the Southern Service Area.

IEUA currently operates four wastewater treatment plants: Regional Plant No. 1 (RP1), Regional Plant No. 2 (RP2) Regional Plant No. 4 (RP4), and Carbon Canyon Water Reclamation Plant (CCWRP). A fifth regional plant, known as Regional Plant No. 3 (RP3), is no longer in service. One new treatment plant, Regional Plant No. 5 (RP5), is in the planning stages. All of these plants are or will be capable of producing effluent that meets Title 22 requirements for water reclamation. Figure 2-62 illustrates the projected flows and capacity staging of these plants. Each of these plants are described below

Regional Plant No. 1. Although RP1 is designed to treat 44 mgd, the capacity was downrated to 32 mgd in 1992 due to more stringent permit requirements. The plant is being operated at an interim capacity of 41 mgd while plant upgrades are completed. A 1996 Regional Board cease and desist order requires the plant to be restored to its design capacity by 1999. RP1 is expected to operate at near its design capacity and treat wastewater flows from its service area and excess flows from RP4 until 2014. A plant expansion to about 56 mgd is planned to be on-line by 2014 to meet increased flows from its service area.

Regional Plant No. 2. RP2 serves the City of Chino and surrounding areas. A 1994 cease and desist order by the Regional Board requires the plant to be flood protected or relocated. Consequently, the plant will be potentially abandoned and its capacity replaced by a new RP5 by 2001. Solids handling facilities will continue to operate at this site.

Regional Plant No. 4. RP4 is a 7-mgd wastewater treatment facility that recently began operation. The plant will be expanded to 14 mgd by 2008 and 21 mgd by 2021. Population growth and corresponding wastewater production in the northeastern region of the District, including portions of City of Fontana and Cucamonga County Water District will determine the rate of expansion.

Carbon Canyon Water Reclamation Plant. Carbon Canyon Water Reclamation Plant (CCWRP) became operational in May 1992. CCWRP is designed to produce recycled water that can be used for non-potable purposes including industrial and irrigation uses in the western region of the Chino Basin. The initial design capacity of 10.2 mgd is planned for increase to 15.3 mgd in the year 2014. Sludge generated at the CCWRP is treated at the RP2 sludge processing facilities and will be for the foreseeable future.

Regional Plant No. 5. Growth in the southern portion of the IEUA service area will require additional treatment capacity. IEUA plans to construct a new RP5 by 2001. The initial phase of this plant will be 12 mgd of which 5 mgd will replace capacity at RP2. The new RP5 is expected to serve the San

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Bernardino Agricultural Preserve area as well as treating 3.6 mgd from southern Ontario. A second phase expansion to 18 mgd is projected to be completed by 2008 with a third phase expansion by 2021.

Western Riverside County Regional Wastewater Treatment System. The Western Riverside County Regional Wastewater Authority, a Joint Powers Authority, has constructed a regional wastewater treatment facility to serve portions of Jurupa CSD, Norco, Home Gardens Sanitary District and Western MWD. This facility is located in Western Riverside County near the intersection of McCarty Road and Hellman Avenue. This facility has an initial treatment capacity of 8.5 mgd. The treatment plant will be expanded to an ultimate capacity of 13.3 mgd. The facility provides tertiary filtration and nitrogen removal to meet projected discharge requirements. Effluent from this plant will be discharged to the Santa Ana River. Projections of flows to this plant are not available as of the date of this report.

SUMMARY OF GROUNDWATER LEVEL, STORAGE, PRODUCTION AND WATER QUALITY PROBLEMS

Groundwater Level Problems

Overall, groundwater levels have declined between 50 to 200 feet in the Chino Basin since the turn of the century. The western side of the Basin, notably Management Zones 1a and 1b, has experienced the greatest decline in groundwater levels. The City of Chino and CIM have recently experienced ground-surface fissures that are thought to be related to increased groundwater production in the vicinity of the City of Chino. Groundwater producers that affect groundwater levels in this area include the cities of Chino, Chino Hills, Ontario, Pomona, the Monte Vista Water District, CIM, and agricultural producers. The City of Chino Hills has reported loss of production at one well due to recently declining groundwater levels. The management steps to eliminate groundwater-level problems in this area are described below.

Ground Level Survey. Conduct a ground-level survey of the area in Management Zone 1. This would include a review of past surveys and new surveys. The survey results would be compared to historical surveys to determine the location, rate, and magnitude of subsidence in the Basin. Periodic surveys should be conducted afterwards to monitor for further subsidence.

Monitoring. Develop and implement a groundwater-level and quality monitoring program that can be used to observed groundwater trends. This program should be developed and implemented before a groundwater recharge/production management plan is developed for Management Zone 1 in order to define local groundwater flow systems for better management of recharge and production.

Balance Groundwater Production and Recharge. Balance groundwater production with recharge in Management Zone 1, or, if necessary, balance production and recharge more locally within Management Zone 1. This may require temporarily reducing production below the level at which balance occurs to bring groundwater levels up to a safe level. A *safe* level needs to be determined. Recharge of local or native and imported water should be increased as much as practical. Given that recharge in the area is maximized, production may still have to be reduced in Management Zone 1 and replaced with either production from Management Zone 2 or some other source of water.

Groundwater Storage

The Chino Basin has immense storage capacity. Since the Judgment was implemented, total groundwater storage appears to have stabilized. However, as noted earlier, the storage in the Basin has declined by about 1,000,000 acre-ft since 1933. Therefore, there is at least 1,000,000 acre-ft of unused storage capacity available in the Basin. Increasing storage has some costs. There will be losses to the Santa Ana River due to rising groundwater. The analysis previously presented suggests that the losses from local

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and cyclic storage accounts due to rising groundwater during the period 1978 to 1997 could be as high as 50,000 acre-ft (or 18 percent of the volume that Watermaster assumes is in storage). Ignoring these losses will result in overdraft of the Chino Basin. A significant increase in groundwater storage, say on the order of 100,000s of acre-ft, may induce large groundwater losses to the Santa Ana River. In addition, a storage increase of this magnitude may have groundwater quality impacts due to flushing of contaminants within the vadose zone. The volume of safe storage from a water quality perspective is unknown. The management steps to mitigate the significant issues with groundwater storage are described below:

Develop Storage Accounting System that Includes Losses. Presently, Watermaster keeps track of transfers to and from local and cyclic storage accounts without accounting for groundwater losses. Watermaster should adopt a loss-estimating procedure and adjust the volume in storage accounts each year.

Water Quality Impacts from Conjunctive Use Programs. Mitigation measures need to be developed to protect producers in the event that large conjunctive-use programs cause unacceptable water quality impacts.

Groundwater Production

The primary issues for groundwater production are localized overdraft in Management Zone 1, and the potential changes in safe yield that can occur with changes in the location and magnitude of pumping. The location and amount of groundwater production generally appears to be balanced in the Basin except for Management Zone 1. Groundwater levels need to be increased in Management Zone 1 to minimize future subsidence and ground fissures, maintain production at a sustainable level, and improve groundwater quality. The management steps for this issue are identical to those for *Groundwater Levels*.

Groundwater production in the southern half of the Basin will need to be managed to ensure that safe yield is not reduced as agricultural areas convert to urban uses. Losses in safe yield due to decreases in agricultural production in the southern part of the Basin are distributed among the appropriators based on their initial share of safe yield. Thus, the loss in yield is translated throughout the Basin. Increasing production near the Santa Ana River could enhance exiting safe yield. The management steps for addressing this issue are listed below.

Optimization Studies. Conduct studies to optimize groundwater production patterns in southern Chino Basin. These studies will involve geologic investigations and modeling of southern Chino Basin.

Southern Basin Water Supply Plan. Develop a groundwater production and treatment plan that matches the emerging water demands of development in the southern Chino Basin with facilities necessary to provide water of appropriate quality.

Water Quality

The TDS and nitrate problems in the Basin are the most costly ones to deal with and are primarily non-point source related. By contrast, point-source dischargers of organic solvents and other contaminants are dealing with most of their related groundwater plumes. The cost of TDS and nitrate removal is estimated to be about \$700 per acre-ft. The cost to remove solvents is generally under \$100 per acre-ft. [Figure 2-59](#) shows the locations of known point sources and areas with impaired water quality in the Chino Basin.

The source of the TDS and nitrate contamination in the northern part of the Basin has mostly disappeared. The primary sources of TDS and nitrate contamination in the southern part of the Basin are dairies and they will probably remain active for the next 20 years. TDS and nitrate degradation should continue in

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the southern basin for the foreseeable future and the cost to treat contaminated groundwater will escalate over current costs due to past and continued animal waste disposal practices. The steps to manage groundwater quality problems in the Basin are described below.

Point-Source Management. Watermaster should work with the Regional Board, Department of Toxic Substances Control and other regulatory agencies to identify point-source discharge related problems, facilitate their solution, and where necessary, use its institutional influence to obtain prompt and satisfactory mitigation. In some cases, the solution to a point-source problem and a non-point source problem can be addressed through one coordinated capture and treat project with reduced cost to all parties.

Non-point Source Management. The groundwater contaminated from non-point sources in the northern and southern parts of the Basin will need to be treated through dilution, demineralization or some other process, so that the water can be put to beneficial use. This is absolutely necessary in the southern Chino Basin to maintain safe yield. The *Optimization Studies* and *Southern Basin Water Supply Plan* steps listed under *Groundwater Production* apply here as well. The export of dairy waste from the Basin should be maximized.

Safe Yield

All the problems listed above need to be addressed to maintain safe yield. In addition to those steps, maximizing the capture and recharge of storm water and reclaimed water could increase safe yield. The SBCFCD, Riverside County Flood Control and Water Conservation District (RCFCWCD), and the USACE have developed and continue to develop new flood control projects that efficiently convey flood waters out of the Chino Basin and reduce recharge. This has a negative impact on safe yield. Watermaster needs to participate in these flood control projects to maximize recharge. Watermaster and the Chino Basin Water Conservation District initiated a multiphase recharge master plan study and completed Phase 1 in May 1998. Phases 2 and 3 need to be completed.

SECTION 3 GOALS OF THE OBMP

This section presents the mission statement for the OBMP, the issues, needs and interests that were articulated by the stakeholders, and the goals of the OBMP. Each of these items was developed as part of the institutional process. These items were discussed in numerous public meetings and their final form is based on the consensus of those stakeholders that participated in the process.

MISSION STATEMENT

The stakeholders have met twice per month since the February 19, 1998 ruling by Judge Gunn, to develop the OBMP. As part of this process, the stakeholders defined a new paradigm from which they view their stewardship responsibilities, current and anticipated problems in the Basin, and the solution approaches to those problems. This new paradigm is described in the following mission statement and core values developed by the stakeholders:

The purpose of the Optimum Basin Management Program is to develop a groundwater management program that enhances the safe yield and the water quality of the Basin, enabling all groundwater users to produce water from the Basin in a cost-effective manner.

The stakeholders have adopted the following core values associated with the mission statement.

Water Quality. All producers desire to produce water of a quality that is safe and suitable for the intended beneficial use.

Long View. All producers desire a long term, stable planning environment to develop local water resources management projects. The producers, independently and through Watermaster, will strive to take the long view in their planning assumptions and decisions to ensure a stable and robust management program.

Increased Local Supplies. All producers will, for an undetermined time into the future, be dependent on high quality imported water for direct uses and for groundwater replenishment. Because high quality imported supplies may not be available, the producers will strive to minimize their dependency on imported water and to increase their dependency on local supplies when economically justified.

Groundwater Storage. Unused groundwater storage capacity in the Chino Basin is a precious natural resource. The producers will manage the unused storage capacity to maximize the water quality and reliability and minimize the cost of water supply for all producers. The program will encourage the development of regional conjunctive use programs.

Storm Water Recharge. The producers will strive to increase storm water recharge and thereby maintain and enhance the safe yield and water quality.

Reclaimed Water Recharge. The safe yield of the Chino Basin will be enhanced through the recharge of reclaimed water. The producers will strive to maximize the recharge of reclaimed water to enhance the safe yield and water quality.

Cost of Groundwater Supplies. The producers are committed to finding ways to subsidize the cost of using poor quality groundwater in a cost-effective and efficient manner.

SECTION 3 GOALS OF THE OBMP

MANAGEMENT ISSUES, NEEDS, AND INTERESTS

As part of the OBMP scoping process, issues, needs and interest were solicited from the stakeholders in the Basin. These issues, needs and interests have been summarized in a tabular form in Tables 3-1 through 3-7, where each table refers to a class of issues, needs and interests that include:

- safe yield
- native and imported water recharge
- quality and quantity
- reclaimed water
- conjunctive-use storage
- costs
- human resources and administration

Attribution for the source of each issue, need, and interest is listed in these tables. In some cases, a specific issue, need and interest may show up in more than one class. These needs and interests were discussed at several scoping meetings and were used to focus problem identification, OBMP goals, and the resulting OBMP scope of work.

MANAGEMENT GOALS OF THE OBMP

In June 1998, the stakeholders began the process of developing management goals for the OBMP that address the issues, needs, and interests of the producers. The process involved the proposal of an initial set of goals followed by discussion and group editing at the bi-monthly meetings. The initial set of goals of the OBMP is listed below.

Goal No. 1 – Enhance Basin Water Supplies. This goal applies not only to local groundwater, but also to all sources of water available for the enhancement of the Chino Groundwater Basin. The following activities enhance basin water supplies:

- *Enhance recharge of storm water runoff.* Increasing the recharge of storm water in the Basin will increase the water supplies in the Chino Basin. The relatively low TDS and nitrate concentrations of storm flow will improve groundwater quality.
- *Increase the recharge of recycled water.* The recharge of recycled water above that required for replenishment obligations can be used for safe yield augmentation and/or conjunctive use.
- *Develop new sources of supplemental water.* New sources of supplemental water, including surface and groundwater from other basins, can be used to meet Chino Basin area demands, reduce dependency on Metropolitan supplies, and improve drought reliability.
- *Promote the direct use of recycled water.* Promoting the direct use of recycled water for non-potable uses will make more native groundwater available for higher-priority beneficial uses.
- *Promote the treatment and use of contaminated groundwater.* Groundwater in some parts of the Basin is not produced because of groundwater contamination problems and thus the yield of the Basin may be reduced. The yield of the Basin can be maintained and enhanced by the production and treatment of these contaminated waters.

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- *Reduce groundwater outflow.* Increasing groundwater production near the Santa Ana River will increase the streambed percolation of the Santa Ana River into the groundwater basin, and reduce groundwater outflow from the Basin and thereby increase the supply of groundwater in the Basin.
- *Re-determine safe yield.* Recent studies suggest that the safe yield may be greater than the 140,000 acre-ft as stated in the Judgment. The activities listed above will cause the yield to increase further. Continuing to operate the Basin at 140,000 acre-ft/yr will cause groundwater in the Basin to be lost to the Santa Ana River. The safe yield will be re-determined on an as needed basis to maximize the current yield and to cause future increases in yield

Goal No. 2 – Protect and Enhance Water Quality. This goal will be accomplished by implementing activities that capture and dispose of contaminated groundwater, treat contaminated groundwater for direct high-priority beneficial uses, and encourage better management of waste discharges that impact groundwater. The following activities will protect and enhance water quality:

- *Treat contaminated groundwater to meet beneficial uses.* Groundwater in some parts of the basins is not produced because of groundwater contamination problems. Groundwater quality can be protected by intercepting contaminants before they spread. Intercepted groundwater could be treated and used directly for high priority beneficial uses or injected back to the aquifer.
- *Monitor and manage the Basin to reduce contaminants and to improve water quality.* Actively assisting and coordinating with the Regional Board, the EPA, and other regulatory agencies in water quality management activities would help improve water quality in the Basin.
- *Manage salt accumulation through dilution or blending, and the export of salt.*
- *Address problems posed by specific contaminants.*

Goal No. 3 – Enhance Management of the Basin. This goal will be accomplished by implementing activities that will lead to optimal management of the Chino Basin. The following activities will protect and enhance management of the Basin:

- *Develop policies and procedures that will encourage stable, creative and fair water resources management in the Basin.*
- *Optimize the use of local groundwater storage.* Policies and procedures for local storage, cyclic storage and other types of storage accounts will be created to maximize drought protection and improve water quality, and to create an efficient system to transfer water from producers with surplus water to producers that need water.
- *Develop and/or encourage production patterns, well fields, treatment and water transmission facilities and alternative water supply sources to ensure maximum and equitable availability of groundwater and to minimize land subsidence.*
- *Develop conjunctive-use programs with others to optimize the use of the Chino Basin for in-basin producers and the people of California.*

Goal No. 4 – Equitably Finance the OBMP. This goal is based on the following principles:

- *The primary source of revenue to finance the implementation will be the consumers of the Chino Basin groundwater.*

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- *The consumers in the Chino Basin must be treated equitably by passing the cost of the OBMP on a per acre-foot basis or by other methods, based on formulas to be determined.*
- *Financial incentives and disincentives will be established to assure that existing groundwater is pumped out of the Basin and a higher quality of water is used to replenish the Basin.*
- *Opportunities for creativity will be provided to the producers so that they are motivated to use their assets and abilities in the implementation of the OBMP.*
- *Recover value from utilization of storage of supplemental water and from rising water outflow.*

The Special Referee and her engineer reviewed these goals and provided direction to the stakeholders. In particular, the Special Referee suggested that the goals and action items were too vague. The goals and action items were refined and produced in a tabular format. The goals setting process concluded on November 26, 1998. The final set of goals is listed in [Table 3-8](#). Table 3-8 lists each goal, the impediments to each goal, action items to surmount each impediment and achieve the goal, and the implication of the individual action items. The stakeholders were asked to review the final set of goals and action items listed in Table 3-8 to make sure that their individual issues, needs, and interests were addressed by the management goals. The stakeholders concluded that the set of goals listed in Table 3-8 addressed their needs and interests.

SECTION 4

MANAGEMENT PLAN

INTRODUCTION

The Optimum Basin Management Program (OBMP) goals, impediments to the goals, action items to remove the impediments, and implications of the action items are summarized in [Table 3-8](#). This section of the OBMP report describes the actions that, when implemented, will achieve the goals of the OBMP. Table 3-8 includes a column that cross-references the action items listed for each goal with OBMP program elements. The program elements described herein include:

- Program Element 1 – Develop and Implement Comprehensive Monitoring Program
- Program Element 2 – Develop and Implement Comprehensive Recharge Program
- Program Element 3 – Develop and Implement Water Supply Plan for the Impaired Areas of the Basin
- Program Element 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1
- Program Element 5 – Develop and Implement Regional Supplemental Water Program
- Program Element 6 – Develop and Implement Cooperative Programs with the Regional Water Quality Control Board, Santa Ana Region (Regional Board) and Other Agencies to Improve Basin Management
- Program Element 7 – Develop and Implement Salt Management Program
- Program Element 8 – Develop and Implement Groundwater Storage Management Program
- Program Element 9 – Develop and Implement Conjunctive-Use Programs

The scope of the program elements was developed by the Chino Basin stakeholders. Each program element contains a series of comprehensive actions and plans to implement those actions. It is anticipated that a specific implementation program will be the result of Phase II of the OBMP development process. It will include the specific details of how the plan will be implemented and funded, and by whom. Implementation of all program elements is necessary to achieve the goals of the OBMP. Because of overlap and synergies, some of the program elements were combined as they were developed. The following program elements were combined: 3/5, 6/7, and 8/9. The program elements are summarized in this section. Task Memorandums were prepared for each program element during development of the OBMP Phase I Report and are available from the Watermaster offices. They describe each program element in detail and generally include:

- need and function
- description of program element actions
- cost
- implementation entities
- implementation schedule for the short-term (first three years), mid-term (4th through 10th years) and-long term (11th through 50th years)

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The emphasis in this section is on a description of OBMP actions, schedule and cost. The program element descriptions provide Watermaster and the Court with a means of comparing actions taken in OBMP implementation with progress in achieving the goals of the OBMP.

PROGRAM ELEMENT 1 – DEVELOP AND IMPLEMENT COMPREHENSIVE MONITORING PROGRAM

Need and Function

Program Element 1 – Develop and Implement a Comprehensive Monitoring Program contains monitoring activities that are action items explicitly listed in [Table 3-8](#) and provides information required by other program elements of the OBMP.

The first impediment to *Goal 1 – Enhance Basin Water Supplies* can be stated as: “Unless certain actions are taken, safe yield of the Basin will be reduced ... due to groundwater outflow from the southern part of the Basin.” This impediment speaks to the reduction in groundwater production in the southern part of the Basin as agricultural land is converted to urban uses, and to increase outflow as groundwater storage is increased due to other management activities. The amount of safe yield lost due to these activities needs to be computed and used in the administration of the Judgment – otherwise the Basin will be overdrafted. The re-determination of safe yield and estimation of losses from groundwater storage programs require comprehensive water level mapping across the Basin, analysis of water level time histories at wells, and accurate estimations of groundwater production. The current groundwater level monitoring is not adequate. The primary problems with the current groundwater level monitoring program include poor areal distribution of wells in the monitoring program, short time histories, questionable data quality, and insufficient resources to develop and conduct a comprehensive program. Groundwater production estimates from the agricultural pool rely on water duty methods for most of the producers and some producers do not provide the Chino Basin Watermaster (Watermaster) with information upon which production estimates can be made. Rigorous groundwater level and production monitoring programs are described below.

The first impediment to *Goal 2 – Protect and Enhance Water Quality* can be stated as: “Watermaster lacks comprehensive, long-term information on groundwater quality.” The primary uses of water quality information include, but are not limited to:

- locate and characterize water quality challenges in the Basin and formulate corrective management plans;
- provide an understanding of how the Basin works;
- determine whether water quality produced by a well is suitable for the desired use (e.g., potable quality for potable use); and
- design treatment systems to improve water quality to a level to meet a desired use.

Currently, Watermaster obtains water quality data from all the appropriators for their active wells and from the Regional Board for wells monitored under their supervision (e.g., landfill monitoring and other special water quality investigations). Watermaster has a limited groundwater quality monitoring program in the southern part of the Basin measuring general minerals and physical properties at about 60 wells. There is little historical or current water quality information for most of the 600 agricultural wells in the southern half of the Basin, for wells in the overlying non-agricultural pool, and for inactive appropriative pool wells. The water quality being produced at a majority of the wells in the Basin is unknown.

A salt budget approach has been proposed as a management tool for the Basin. The salt management steps included in *Program Element 7 Develop and Implement Salt Management Program* will be used by

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the Watermaster and other stakeholders to reduce the rate of salt accumulation in the Basin. Groundwater quality monitoring will be used to help assess the state of salt in the Basin in the future after the salt management plans are implemented. The direction and cost of future water management activities in the Basin depends on the water quality. A comprehensive groundwater quality monitoring program is fundamental to management of the Basin. A rigorous groundwater quality monitoring program is described below.

The fifth impediment to *Goal 2 – Protect and Enhance Water Quality* can be stated as: “The Basin is not using as much high quality storm water as it could for recharge.” The first step in determining how much storm water recharge is occurring is to monitor the volume of inflow and outflow that is occurring at existing facilities, the amount of storm water that is available for recharge in the absence of recharge facilities, and to estimate the associated water quality. Characterizing the water quality of local and imported waters used for recharge in the Basin is necessary to protect water quality for beneficial uses, assess salt balance, design treatment processes to produce water of a quality suitable for intended uses, and to minimize the cost of recycled water recharge. Engineering investigations can utilize these data to design new facilities, and modify/operate existing facilities.

Storage of water in the Basin for local or regional conjunctive use may cause outflow to the Santa Ana River and some of its tributaries in the Chino Basin to increase. The water quality of this outflow may cause water quality deterioration in the Santa Ana River and require mitigation. Watermaster needs to develop a long-term database to assess losses from storage, and surface water impacts in the Santa Ana River and its Chino Basin tributaries from groundwater management activities.

The second impediment to *Goal 3 – Enhance Management of the Basin* can be stated as: “Existing production patterns are not balanced, cause losses, can contribute to local subsidence, and water quality problems.” The impediment speaks to a lack of local balance between groundwater recharge and production. The lack of information on how groundwater moves in the Basin can lead to production and replenishment patterns that cause loss of yield and other problems as stated in the impediment. Groundwater level, groundwater quality, and accurate production estimates are necessary to define the groundwater flow systems and to implement equitable and cost-effective management plans.

Monitoring Programs to Support Water Resources Management in the Chino Basin

Groundwater Level Monitoring Program. Watermaster began a process to develop a comprehensive groundwater level monitoring program in the spring of 1998. The process consists of two parts – an initial survey followed by long-term monitoring at a set of key wells. The initial survey was to consist of collecting groundwater level data at all wells in the Basin from which groundwater level measurements can be obtained for spring 1998, fall 1998, spring 1999, and fall 1999. Due to resource limitations at the Watermaster, the initial survey is partially complete and will not be completed until after fall 2001. The data from the initial survey will be mapped and reviewed. Based on this review and Watermaster management needs, a long-term monitoring program will be developed and implemented in the fall of 2001. Watermaster staff will conduct this program with minimal outside assistance. Watermaster staff expects that they will measure groundwater levels in the initial survey at about 400 wells in overlying agricultural pool and about 100 other wells from the other pools and unassigned monitoring wells. The long-term monitoring program will use about half of the wells used in the initial survey plus all wells in the other pools and unassigned wells monitored under the direction of the Regional Board and others. Keys well located in agricultural areas will be replaced as necessary if the original well must be destroyed when the agricultural land surrounding the well is converted to other use.

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Groundwater Quality Monitoring Program. Watermaster will begin the development of a comprehensive water quality monitoring program in July 1999. As with the groundwater level monitoring program, the water quality monitoring program will consist of an initial survey and a long-term monitoring effort. The initial survey will consist of:

- collection of all water quality data from appropriators' wells that are tested by appropriators;
- collection of all water quality data from Regional Board for water quality monitoring efforts that are conducted under their supervision; and
- collection and analysis of at least one water quality sample at all (or a representative set of) other production wells in the Basin. Assumed maximum number of wells sampled by Watermaster staff in the initial survey is 600.

Re-sampling and analysis will be done at wells sampled by Watermaster if volatile organic compounds (VOCs) are detected. These data will be mapped and reviewed. Based on this review and Watermaster management goals in the OBMP, a long-term monitoring program will be developed and implemented in the fall of 2002. The long-term monitoring program will contain a minimum set of key wells that can be periodically monitored to assess water quality conditions in the Basin over time. [Table 4-1](#) lists the analytes and the analytical costs for sampling 200 wells per year for three years (plus an estimated 10 more wells for verification re-sampling). The average annual analytical cost is about \$185,000 per year and totals about \$555,000 if all wells were sampled. Watermaster staff will be trained to obtain samples at these wells and will require a total of about 140 person-days per year. Outside services will cost about \$60,000 per year. Water quality data for all operable wells in the other pools will be provided by the well owners in those pools.

Production Monitoring Program. All wells that produce more than 10 acre-ft/yr will have in-line totalizing flow meters. To accomplish this, about 600 agricultural wells will be equipped with in-line totalizing flow meters. Production records from wells owned by appropriators and overlying non-agricultural pool members will report quarterly as has been done in the past. Watermaster staff will read the meters of wells owned by agricultural pool members at least once a year during the period of mid-May through June. Watermaster staff will digitize all production records in Watermaster's database and use this information in the administration of the Judgment. The cost of the installing in-line flow meters in the overlying agricultural pool is summarized in [Table 4-2](#) and totals about \$810,000. It has been recommended by the overlying agricultural pool that Watermaster fund up to 50 percent of the cost, with the remaining funds coming from the individual producers.

In addition to the above, all producers will provide Watermaster on an annual basis a *water use and disposal survey* form that describes the sources of water used by each producer and how that water is disposed after use. The purpose of the form is to provide information to Watermaster that will enable accurate salt budget estimates as described in *Program Element 6 – Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management*, and for other water resources management investigations that may be undertaken by Watermaster in the future as part of the OBMP.

Surface Water Discharge and Quality Monitoring. The current program of measuring water quality at recharge basins should be expanded to all recharge and retention basins that contribute significant recharge to the Basin. Water level sensors will be installed in all recharge and retention basins that contribute significant recharge to the Chino Basin. These facilities were listed in Table 3 of the *Program Element 2 – Develop and Implement a Comprehensive Recharge Program* draft memorandum and are reproduced here in [Table 4-3](#). A total of 16 new water-level sensors will be required at a total cost of

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\$192,000. Water level data acquisition and water quality sampling will be done by Watermaster staff. The annual cost of laboratory analysis and interpretation of water level and water quality data is about \$45,000.

Watermaster needs to assess the existing surface water discharge and associated water quality monitoring programs for the Santa Ana River and its Chino Basin tributaries to determine the adequacy of the existing monitoring programs for characterizing historical ambient conditions and their utility in detecting water quality impacts from future Chino Basin management activities. If necessary, Watermaster could contract with the agencies conducting these programs to modify their programs to accommodate Watermaster. Ideally, a cooperative program involving all the interested agencies could be developed at a reduced cost for all. The cost of the initial assessment of surface water data for the Santa Ana River is about \$15,000.

Ground Level Monitoring Program. Ground level surveys are proposed herein as an offshoot of the subsidence issues in Management Zone 1. The stakeholders are interested in determining if and how much subsidence has occurred in the Basin. Watermaster will conduct an analysis of historical ground level survey and remote sensing data to make this determination. The analysis consists of the following tasks:

- Historical survey data collected and/or on file by federal, state, and local agencies will be compiled, mapped, and reviewed to estimate total subsidence for as long a period as possible. Estimated cost to complete this review is about \$15,000.
- Synthetic aperture radar (SAR) imagery will be used to assess the time history of subsidence in the Basin for the period 1993 through 1999. Estimated cost to develop this time history is about \$20,000. It should be noted that the City of Chino has already conducted a similar investigation for most of the Basin and that the effort described herein is to expand on the work already done by the City.
- Based on the above information, a network of ground elevation stations in subsidence-prone areas will be developed and periodic surveys of these stations will be done. The frequency of periodic surveys will be established for the Basin as a whole with more frequent surveys done for some areas of the Basin. The estimated cost of this effort is not certain. It should be noted that the City of Chino has already conducted a similar survey within the City of Chino and that the effort described herein is to expand on the surveys done by the City to the entire Basin.

These tasks can be accomplished in the first year.

Well Construction, Abandonment and Destruction Monitoring. Watermaster maintains a database on wells in the Basin and Watermaster staff makes frequent well inspections. Watermaster sometimes finds a new well during routine well inspections. The near-term frequency of inspection is expected to increase due to the groundwater level, quality and production monitoring programs. Watermaster needs to know when new wells are constructed as part of its administration of the Judgment. Valuable information for use in managing the Chino Basin is usually developed when wells are constructed including: well design, lithologic and geophysical logs, groundwater level and quality data, and aquifer stress test data. Producers generally notify Watermaster when they construct a new well but seldom, if ever, provide the information listed above. Watermaster has not generally asked for these data. Well owners must obtain permits from the appropriate county and state agencies to drill a well and to put the well in use. Watermaster will develop cooperative agreements with the counties of Los Angeles, Orange, Riverside, and San Bernardino, and the California Department of Health Services (DHS) to ensure that the

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appropriate entities know that a new well has been constructed. Watermaster staff will obtain well design, lithologic and geophysical logs, groundwater level and quality data, and aquifer stress test data.

The presence of abandoned wells is a threat to groundwater supply and a physical hazard. Watermaster staff will review its database, make appropriate inspections, consult with well owners, and compile a list of abandoned wells in the Chino Basin. The owners of the abandoned wells will be requested to properly destroy their wells following the ordinances developed by the county in which the abandoned well is located. Watermaster staff will update its list of abandoned wells annually and provide this list to the counties for follow-up and enforcement.

Cooperative Efforts with Appropriate Agencies to Implement Program

Groundwater Level Monitoring. Watermaster will develop a groundwater level measurement protocol for use by all cooperating entities. Groundwater levels will be obtained by the following entities:

- Overlying Agricultural Pool – Watermaster staff
- Overlying Non-agricultural Pool – pool member or Watermaster staff
- Appropriative Pool – pool member or Watermaster staff
- Other wells – Watermaster staff will obtain data from Regional Board or owners.

Groundwater Quality Monitoring. Watermaster will develop groundwater sampling and analysis protocols for use by all cooperating entities. Groundwater quality analyses will be obtained by the following entities:

- Overlying Agricultural Pool – Watermaster staff
- Overlying Non-agricultural Pool – pool member
- Appropriative Pool – pool member
- Other wells – Watermaster staff will obtain data from Regional Board or owners.

Proposed Production Monitoring Program. Watermaster will develop and implement an in-line meter installation program for the overlying agricultural pool. The installation program will take place over a three-year period starting in Watermaster fiscal year 1999/00. Groundwater production estimates and water use and disposal survey forms will be obtained by the following entities:

- Overlying Agricultural Pool – Watermaster will read meters and producers will prepare and submit water use and disposal survey forms
- Overlying Non-agricultural Pool – pool member will read the meters and prepare and submit the water use and disposal survey forms
- Appropriative Pool – pool member will read the meters and will prepare and submit the water use and disposal survey forms.

Surface Water Discharge and Water Quality Program. Watermaster will take the lead in completing the following activities:

- Chino Basin Water Conservation District (Conservation District) and Watermaster will jointly install water level sensors in all existing recharge and retention facilities that have potential for storm water recharge.
- Watermaster staff will obtain grab samples approximately every two weeks for all basins during the rainy season and have these samples analyzed.

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- Watermaster will review the surface water discharge and associated water quality monitoring programs for the Santa Ana River and the lower Chino Basin tributaries, and compare what is available from these programs to what is needed for Watermaster investigations under the OBMP.

Ground Level Survey. Watermaster will conduct the analysis to estimate historical subsidence and to monitor future subsidence in the Chino Basin.

Monitoring of Well Construction, Abandonment and Destruction. Watermaster will take the lead in completing the following activities:

- Develop agreements with county and state agencies to notify each other regarding construction of new wells and to obtain construction related information.
- Watermaster staff will prepare a list of abandoned wells and request the owners of abandoned wells to properly destroy their wells.

The counties will follow-up to ensure that abandoned wells within their jurisdiction are properly destroyed.

Implementation Actions and Schedule

First Three Years (1999/00 to 2001/02). The following actions will be completed in the first three years commencing fiscal year 1999/00:

- Complete initial survey for the groundwater level program.
- Complete initial survey for groundwater quality program.
- Complete meter installation program for overlying agricultural pool.
- Complete ground level survey.
- Complete installation of water level sensors in recharge and retention facilities.
- Complete Santa Ana River surface water monitoring adequacy analysis.
- Start and continue surface water discharge and quality monitoring at recharge and retention facilities.
- Develop agreements with county and state agencies regarding notification of new well drilling.
- Well construction and related information will be requested as new wells are identified.
- A list of abandoned wells will be developed annually and the owners will be requested to properly destroy their abandoned wells.

Years Four to Ten (2002/03 to 2010/11). The following actions will be completed in years four through ten, commencing fiscal year 2002/03:

- Start and continue long-term groundwater level monitoring program, cause key wells to be relocated as necessary.
- Start and continue long-term groundwater quality monitoring program, cause key wells to be relocated as necessary.
- Continue production monitoring.

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- Conduct remote sensing analysis using synthetic aperture radar or other techniques at least every ten years (2010/11) or sooner, if necessary.
- Participate, as necessary, in the Santa Ana River surface water monitoring.
- Continue surface water discharge and quality monitoring at recharge and retention facilities.
- Well construction and related information will be requested as new wells are identified.
- A list of abandoned wells will be developed annually and the owners will be requested to properly destroy their abandoned wells.

Years Eleven to Fifty (2011/12 to 2050/51). The following actions will be completed in years eleven to fifty, commencing fiscal year 2011/12:

- Continue long-term groundwater level monitoring program, cause key wells to be relocated as necessary.
- Continue long-term groundwater quality monitoring program, cause key wells to be relocated as necessary.
- Continue production monitoring.
- Conduct remote sensing analysis using synthetic aperture radar or other technique at least every ten years (2020/21, 2030/31, 2040/41, 2050/51) or sooner, if necessary.
- Participate as necessary in the Santa Ana River surface water monitoring.
- Continue surface water discharge and quality monitoring at recharge and retention facilities.
- Well construction related information will be requested as new wells are identified.
- A list of abandoned wells will be developed annually and the owners will be requested to properly destroy their abandoned wells.

PROGRAM ELEMENT 2 -- DEVELOP AND IMPLEMENT COMPREHENSIVE RECHARGE PROGRAM

Need and Function of the Program Element

The need for a comprehensive recharge program was described in the introduction to the Final Report for Phase 1 of the Chino Basin Recharge Master Plan (Wildermuth, 1998). Program Element 2 -- Develop and Implement Comprehensive Recharge Program contains action items explicitly listed in [Table 3-8](#).

The first impediment to Goal 1 – Enhance Basin Water Supplies can be stated as: “Unless certain actions are taken, safe yield of the Basin will be reduced ... due to groundwater outflow from the southern part of the Basin” speaks to poorly planned recharge where recharge of storm water and recycled water could be placed too low in the Basin to be recovered. Some recycled water projects that are currently being planned will increase recharge when groundwater production downgradient of these proposed recharge projects is decreasing. The result will be increased outflow to the Santa Ana River and no yield improvement. A comprehensive program must ensure that the locations of recharge and production are such that yield is maximized.

The second impediment to *Goal 1 – Enhance Basin Water Supplies* and the fifth impediment to *Goal 2 – Protect and Enhance Groundwater Quality* can be stated as: “The Basin is not using as much high quality storm water as it could for recharge.” At the time the Chino Judgment was adopted (1978), about

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41 percent of the safe yield was estimated to come from irrigation returns. Since that time, irrigated agriculture has declined and is projected to be almost completely converted to urban uses by 2020. This will result in a decline of irrigation returns to groundwater and a potential decrease in the safe yield. San Bernardino County, Riverside County, and the US Army Corps of Engineers (USACE) have constructed flood control projects that efficiently capture and convey storm flow to the Santa Ana River, effectively eliminating the groundwater recharge that formerly took place in the stream channels and flood plains in the Chino Basin. In most cases, no provisions were made to mitigate the loss of recharge from flood control projects. Also, there have been no mitigation efforts to preserve recharge when land use is converted from native and agricultural uses to urban uses. Thus, the safe yield may have decreased in the Chino Basin due to land use changes and flood control improvements. Water harvesting opportunities exist that can be used to offset the yield lost to urbanization and flood control improvements. Water harvesting consists of capturing and recharging new storm flow caused by urbanization. Most of the precipitation falling on undeveloped land or land in agricultural uses is lost to evapotranspiration. Storm flow increases dramatically with urbanization due to an increase in impervious land cover, decrease in evapotranspiration of rainfall, and construction of drainage improvements. The potential yield from this additional storm flow is numerically equal to the increase in storm flow that occurs when the land is converted to urban uses. The actual yield is equal to the additional rainfall-storm flow that is captured and put to beneficial use. In the Chino Basin, the best and least expensive way to put this new water to beneficial use is groundwater recharge.

Increasing the yield of the Chino Basin by increased capture of storm flow will improve ambient water quality and increase the assimilative capacity of the Chino Basin. Increasing the capture of storm flow will reduce the cost of mitigation requirements for recharge of recycled water. The Basin Plan assumes that a certain average annual quantity of storm flow will be recharged each year. The volume of recycled water that can be used in the Basin, without total dissolved solids (TDS) mitigation, is numerically-tied to the average annual quantity of storm flow that recharges the Basin. A decrease in the recharge of storm flow will result in a decrease in the volume of recycled water that will be permitted in the Basin without TDS mitigation. Likewise, an increase in the recharge of storm flow will result in an increase in the volume of recycled water that will be permitted in the Basin without TDS mitigation. Therefore, the volume of storm flow recharge from storm flow has a dramatic impact on the future and cost of recycled water recharge.

The annual replenishment obligation will grow from about 30,000 to 55,000 acre-feet per year (acre-ft/yr) over the next 20 to 30 years. Watermaster has access to spreading facilities with a current capacity of about 29,000 acre-ft/yr when imported water from Metropolitan is available. Assuming replenishment water is available seven out of ten years, the average annual recharge capacity of recharge facilities available to Watermaster is about 20,000 acre-ft year. The in-lieu recharge potential for the Chino Basin is about 57,000 acre-ft/yr and will remain constant over the next 20 to 30 years based on the water supply plan included in this OBMP. Assuming in-lieu replenishment water is available seven out of ten years, the average annual in-lieu recharge capacity available to Watermaster is about 40,000 acre-ft year. The replenishment obligation, available recharge capacity over the next 20 years is (acre-ft/yr):

Year	Replenishment Obligation	-----Recharge Capacity-----			Surplus Recharge Capacity
		Physical	In-Lieu	Total	
2000	31,000	20,000	40,000	60,000	29,000
2020	55,000	20,000	40,000	60,000	5,000

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The surplus recharge capacity could be used up quickly by future replenishment needs and implementation of conjunctive-use programs. A modest conjunctive use program consisting of an annually occurring seasonal shift of imported demands and a dry year yield component that would use up 150,000 acre-ft of storage will require about 46,000 acre-ft of recharge capacity. New recharge capacity is needed immediately for even a modest conjunctive-use program. The availability of in-lieu recharge capacity listed above is not a certainty. In the present mode of basin management, in-lieu recharge capacity is available on an ad hoc basis and requires the cooperation of water supply agencies that have access to supplemental water. Watermaster needs to obtain enough recharge capacity to meet its replenishment obligations for ultimate demands on the Chino Basin. The safest and most conservative way to ensure that recharge capacity will be available is for Watermaster to develop new recharge capacity that will meet ultimate replenishment obligations. For an average annual recharge capacity of 55,000 acre-ft/yr, Watermaster will need an annual recharge capacity of about 80,000 acre-ft/yr ($80,000 \sim 55,000 / 0.7$). The new recharge capacity by management zone for the year 2020 is estimated to be about:

Management Zone 1	18,000 acre-ft/yr
Management Zone 2 and 3	<u>34,000 acre-ft/yr</u>
Total	52,000 acre-ft/yr

The allocation of recharge capacity to management zones is based on balancing recharge and production in each management zone with the year 2020 production pattern described in Program Elements 3 and 5. [Figure 4-1](#) shows the existing spreading and storm water retention basins in the Chino Basin. [Figure 4-1](#) also shows the preferred area, based on current knowledge, for new recharge basins in Management Zone 2 and 3. The preferred recharge area is rapidly developing. It is unlikely that Watermaster will be able to purchase lands already in urban use and construct new basins. Therefore, Watermaster needs to obtain new recharge sites in the preferred area immediately. Recharge capacity in Management Zone 1 can be obtained by expanding recharge capacity at the Montclair Basins, improving the Upland and Brooks Basins, and through groundwater injection. During Phase II of the OBMP, Watermaster will develop an implementation plan to secure a total physical recharge capacity of about 80,000 acre-ft/yr with recharge facilities sized and located that will balance the production and recharge.

Past Efforts by Watermaster and the Conservation District

The Conservation District and the Watermaster completed phase 1 of a three-phase work plan to improve recharge and establish a long-range recharge master plan for the Chino Basin. The three phases consist of:

Phase 1 - Initial Screening and Assessment. Conduct an assessment of how much storm flow is currently recharged and how much additional recharge could occur at new and existing spreading basin sites. From this assessment a list of promising spreading basins will be developed. Research questions will be developed for the promising sites and a detailed scope of work will be developed for Phase 2. Phase 1 was completed in January 1998 and is summarized below.

Phase 2 - Engineering Assessments of Promising Sites. Site-specific investigations, percolation rate monitoring and the preparation of cost estimates for developing and managing these basins will be developed in this phase. The institutional issues regarding ownership of facilities, management of non-Conservation District-owned facilities, disposition of water recharged, and Basin Plan modifications will be identified.

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Principles of agreement will be developed that describe the institutional issues and means to resolve these issues through agreements. A list of recharge projects will be identified and prioritized based on need and cost effectiveness. A detailed scope of work will be developed for Phase 3.

Phase 3 - Develop an Implementation Plan. A plan to develop and manage spreading basins will be prepared. The plan will include existing and new basins and a schedule for spreading basin improvements based on developing recharge capacity to match need for increased groundwater yield at minimum cost.

The Phase 1 effort was completed in January 1998. The objective of the Phase 1 analysis of the Recharge Master Plan was to determine the potential for artificial recharge given the resources in the Chino Basin. This was accomplished through data collection, research, and a massive computational and engineering assessment. Existing storm water recharge in the Chino Basin was estimated to be about 12,000 acre-ft/yr. This 12,000 acre-ft is part of the existing safe yield. The potential storm water recharge was estimated to range from about 25,000 to 30,000 acre-ft/yr given proper routine maintenance at existing and then-current planned facilities. Subsequent investigations by the Conservation District suggest that the potential recharge is lower. Incorporating the Conservation District's recent work, the potential range is probably around 12,000 to 22,000 acre-ft/yr. Table 4-4 lists the existing flood control/spreading basins and annual average recharge estimates based on updated Phase 1 modeling results. Most basins are not maintained to optimize recharge and there is little quantitative information on basin conditions or current recharge performance. Recharge of storm flows at existing basins could reach about 28,000 acre-ft/yr under ultimate land use conditions. The investigation also showed that it was economical to construct recharge facilities in areas with low percolation rates (<0.25 ft/day) if the facilities were part of a flood retention project. The potential recharge capacity and cost for recharge of imported and recycled water were developed. Operational plans that specify the amount and scheduling of imported water and recycled water recharge were developed. About 17,000 acre-ft/yr of recycled water recharge capacity was developed. The potential for imported water recharge ranges from about 100,000 acre-ft/yr to 135,000 acre-ft/yr at existing basins and one new large facility. Based on the work done for Program Elements 3 and 5 of the OBMP, the imported water recharge capacity needs to be expanded from its current capacity of 29,000 acre-ft/yr to about 80,000 acre-ft/yr to accommodate Watermaster replenishment activities.

Phase 2 Scope of Work for Hydrogeologic and Engineering Investigations

The Phase 2 work, as recommended in the Phase 1 report, was not formally started. Phase 2 consists of eight tasks.

Task 1 Conduct Reconnaissance Analysis to Identify Existing Recharge Basins and Potential New Recharge Sites. The purpose of this task is to develop a list of existing basins that can be used to recharge storm water, recycled water and imported water; and to identify areas for new recharge facilities. Based on the results of this task, some existing basins and new sites with potential for recharge by spreading and injection will be studied in detail in subsequent tasks and others with little potential recharge will either be studied later or not considered as recharge sites. This task consists of the following subtasks:

- 1.1 Meeting(s) with San Bernardino County Flood Control District (SBCFCD), Riverside County Flood Control and Water Conservation District (RCFCWCD), Los Angeles County Public Works Department (LACPWD) (collectively, the flood control agencies), the USACE, the Conservation District and the Watermaster. The purpose of these meetings is to discuss the use of existing flood control/recharge basins, recharge potential of these basins, past

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- investigations, future flood control plans that could include recharge, and institutional impediments to storm water recharge.
- 1.2 Meetings with planning agencies and the flood control agencies to inform these agencies of the need to set aside open space for recharge and to locate suitable areas for future recharge sites; to seek their cooperation in obtaining such lands, and to develop incentive programs to set aside land for recharge. A permanent basin-wide water conservation planning committee chaired by the Watermaster will be formed to facilitate the process of building and maintaining recharge facilities.
 - 1.3 Develop a financing concept to provide capital for the improvement of existing facilities, construction of new facilities, operations and maintenance, and to mitigate adverse impacts of new spreading basins.
 - 1.4 Review new hydrogeologic and facilities information that became available after completion of the Phase 1 analysis.
 - 1.5 Evaluate Phase 1 computer simulation results to determine the location and magnitude of storm flow that is not being captured at existing facilities and that could be captured and recharged in either new facilities or from improved operations at existing facilities.
 - 1.6 Develop a list of existing and proposed recharge facilities that merit detailed investigation. The priority list should be based on management issues (*e.g.*, subsidence and water quality), cost effectiveness, and for existing facilities, the availability of the facilities for recharge.
 - 1.7 Conduct reconnaissance level feasibility investigation of using injection wells for recharge in Management Zone 1. The purpose of this recharge will be to increase the piezometric levels, reduce future subsidence, and improve water quality.

Task 2 Preliminary Assessment of the Capture of New Recharge. The objective of this task is to estimate the fate of artificial recharge. That is, to estimate the recharge benefits, areas of potential high groundwater, and losses to the Santa Ana River. The scenarios to be tested include recharge scenarios developed in the Phase 1 analysis (modified based on the results of Conservation District investigations and the results of Task 1). The *Rapid Assessment Model (RAM) Tool*, currently under development by the Watermaster, or *Chino Integrated Groundwater Surface Water Model (CIGSM)* are two models that could be used to make this assessment. It is not likely that the CIGSM would be used due to the time and expense to make it ready for use (see Program Elements 6 and 7 later in this section).

Task 3 Conduct Field Program. The purpose of this task is to develop fundamental information that can be used to assess the recharge potential of some existing and proposed basins, and to develop design information for new basins. The field program recommended for Phase 2 includes:

- obtaining and interpreting continuous cores for the upper 50 feet of sediment in existing facilities and the upper 100 feet of sediments from areas adjacent to existing and proposed basins;
- trenching to observe and interpret the near surface soil profiles;
- gradation tests of materials obtained from the trenches; and

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- the installation of water level sensors identical to what Conservation District has installed in some of their basins.

Water level data will be collected at basins that are equipped with water level sensors. These data will be interpreted to produce percolation rates at each basin. The percolation rates will be correlated to soil properties and subsurface conditions to determine what is controlling recharge at a specific facility and to develop general design guidelines for the Chino Basin area. The field program is summarized in Table 4-5 covers 16 existing basins and up to three new surface water recharge facilities. Table 4-5 includes a cost estimate for this field program. Field programs for injection tests in Management Zone 1 will be developed in the work done in Program Element 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1.

Task 4 Develop Principles of Agreement. This task involves developing principles of agreement between SBCFCD, RCFCWCD, USACE, the Conservation District, and the Watermaster regarding the operation of existing and proposed storm flow management facilities. The goals of the principles are to maintain flood protection and maximize recharge. This work will involve the preparation of draft principles and many meetings. New technical information will need to be developed on an *ad hoc* basis in response to technical issues that will be involved in the principles. A set of principles will be developed with the Regional Board regarding TDS and nitrogen offset credits for recharge of recycled water.

Task 5 Develop Preliminary Operating Plans and Designs. Preliminary operating plans and facility improvements will be developed for all (new and proposed) recharge basins in the Chino Basin based on the results of Tasks 1 through 4. Preliminary capital and operating cost estimates will be developed.

Task 6 Estimate the Average Annual Recharge for Each Basin. Given the results of Tasks 1 through 5, the input data for the computer simulation models used in Phase 1 will be updated. The simulation models will be used to estimate the average annual recharge in each recharge basin. Estimates of imported water and recycled water recharge capacity will be updated. The priority list developed in Task 1 will be updated based on the results of this task.

Task 7 Develop Early Action Plan and Scope of Work for Phase 3. Given the results of Tasks 1 through 6, an early action plan and scope of work for Phase 3 will be developed. The early action plan, will include a list of high priority recharge projects that can be implemented with minimal additional analyses, and a list of lower priority projects that will require longer lead times to implement. These projects may include operating existing facilities to increase recharge, other non-controversial modifications to existing facilities, and construction of new recharge facilities. The scope of work will contain engineering design, environmental assessment and processing, and financing tasks. The scope of work will contain parallel tracks for the early action plan and the lower priority projects.

Task 8 Prepare Report. Technical memoranda will be prepared for Tasks 1 through 7. A final summary report will be prepared incorporating the task memoranda and a scope of work for Phase 3.

Cooperative Efforts with Appropriate Agencies to Implement Program

There are two fundamental levels of implementation appropriate for the comprehensive recharge program: one to develop the program, and one to construct, manage and operate the program. For development of the program, the implementing agencies include:

- the Watermaster, representing the producers who will benefit from the recharge and who will pay the cost of the plan development and implementation;

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- the Conservation District, the flood control agencies, and the USACE who own the existing facilities and who (for the flood control agencies) will benefit from reduced flood control costs and improved storm water quality in the Santa Ana River and its tributaries;
- the planning agencies whose cooperation will be necessary to site new recharge facilities within their service areas; Inland Empire Utilities Agency (IEUA), Three Valleys Municipal Water District (TVMWD), and Western Municipal Water District (WMWD) as the provider of imported and recycled water for recharge; and producers that will utilize their own facilities for groundwater injection.

Watermaster will develop the recharge program for the Basin in the first four years of OBMP implementation. Watermaster will enter in to agreements with cooperative entities to implement the recharge program. Potential cooperative entities include Conservation District, the flood control agencies, USACE, Metropolitan Water District of Southern California (MWDSC), IEUA, TVMWD, and WMWD. These contracts will include specific performance goals and schedule. Watermaster will monitor these contracts very closely. If the cooperative entities fail to perform according to the terms of their contract, then Watermaster will terminate the agreements and either enter into an agreement with another cooperative entity or implement the program itself.

Implementation Actions and Schedule

First Three Years (1999/00 to 2001/02). The following actions will be completed in the first three years commencing fiscal year 1999/00:

- The Phase 2 scope of work should be completed within the first three years.
- Based on the results of the Phase 2 work, a list of high priority and low priority recharge projects will be identified. An action plan will be developed to implement the high priority projects as soon as possible and to implement the low priority projects as resources will allow.
- Task 1.1 and 1.2 should begin immediately, prior to the OBMP being submitted to the Court for approval.
- Watermaster advisory committee should form an *ad hoc* committee to start the coordination process and formalize the permanent basin-wide water conservation planning committee. Task 1.5 should also begin immediately.
- In year three, all high priority projects that involve re-operation of existing recharge/flood control facilities should be implemented, and Phase 3 should be started.
- Watermaster should begin the process of acquiring new recharge sites and easements identified in the Phase 2 and 3.

Years Four to Ten (2002/03 to 2010/11). The following actions will be completed in years four through ten, commencing fiscal year 2002/03:

Years four and five

- Complete Phase 3.
- Implement all high priority projects that involve construction and re-operation at existing facilities.

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- Watermaster should continue the process of acquiring new recharge sites and easements identified in the Phase 2 and 3. By year five, recharge sites should have acquired to recharge at least 55,000 acre-ft/yr.
- Update the comprehensive recharge program in year 5.

Years five to ten

- Implement all high priority projects that involve the construction of new recharge facilities.
- Update the comprehensive recharge program in year 10.

Years Eleven to Fifty (2011/12 to 2050/51). The following actions will be completed in years eleven to fifty, commencing fiscal year 2011/12:

- Implement all other recharge projects based on need and available resources.
- Update the comprehensive recharge program every five years.

PROGRAM ELEMENT 3 – DEVELOP AND IMPLEMENT WATER SUPPLY PLAN FOR THE IMPAIRED AREAS OF THE BASIN

PROGRAM ELEMENT 5 – DEVELOP AND IMPLEMENT REGIONAL SUPPLEMENTAL WATER PROGRAM

Need and Function of the Program Elements

These program elements serve the OBMP goals listed in [Table 3-8](#). The specific goals, impediments and action items are described below.

The first impediment in *Goal 1 – Enhance Basin Water Supplies* can be stated as: “Unless certain actions are taken, safe yield of the Basin will be reduced due to outflow from the southern part of the Basin.” The fourth impediment in *Goal 2 – Protect and Enhance Water Quality* can be stated as: “Poor ambient groundwater quality limits direct use of groundwater and can lead to loss of Basin yield.” Most of the agricultural land use in the southern part of the Basin will convert to urban uses over the next 20 to 30 years. Groundwater from the southern part of the Basin will have to be treated prior to use for these new land uses. Groundwater outflow to the Santa Ana River will occur if the decrease in agricultural groundwater production in the southern part of the Basin is not matched by an increase in municipal groundwater production in the same area. The increase in outflow will result in a decrease in safe yield that will reduce the initial rights of the producers in appropriate pool by about 74 percent. The increase in groundwater outflow to the Santa Ana River will cause an increase in river discharge and a degradation of water quality in the river. Currently, agricultural production in the southern part of the Basin is estimated using primarily water duty methods to be about 40,000 acre-ft/yr. Annual estimates of agricultural production are expected to be larger after in-line meters are in place. If the current level of groundwater production in the southern part of the Basin were to cease, the rising water discharge to the Santa Ana River could increase by approximately the numerical equivalent of the current production – about 40,000 acre-ft/yr. This new discharge would have an associated TDS concentration of about 1,300 milligrams per liter (mg/L) (almost twice the basin plan objective of 740 mg/L and 2.5 times the secondary drinking water MCL of 500 mg/L) and a nitrogen concentration of 30 mg/L-N (three times the basin plan objective of 10 mg/L-N and primary drinking water MCL of 10 mg/L-N). The Santa Ana River downstream of the Chino Basin is the primary drinking water supply for most of Orange County. Therefore, Santa Ana River water quality impacts caused by not producing Chino Basin groundwater will adversely affect the municipal water supplies in Orange County. The Regional Board has indicated that

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any adverse impacts to the Santa Ana River water quality associated with increased outflows from Chino Basin groundwater will have to be completely mitigated – presumably by desalting recycled water discharges to the Santa Ana River.

The third impediment in Goal 1 – Enhance Basin Water Supplies can be stated as: “Because there is a lack of assimilative capacity for total dissolved solids and nitrogen in the Chino Basin, there are economic limitations on the recharge of recycled water.” Most of the recycled water produced in the Basin is exported out of the Basin because of either lack of demand for direct use or economic limitations caused by the lack of assimilative capacity in the Chino Basin. The TDS and nitrogen objectives in the Santa Ana Watershed are under rigorous review and new water quality objectives and water recycling guidelines should be implemented in the next few years. Recharge of recycled water could be used to replenish over-production, supplement the yield of the Basin, and lower the demand for imported water from the Sacramento Delta. There are three treatment options that that can be used to enable the recharge of recycled water: desalting recycled water prior to recharge, desalting groundwater to offset the salt load in the recycled water, and blending recycled water with low TDS imported and/or storm waters.

The fourth impediment in *Goal 1 – Enhance Basin Water Supplies* can be stated as: “Because future demands are increasing and there are limitations on basin and traditional supplies, new sources of supplemental water need to be developed.” Alternatives to the use of imported water from MWDSC need to be developed to meet future demands, improve reliability and minimize cost of supplies. The new supplies include recycled water, groundwater from adjacent basins, Santa Ana River water and other waters as can be identified and conveyed to the Chino Basin.

The third impediment in *Goal 2 – Protect and Enhance Water Quality* can be stated as: “There is ongoing legacy contamination in the vadose zone with TDS and nitrogen from agriculture.” The vadose zone that underlies areas that were or are currently in agricultural use is likely to be degraded with TDS and nitrogen. The vadose zone will contribute to future TDS and nitrogen degradation of the saturated zone. The primary areas of concern are the areas that were formerly in citrus in the northern part of the Basin and the entire southern half of the Basin. There are two significant implications of legacy contamination in vadose zone: groundwater degradation from TDS and nitrogen will continue into the future long after the agriculture has left – even if extraordinary efforts are used to clean up degraded groundwater; and, groundwater treatment ranging from blending to desalting will be necessary far into the future to put the degraded groundwater to beneficial use.

There are other goals and impediments to goals that are listed for these program elements, but they are somewhat redundant with those listed above and are not described herein. Fundamentally, the goal of Program Elements 3 and 5 is to develop a regional, long range, cost-effective, equitable, water supply plan for producers in the Chino Basin that incorporates sound basin management. The water supply plan developed during Phase II of the OBMP process will include:

- a cost-effective plan to maximize the beneficial use of Chino Basin groundwater and the safe yield.
- a program to reliably meet the long-term water supply needs of area purveyors.
- an implementation program.

Water Demand Planning Assumptions

The planning assumptions and basic data used to develop and evaluate water supply plans are described below.

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Available Water Supply from the Impaired Area. As urbanization of the agricultural areas of San Bernardino and Riverside counties in the southern half of the Basin occurs, the agricultural water demands will decrease and urban water demands will increase significantly. Future development in these areas is expected to be a combination of urban uses (residential, commercial, and industrial). The cities of Chino, Chino Hills, and Ontario, and the Jurupa Community Services District (JCSD) are expected to experience significant new demand as these purveyors begin serving urban customers in the former agricultural area. For planning purposes, the agricultural area is assumed to be fully developed by the year 2020.

Based on current estimates of overlying agricultural pool production, it is expected that at least 40,000 acre-ft/yr of groundwater will need to be produced in the southern part of the Basin to maintain the safe yield. Actual replacement groundwater production required could be far greater than 40,000 acre-ft/yr if current agricultural production is greater than reported to Watermaster. Recall in the Section 2 discussion on Chino Basin production, that there was a difference in the agricultural production reported to Watermaster (based on water duty methods) and the production estimates developed in the CBWRMS based on water duty methods and water budget modeling, with Watermaster's estimates being about 26,000 acre-ft/yr lower for the period 1978 to 1989. Watermaster will install in-line meters on all wells over the next three years after which accurate estimates of agricultural production will be available. If these estimates show that agricultural production is higher than previously reported, then the groundwater production rates from the southern part of the Basin will have to be increased to maintain yield.

Water Supply Plans. Water demands, supply projections for agencies that produce groundwater from the Chino Basin, and estimates of the safe operating yield of the Basin are the basis for evaluating the water supply plans presented in this analysis. Initial water supply plans were developed by Montgomery Watson in 1998 and modified by WE, Inc., based on information supplied by the municipal and industrial producers. The initial plans are shown in [Table 2-17](#).

Based on the data presented in Section 2, the municipal and industrial demands are projected to increase 30 percent between 2000 and 2020. Several agencies will experience increases in demand exceeding 30 percent over the next 20 years, including the cities of Chino, Chino Hills, Norco, Ontario, Cucamonga County Water District (CCWD), Fontana Water Company (FWC), JCSD, and the West San Bernardino County Water District (WSBCWD). Forecasts from municipal and industrial entities indicate that water supply sources for the Chino Basin in 2020 will consist predominantly of Chino Basin wells through direct use or treatment and use, groundwater and treated surface water from other basins, and MWDSC supplies.

The demand data in Section 2 and individual water supply plans were used to quantify the future demand for each purveyor that will need to be satisfied from new water supply sources. Future sources for each purveyor were evaluated and classified into two categories: secure sources and non-secure sources. Secure sources are those with a high probability of being available throughout the planning period. These include existing and available supplies from Chino Basin wells, existing water and desalter plants (*i.e.*, WFA/JPA, CCWD, and TVMWD water treatment plants and Santa Ana Watershed Project Authority [SAWPA] Desalter), imported treated MWDSC water from the Weymouth treatment plant, and imported surface water from other basins. Non-secure sources are not currently available and must be developed to serve the Basin purveyors. These depend on a future event, such as the construction of a treatment plant or acquisition of a new water source.

[Table 4-7](#) lists the 2020 demand projections, projected secure water supply sources including Chino Basin groundwater, production rights, over/under production, the water needed in the future, and the

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replenishment obligations. The quantity of water that will be required by each water purveyor was found by subtracting the secure water supply for each purveyor from the purveyor's 2020 demand.

As shown in [Table 4-6](#) of the 404,000 acre-ft/yr of total demand predicted in 2020, approximately 364,000 acre-ft/yr will be met from secure water sources with the remaining 40,000 acre-feet of demand being met from projects described in this program element. The breakdown of the 40,000 acre-ft/yr by purveyor from largest to smallest user is as follows:

Jurupa CSD	10,720 acre-ft/yr
City of Chino	9,540 acre-ft/yr
City of Ontario	8,400 acre-ft/yr
City of Chino Hills	5,600 acre-ft/yr
City of Norco	3,260 acre-ft/yr
Santa Ana River WC	2,170 acre-ft/yr
Swan Lake	350 acre-ft/yr
<hr/>	
Total in 2020	40,040 acre-ft/yr

The demand in years 2005, 2010, and 2015 was predicted assuming a uniform increase in annual demand for each of the above purveyors. [Table 4-7](#) lists the demands for these intermediate planning years.

For the purpose of this analysis, it was assumed that there is approximately 48,000 acre-ft/yr of agricultural production in the southern part of the Chino Basin in the year 2000, and that this production will reduce to about 8,000 acre-ft/yr in the year 2020. This decline in agricultural production must be matched by new production in the southern part of the Basin or the safe yield in the Basin will be reduced. The remaining 8,000 acre-ft/yr of production in the southern part of the Basin will be used by the State of California.

Potential Supplemental Water Supply Sources. An evaluation of potential future supplemental water supply sources is given in [Table 4-8](#). Of these sources, the most viable is supplied through existing basin conventional water treatment plants that treat imported State Water Project (SWP) water from MWDSC. For the purposes of this analysis, it is assumed that future supplemental water supplies will come from expansion of the CCWD Lloyd Michael water treatment plant (WTP) and the WFA/JPA Agua de Lejos WTP.

Alternative Water Supply Plan Descriptions

Four initial water supply plan alternatives and ten subalternatives were developed. The initial alternatives consisted of various combinations of wells, desalters, water treatment plants, water and brine pipelines, and pumping stations. Purveyors that will require new water supplies include the cities of Chino, Chino Hills, Ontario, Norco, JCSD, Santa Ana River Water Company (SARWC), and Swan Lake. A fifth alternative was also developed that included three subalternatives for various levels of recycled water use. The water supply plans are described in detail in the Task Memorandum on file with the Watermaster for this Program Element. The initial alternatives that were evaluated included:

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Alternative 1: Supplemental Water Deliveries Only

- Subalternative 1A: Supplemental Water Delivery – Agricultural Converts to Urban Uses
- Subalternative 1B: Supplemental Water Delivery – Agricultural Use Stays

Alternative 2: Groundwater Pump, Treat, and Serve Only

- Subalternative 2A-1: Regional Groundwater Pump, Treat, and Serve – Agricultural Converts to Urban Uses
- Subalternative 2A-2: Ad Hoc Groundwater Pump, Treat, and Serve – Agricultural Converts to Urban Uses
- Subalternative 2B-1: Regional Groundwater Pump, Treat, and Serve – Agricultural Use Stays
- Subalternative 2B-2: Ad Hoc Groundwater Pump, Treat, and Serve – Agricultural Use Stays

Alternative 3 – Conjunctive Use

- Subalternative 3A: Conjunctive – Agricultural Converts to Urban Uses
- Subalternative 3B: Conjunctive – Agricultural Use Stays

Alternative 4: Supplemental Water Delivery and Regional Groundwater Pump, Treat, and Serve

- Subalternative 4A: Supplemental Water Delivery and Regional Pump, Treat, and Serve – Agricultural Converts to Urban Uses
- Subalternative 4B: Supplemental Water Delivery and Regional Pump, Treat, and Serve – Agricultural Use Stays

Alternative 5: Reclaimed Water Delivery

- Subalternative 5A: Direct Non-Potable Reuse Only
- Subalternative 5B: Reclaimed Water Delivery for Spreading Only
- Subalternative 5C: Direct Non-Potable Reuse and Recharge of Reclaimed Water

Recommended Water Supply Plan for the OBMP

Considerable discussion of the alternative water supply plans occurred at the OBMP workshops in February through May of 1999. The discussions focused, in part, on the assumption and details of each alternative and cost. Based on technical, environmental, and cost considerations, the stakeholders selected Alternative 4A for detailed review and refinement. Alternative 6A was developed based on Alternative 4A and 5C, includes an accelerated desalting schedule and has no future supplemental water deliveries to the southern part of the Basin. The Alternative 6A water supply plan consists of the following key elements.

Groundwater Production Pattern. Groundwater production for municipal use will be increased in the southern part of the Basin to: meet the emerging demand for municipal supplies in the Chino Basin, maintain safe yield, and to protect water quality in the Santa Ana River. All new southern Basin production will require desalting prior to use. The cities of Chino, Chino Hills, Ontario and Norco, and the JCSD will maximize their use of groundwater from the southern part of the Basin prior to using other supplies. The SAWPA desalter, currently under construction will have to be expanded from 8 million

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gallons per day (mgd) to 10 mgd by 2003. Two new desalters will be constructed – the *east* and *west* desalters. The east desalter will need to be on-line by late 2003 at a capacity of 14 mgd. The west desalter will need to be on-line by 2010 with a capacity of 7.5 mgd. Both these new desalters will be expanded in the future. The cost of the southern Basin desalting system will be shared by all Basin producers such that the agencies making direct use of this water above are not unfairly burdened with the cost of treating this water. It was demonstrated during discussions on this program element that equitable cost sharing could be achieved. It was also demonstrated that the groundwater production pattern in the Alternative 6A water supply plan was the least cost plan when lost safe yield and Santa Ana River water quality mitigation costs are avoided. The stakeholders came to an agreement on May 27, 1999 that the Alternative 6A water supply plan should be included in the OBMP.

The total replenishment obligation associated with this groundwater production pattern is 31,000 acre-ft/yr in the year 2000 and will increase to about 55,000 acre-ft/yr by the year 2020. The replenishment obligation can be satisfied using water in local storage, direct recharge of imported and recycled water, and by in-lieu exchange.

Imported Water. Imported water use will increase to meet emerging demands for municipal and industrial supplies in the Chino Basin area, Watermaster replenishment, and conjunctive use. Expanded use of imported water in the northern part of the Basin will have a lower priority than maintaining groundwater production in the southern part of the Basin.

Recycled Water. Recycled water use (direct use and recharge) will increase to meet emerging demands for non-potable water and artificial recharge. Under the current Basin Plan, all new recycled water use will require mitigation for TDS and nitrogen impacts. Recycled water use will be expanded as soon as practical. The two new desalters described above and the increase in storm water recharge will provide mitigation for the expanded use of recycled water.

Under Alternative 6A, two new desalters will be constructed and the SAWPA desalter currently under construction will be expanded immediately. The general location of these desalters, their respective well fields, product water pipelines, and delivery points are shown in Figure 4-2. [Table 4-9](#) shows the timetable for the new desalters along with the salt removal capacity of these desalters. [Table 4-10](#) contains the capital and annual costs for these facilities. An initial financing and cost sharing plan for this part of the OBMP will be developed during the Phase II OBMP process.

Implementation Requirements and Issues

Technical evaluation requirements and issues relating to facilities siting, facilities description and operations, and technical feasibility include:

- Basin exploration to assess ambient water quality and potential well field locations.
- Geotechnical and hydrogeological investigations.
- Siting investigations for desalters, wells, pipelines, and other facilities.
- Pump tests to determine viability of aquifer production.
- Modeling for safe yield impacts for alternatives identified in the OBMP.
- Preliminary engineering (reverse osmosis [RO] process design, facility layouts, pipeline alignments).
- Aquifer and groundwater quality monitoring.
- Santa Ana Regional Interceptor (SARI) capacity/availability.

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- Analyses of the availability/capacity of existing infrastructure.
- Project phasing schedule.
- Construction delivery method (design-bid-build versus design-build).

Financial evaluation requirements and issues include:

- Economic feasibility analysis.
- Project financing plan.
- Interagency agreements/approvals/contracts.
- Potential impact on replenishment obligations.
- Cost/benefit analyses to evaluate incentives.
- Method of operation (agency operation versus contract operation).
- Future availability of MWDSC incentives.
- Sale of rising groundwater to Orange County.

California Environmental Quality Act (CEQA) and permitting requirements and issues include:

- Selection of implementing/lead agency.
- Preparation of necessary documents for CEQA/ National Environmental Policy Act (NEPA) compliance.
- Compliance with Basin Plan.
- Regulatory requirements/approvals from DHS and Regional Board Requirements.
- Interagency agreements/approvals/contracts.

Implementing Agencies

There are a number of specific responsibilities that must be defined when implementing any of the previously discussed alternatives. These responsibilities are listed in [Table 4-11](#). One agency could assume all the responsibilities listed in Table 4-11; however, reality dictates that no single agency can typically meet all of these responsibilities. The following section provides a description of the agencies that could become the lead implementing agency for the construction, operation, and technical and financial support of the chosen water supply alternative.

Chino Basin Watermaster. Watermaster was created on January 27, 1978 by the San Bernardino County Superior Court after extensive negotiations between the municipal, industrial, and agricultural producers. The Chino Basin Watermaster is the entity charged with administering adjudicated water rights and managing groundwater resources within the Chino Basin. The Watermaster's primary responsibilities include: manage and control the replenishment of water supplies in the Basin, acquire and spread replenishment water as needed, approve and facilitate the storage of supplemental water in the Basin, and develop and implement an optimum basin management program to manage the Basin.

Inland Empire Utilities Agency. IEUA, formerly the Chino Basin Municipal Water District, serves 570,000 people and covers 242-square miles in the areas of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, Upland and the Chino Agricultural Preserve. The Agency's major responsibilities are: wastewater treatment and disposal; supplemental water supply; industrial waste or non-reclaimable waste disposal; and water recycling. Under the *Regional Sewage Service Program*, the Agency operates three domestic wastewater treatment plants. The program enables local communities to take advantage of shared facilities and to further reduce costs by combining staffs and operations. Two

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additional water recycling facilities will be on-line in the next 10 years to accommodate the growth of the area's industrial and residential communities, as well as to meet increasingly stringent environmental regulations.

Three Valleys Municipal Water District. In recognition of the need for additional sources of water for the growing region, the Pomona Area Water Committee was organized in 1945 for securing annexation to the MWDC. Through the efforts of the committee, the District was formed on January 26, 1950 by public election. The District is a local government agency with a board of directors elected by the registered voters residing within the District's boundaries. The District's boundary includes approximately 133 square miles with a current population of 475,000. Approximately 126,600 retail customers are served by the local agencies to whom the District provides supplemental water.

Western Municipal Water District. Western Municipal Water District of Riverside County was formed in 1954 to bring supplemental water to growing western Riverside County. Western's district consists of a 510-square mile area of western Riverside County, with a population of nearly one-half million people. Western is in the heart of the Santa Ana Basin and within its district lies the communities of Jurupa, Mira Loma, Rubidoux, Riverside, Norco, Corona, Elsinore Valley, and Rancho California. A member agency of the Metropolitan Water District of Southern California, Western serves imported water directly to more than 10,000 retail customers who are located in the unincorporated and non-water bearing areas around Lake Mathews and portions of the city of Riverside. The District also serves ten wholesale customers with Colorado River and SWP water. In addition to its retail water service, the District has committed to retail sewer service to 2600 customers in the Lake Hill/Home Gardens area.

Santa Ana Watershed Project Authority. SAWPA is a joint powers agency that was originally formed to develop water and wastewater management plans for the Santa Ana River watershed. The agency is now responsible for regional water quality planning and implements projects at the request of its member agencies. Members of SAWPA include: IEUA, Eastern Municipal Water District (Riverside County), San Bernardino Valley Municipal Water District (SBVMWD), WMWD (Riverside County), and the Orange County Water District (OCWD). SAWPA owns and operates the Santa Ana Regional Interceptor (SARI) sewer brine disposal system that offers a means of exporting non-reclaimable wastewater from the southern portion of the Chino Basin (CBMWD Reclaimed Water Master Plan, 1993). In addition to the SARI, SAWPA, in cooperation with a number of other agencies who provided support and financial resources, constructed the Arlington Desalter to begin reversing the Arlington Basin's salinity. The Arlington Desalter produces approximately 6 mgd of drinking quality water. SAWPA also owns and operates the SAWPA Chino Desalter that, upon construction by the year 2000, will supply approximately 8 mgd of potable drinking water to JCSD, Chino, Chino Hills, and Norco.

Cooperative Efforts with Appropriate Agencies to Implement Program

Watermaster will assume the leadership role for developing and implementing the OBMP regional water supply plan (Alternative 6 described above) including the development of new desalting plants and the expansion of the new SAWPA desalter. Watermaster will enter into agreements with cooperative entities to implement the OBMP regional water supply plan. Potential cooperative entities include CCWD, IEUA, TVMWD, WMWD, SAWPA, WFA/JPA, and private entities. These contracts will include specific performance goals and schedule. If a cooperative entity fails to perform according to the terms of their agreement, then Watermaster will terminate the agreements and either enter into an agreement with another cooperative entity or implement the program itself.

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The new desalting projects could be designed, built, operated and owned by IEUA, WMWD, SAWPA, or by private entity under long-term contract to supply water from the desalters. A private entity may be the preferred way to construct the east desalter because of rapid implementation requirements of that desalter.

CCWD, IEUA, TVMWD, and WFA/JPA will be responsible for providing imported supplies.

IEUA and WMWD will be responsible for expanding the recycled water use in the Basin.

Implementation Actions and Schedule

First Three Years (1999/00 to 2001/02). The following actions will be completed in the first three years commencing fiscal year 1999/00:

Preliminary Engineering – Year 1

- Basin exploration to assess current water quality and identify well field locations.
- Geotechnical and hydrogeological investigations.
- Siting investigations for desalters, wells, pipelines, and other facilities.
- Re-evaluation of potential purveyor water supplies/demands.
- Analysis of availability & capacity of existing infrastructure.
- Analysis of SARI capacity & availability.
- Concept design for new treatment facilities.
- Preparation of necessary documents for CEQA/NEPA compliance.
- Regulatory requirements/approvals from DHS and Regional Board Requirements.
- Conditional use and other permits from local agencies.
- Economic feasibility analysis.
- Project financing plan.
- Selection of implementing/lead agency.
- Interagency agreements/approvals/contracts.
- Method of operation (agency operation versus contract operation).

Design and Construction of East Desalter and

Design and Construction of Expansion of SAWPA Desalter – Years 2 and 3

- Purchase land for ultimate facilities.
- Pre-design investigations.
- Pump tests to determine groundwater production.
- Re-evaluation of purveyor water supplies/demands.
- Preliminary engineering.
- RO process design.
- Facility site layouts.
- Pump station design.
- Final design.
- Bidding and contract award.
- Construction.

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- Start-up by 2003.

Years Four to Ten (2002/03 to 2010/11). The following actions will be completed in years four through ten, commencing fiscal year 2002/03

Design and Construction of Western Desalter

- Purchase land for ultimate facilities.
- Pre-design investigations.
- Pump tests to determine groundwater production.
- Re-evaluation of potential purveyor water supplies/demands.
- Geotechnical and hydrogeological investigations.
- Preliminary engineering.
- RO process design.
- Facility site layouts.
- Pump station design.
- Final design.
- Bidding and contract award.
- Construction
- Start-up by 2010

East, West, and SAWPA desalters:

- Operate facilities through period.
- Upgrade facilities as necessary to maintain state-of-the-art and to meet regulatory requirements.

Years Eleven to Twenty (2010/11 to 2019/20). The following actions will be completed in years eleven to twenty, commencing fiscal year 2010/11

Expansion of Eastern Desalter, and

Expansion of Western Desalter

- Pre-design investigations.
- Pump tests to determine groundwater production.
- Re-evaluation of potential water supplies/demands.
- Geotechnical and hydrogeological investigations.
- Preliminary Engineering.
- RO process design.
- Facility site layouts.
- Pump station design.
- Final design.
- Bidding and contract award.
- Construction.
- Start-up by 2015.

East, West, and SAWPA desalters:

- Operate facilities through period.

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- Upgrade facilities as necessary to maintain state-of-the-art and to meet regulatory requirements.

PROGRAM ELEMENT 4 – DEVELOP AND IMPLEMENT COMPREHENSIVE GROUNDWATER MANAGEMENT PLAN FOR MANAGEMENT ZONE 1 (MZ1)

Need and Function

Program Element 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1 contains action items explicitly listed in [Table 3-8](#).

The second impediment to *Goal 1 – Enhance Basin Water Supplies* can be stated as: “Unless certain actions are taken, piezometric levels in the deep aquifers of Management Zone 1 will continue to decline adding to the potential for additional subsidence and fissures, lost production capability and water quality problems. This impediment speaks to a localized subsidence and fissuring problem within the City of Chino and to a potentially larger and similar problem in the southern end of Management Zone 1 in the former artesian area. This part of the Basin contains a higher fraction of fine-grained materials that originated from sedimentary deposits in the Chino and Puente Hills. This area also consists of a multiple aquifer system. The upper aquifer(s) are moderately high in TDS and are often very high in nitrate. The City of Chino Hills has drilled a series of wells into the deeper aquifer(s) to obtain better quality water. The storage and hydraulic properties of the deeper aquifers are quite limited relative to the upper aquifer. The correlation of the recent groundwater production in the deep aquifers and the timing of the subsidence and fissuring, and a review of the hydrogeologic data from the area very strongly suggest that deep aquifer production is the likely cause of the subsidence. [Figure 4-2](#) illustrates the location and magnitude of subsidence and fissuring in the City of Chino and [Figure 4-3](#) shows the location of the this subsidence anomaly relative to Management Zone 1 and the former artesian area. The *Program Element 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1* task memorandum is on file and available from the Watermaster offices. It describes the subsidence problem in the Management Zone 1 area as it is currently understood in more detail.

MZ 1 Management Plan

The continued occurrence of subsidence and fissuring in Management Zone 1 is not acceptable and must be reduced to tolerable levels or completely abated. However, there is some uncertainty as to the causes of subsidence and fissuring and more information is necessary to distinguish among potential causes. An interim management plan must be developed and implemented to:

- minimize subsidence and fissuring in the short-term;
- collect the information necessary to understand the extent and causes of subsidence and fissuring; and
- formulate an effective long-term management plan.

MZ 1 Interim Management Plan. The interim management plan would consist of the following activities:

- Voluntarily modify groundwater production patterns in Management Zone 1 for a five-year period. For example, there is some indication that deep aquifer production beneath the City of Chino contributed to recent subsidence and fissuring in the area. Reduction or elimination of deep aquifer production beneath the area of subsidence and fissuring is a logical short-term mitigation strategy.

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- Balance recharge and production in Management Zone 1. Based on preliminary engineering investigations with RAM tool, it appears that current levels of pumping and recharge are balanced. However, increases in pumping should be balanced with increases in recharge.
- Determine gaps in existing knowledge. Primarily, there is a lack of understanding of Management Zone 1 hydrogeology, of the nature and extent of subsidence and fissuring, and of the exact causes of subsidence and fissuring.
- Implement a process to fill the gaps in existing knowledge. This would include hydrogeologic, geophysical, and remote sensing investigations of Management Zone 1, as well as certain monitoring programs, such as piezometric, production, water quality, ground level, and subsidence monitoring.
- Formulate a long-term management plan. The long-term management plan will include goals, activities to achieve those goals, and a means to evaluate the success of the plan.

MZ 1 Long-Term Management Plan. The long-term management plan will be formulated during the interim management plan based on investigations, monitoring programs and data assessment. It will likely include modifications to groundwater pumping rates and the locations of pumping, recharge, and monitoring. The long-term management plan will be adaptive in nature – meaning monitoring and periodic data assessment will be used to evaluate the success of the management plan and to modify the plan, if necessary.

Cooperative Efforts with Appropriate Agencies to Implement Plan

The subsidence and fissuring problem appears to be currently focused in the City of Chino and the California Institution for Men (CIM). However, it is reasonable given the current knowledge, to expand the minimum area of concern to the entire former artesian area shown in [Figure 4-3](#) and slightly beyond that area. Changes in pumping and recharge patterns in Management Zone 1, and more generally the area of concern, will most likely be part of the management plan. The producers in the area include the cities of Chino, Chino Hills, Ontario, Pomona and Upland, the Monte Vista Water District (MVWD), San Antonio Water Company (SAWC), Southern California Water Company (SCWC), the State of California (CIM, California Institution for Women [CIW]), and SAWPA. Watermaster may need to have entities that increase their production to provide for the recharge of an equivalent amount of water to maintain the balance of pumping and recharge. Watermaster will take the leadership role in the development and implementation of the Management Zone 1 management plan.

Implementation Actions and Schedule for the First Five Years

Year 1

- Establish a Management Zone 1 committee and develop interim management plan.

Years 2 to 5

- Implement the interim management plan, including appropriate monitoring.

Years 3 to 5

- Annual assessment of data from monitoring programs, and modification of monitoring programs if necessary.

Year 5

- Develop long-term management plan.

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Implementation Actions and Schedule for Years Six to Ten.

Year 6

- Implement the long-term management plan.

Years 6 to 10

- Annual assessment of data from monitoring programs, and modification of management plan if necessary.

Implementation Actions and Schedule for Years Eleven to Fifty.

Assessment of data from monitoring programs every three years and modification of management plan if necessary.

PROGRAM ELEMENT 6 – DEVELOP AND IMPLEMENT COOPERATIVE PROGRAMS WITH THE REGIONAL BOARD AND OTHER AGENCIES TO IMPROVE BASIN MANAGEMENT

PROGRAM ELEMENT 7 – DEVELOP AND IMPLEMENT SALT MANAGEMENT PROGRAM

Need and Function

These program elements are needed to address some of the water quality management problems that have occurred in the Basin. These water quality problems are described in Section 2 *Current Physical State of the Basin* and [Table 3-8](#) in Section 3 *Goals of the OBMP*. The specific water quality issues addressed by these program elements are listed below:

- The Special Referee has indicated that Watermaster needs to routinely demonstrate that implementation of the OBMP will lead to groundwater quality improvements. Watermaster should develop and use a method to determine water quality trends and to verify whether the OBMP is improving water quality.
- There is legacy contamination in the vadose zone from past agricultural activities (TDS and nitrogen) that will continue to degrade groundwater long into the future.
- Watermaster does not have sufficient information to determine whether point and non-point sources of groundwater contamination are being adequately addressed.
- There is ongoing salt and nitrogen loading from agriculture.

Demonstration of Water Quality Improvement

The TDS and nitrogen challenges in the Chino Basin are caused by agriculture and safe yield management. The TDS and nitrogen impacts from agriculture were described in Section 2. [Table 4-12](#) shows in summary format how the TDS concentration in source supplies and fertilizer affect the TDS concentration in irrigation return flows to groundwater. The TDS concentration in the irrigation return flow is about four times higher than the TDS concentration in the irrigation supply. The majority of the increase in TDS concentration is caused by consumptive use and a negligible contribution from the fertilizer. The table also shows the affect of the use of dairy manure for fertilizer and soil improvement. The TDS contribution from manure is much larger than from commercial fertilizer, however the concentration increase from consumptive use is more significant particularly for source water TDS concentrations typical in the southern part of the Basin (>500 mg/L). Similar TDS concentration increases in irrigation return flows occur for other crop types such as citrus and grapes, both of which were significant in the past. [Table 4-12](#) shows TDS concentrations for urban irrigation return flows for a

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representative range in municipal source water TDS concentration. The range of TDS concentrations in urban irrigation returns is from about 1,200 to 1,800 mg/L with less than ten percent coming from fertilizers and the overwhelming majority of the TDS increase coming from consumptive use.

Figure 4-4 is a map that shows the general groundwater flow directions in the Chino Basin. The map contains velocity vectors that show direction and relative velocity of groundwater flow. One of the more interesting interpretations of this map is that groundwater generally flows away from the Santa Ana River. Small amounts of rising groundwater occur seasonally in Chino and Mill Creeks and are typically less than 11,000 acre-ft/yr. The only way significant amounts of groundwater can leave the Basin are through consumptive use, the discharge of recycled water to the Santa Ana River near Prado, and the discharge of brine to either the Santa Ana Regional Interceptor (SARI) or the Non-Reclaimable Waste Line (NRWL). The groundwater flow pattern shown in Figure 4-5 is largely influenced by production. If there were a significant reduction in groundwater production in the southern part of the Basin, then groundwater outflow to the Santa Ana River would increase and the safe yield would be reduced. The safe yield of the Basin depends on recharge of Santa Ana River water and minimal outflow of groundwater to the river. Without the recycled water discharges to the Santa Ana River near Prado dam and brine discharges to the SARI and the NRWL, the Chino Basin would almost be a completely closed system.

The vadose zone is the part of the aquifer that lies between the soil and the water table. The vadose zone is partially saturated and buffers the mineral salt loads entering from the soil. The buffering effect reduces the magnitude of the peak loads to the saturated zone and spreads out the loading of the saturated zone over a period of time that is longer than the soil loading. Salts in the vadose zone are being released to the saturated zone now and will continue to be released to the saturated zone for some time after the agricultural lands are converted to urban uses. The quantity of salt reaching groundwater should reduce in the future for two reasons:

- salt loading to the soil from agricultural will reduce over time
- less water will percolate through the vadose zone as the agricultural area becomes paved through urbanization (60 to 80 percent impervious).

If current rates of agricultural loading were to continue indefinitely, TDS and nitrate concentrations in groundwater could continue to rise. TDS projections for the Chino Basin that were made during the *Chino Basin Water Resources Management Study* (CBWRMS) suggested that the TDS concentrations would continue to rise in groundwater throughout most of the 50-year planning horizon of 1990 through 2040. These graphs are included in the Program Element 6 Task Memorandum on file and available from the Watermaster offices. In the CBWRMS, agricultural activities were assumed to decline to minimum levels by the year 2020. If and when the land use in the area is converted to urban uses, the source water TDS served to the new urban areas will be always less than 400 mg/L and the mineral salts from the source water will be mostly discharged in recycled water discharges to the Santa Ana River, brine line discharges (from new desalters) and increased rising groundwater flows to the Santa Ana River. The TDS concentration in groundwater will, after some period of time, decline slowly but should still remain significantly higher than be served as a municipal supply.

The Court will require Watermaster to develop and use a method to demonstrate that actions taken in the OBMP will improve groundwater quality. The question arises: *how do we assess progress towards improving groundwater quality if groundwater monitoring alone will continue to show degradation even after significant steps are taken to improve water quality?*

The alternatives available to the Watermaster range from groundwater quality monitoring alone to the application of numerical models in conjunction with monitoring. As mentioned above, if groundwater monitoring were the only metric for measuring improvement, then it will appear for many years that

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construction of desalters and the export of dairy waste will have no benefit. The use of numerical models to assess progress in improving water quality is extremely expensive if their only use were to assess such progress.

A method that combines monitoring and a salt budget is more practical and cost-effective than large-scale modeling. The salt budget approach consists of a salt mass accounting in each management zone and the Basin as a whole. The magnitude of each inflow and outflow component would be estimated. The TDS and nitrogen concentration of each inflow and outflow component would be estimated. Water quality will improve if the flow-weighted concentration in the inflow is less than the flow-weighted concentration in the outflow.

$$\begin{aligned} \frac{[S I_k * C_k]}{[S I_k]} - \frac{[S O_j * C_j]}{[S O_j]} < 0 & \text{ water quality is improving} \\ \frac{[S I_k * C_k]}{[S I_k]} - \frac{[S O_j * C_j]}{[S O_j]} > 0 & \text{ water quality is degrading} \\ \frac{[S I_k * C_k]}{[S I_k]} - \frac{[S O_j * C_j]}{[S O_j]} = 0 & \text{ water quality is not changing} \end{aligned}$$

where: I_k is volumetric recharge component k
 C_k is the TDS or nitrogen concentration associated with recharge component k
 O_j is volumetric discharge component j
 C_j is the TDS or nitrogen concentration associated with discharge component j

The inflow components include: precipitation, artificial recharge of storm flows, artificial recharge of recycled water, and applied water. The outflow components include: evapotranspiration, surface water outflow, recycled water export, groundwater export and brine export. The TDS and nitrogen mass increments added to water as it is applied to irrigated lands or to disposal land needs to be estimated. The inflow and outflow components used in this approach will produce average recharge and discharge from the Basin, that is, there will be no change in groundwater storage.

The salt budget will be computed for existing conditions to assess the current balance, hereafter referred to as the baseline case. An assessment of future water quality improvements that will occur from the OBMP will be made by changing the water and waste management assumptions in the baseline case to reflect OBMP implementation. The changes in the inflow and outflow components and their associated TDS and nitrogen concentration will be made and the salt budget equations would be re-solved. The relative improvement of water quality will be assessed by comparing the salt budget of the OBMP to the baseline plan. Later, during periodic OBMP updates, the salt budget will be computed based on the then current water quality (from monitoring programs) and the then current water and waste management plans. These periodic assessments will allow Watermaster to determine if the OBMP is improving water quality.

There are some limitations to the salt budget method and the use of such a method should be considered in light of all anticipated water quality assessment needs in the Basin. [Table 4-13](#) presents a tabular comparison of future water quality information requirements with alternative methods and approximate costs to use those methods over the next 20 years. The CBWRMS developed a comprehensive set of models for the Chino Basin that is capable of assessing the impact of past and future water resources management activities on groundwater level, streamflow, and water quality. The *Chino Integrated Groundwater and Surface Water Model* (CIGSM) is extremely complex and expensive to maintain and use.

The salt budget method will cost about \$80,000 to \$100,000 to develop and use the first time. Subsequent uses, in either OBMP updates or *ad hoc* investigations, will involve developing new water quality input

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data based on new monitoring data and revised water and waste management scenarios. Total cost over the next 20 years should range between \$300,000 to \$400,000. CIGSM is composed of series of models. In contrast to the salt budget method, CIGSM is very complex and difficult to use. The cost to recalibrate CIGSM, to update the planning data, and to use the model to evaluate the initial OBMP is about \$700,000 based on recent detailed estimates developed for the TIN/TDS Study (Wildermuth Environmental, 1999). The cost to use CIGSM over the next 20 years will run between \$3,000,000 to \$4,000,000.

Cooperative Efforts with the Regional Water Quality Control Board

Watermaster does not have sufficient information to determine whether point and non-point sources of groundwater contamination are being adequately addressed. Watermaster's past monitoring efforts have been largely confined to mineral constituents in the southern half of the Basin and to available monitoring data supplied by municipal and industrial producers. The Regional Water Quality Control Board (Regional Board) has limited resources to detect, monitor and cause the clean up of point and non-point water quality problems in the Chino Basin. The Regional Board commits its resources to enforce remedial actions when it has identified a potential responsible party. The Regional Board does not take action when the sources are not easily identified or when the sources are diffuse, such as non-point sources. Notable examples include the mercury problem in the east Ontario area and some solvent plumes in the lower Chino Basin. It is not a question of Regional Board willingness to in this area; it is the allocation of limited RWQCB resources. Watermaster can improve water quality management in the Basin by committing resources to:

- identify water quality anomalies through monitoring;
- assist the Regional Board in determining sources of the water quality anomalies;
- establish priorities for clean-up jointly with RWQCB; and
- remove organic contaminants through its regional groundwater treatment projects in the southern half of the Basin.

The last bulleted item requires some explanation. The well field for SAWPA desalter will eventually intercept a solvent plume of unknown origin that is emanating from the Chino airport area. There is a second solvent plume northeast of the Chino airport area that could be intercepted by the current desalter or another future desalter. This will require additional treatment for the water produced by the desalter. The desalter project can be used to clean up these plumes at some additional cost. The cost of cleaning up the solvent plumes at the desalters will be less than the cost of a dedicated solvent removal system. The additional cost should be paid for by the entity responsible for the solvent discharge. A similar process was used by the Regional Board and Kaiser Steel Corporation to mitigate a TDS plume in the north half of the Chino Basin.

TDS and Nitrogen (Salt) Management in the Chino Basin

TDS and nitrogen management will require minimizing TDS and nitrogen additions by fertilizers and dairy wastes, desalting of groundwater in the southern part of the Basin (for water supply purposes), and maximizing the artificial recharge of storm water. The latter two management components are included in Program Elements 3 and 2, respectively

The agricultural area in the southern part of the Chino Basin will gradually convert to urban uses over the next 20 to 30 years and, thus, in the long term, the TDS and nitrogen challenges from irrigated agriculture and dairy waste management will go away. The Regional Board will adopt new dairy waste discharge requirements in the summer of 1999. The requirements will include the following:

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- Each dairy will develop and implement an engineered waste management plan that will contain dairy process water and on-dairy precipitation runoff for up to a 25-year, 24-hour storm
- Manure scraped from corrals must be exported from the dairy within 180 days
- All manure stockpiled in the Chino Basin as of December 1, 1999, will be exported from the Basin by December 1, 2001.
- No manure may be disposed of in the Chino Basin
- Some manure can be applied to land at agronomic rates if and only if in the opinion of the Executive Officer there is reasonable progress toward the construction of a new desalter in the Chino Basin.

The Santa Ana River Watershed Group (SARWG) is a stakeholder group made up of municipal, county, regional and federal agencies, and private individuals that are working through complex land use and environmental issues in the Santa Ana Watershed. One of their work products is a draft manure management strategy (MMS) for the Chino Basin. The primary component of MMS is the export of manure either as a raw or an improved material. The MMS describes the economics of manure management and the means to finance manure export.

The new dairy waste discharge requirements may have the unintended result of actually causing Santa Ana River quality to degrade. Some or all of the dairy farmers could move out of the Basin if they cannot afford to continue dairy operations as a result of the new waste discharge requirements. A rapid departure of the dairies will result in a rapid decline in groundwater production in the southern part of the Basin and a subsequent increase in poor quality rising water. The rising groundwater will degrade the river. As part of the OBMP, Watermaster will annually review the economics of dairy waste management in the Chino Basin and may contribute funds to subsidize the removal of manure from the Basin. In the first year of the OBMP implementation, Watermaster will contribute \$150,000. Watermaster will closely monitor the activities of the Regional Board, SARWG and others whose actions will influence the amount of TDS and nitrogen entering the Basin.

The urban land use that will replace agriculture will require low TDS municipal supplies that in turn will produce lower TDS irrigation returns to groundwater than those generated by agriculture. The construction of desalters in the southern part of the Basin (as described in Program Elements 3 and 5) will extract and export huge quantities of salt from the Basin. [Table 4-9](#) lists the salt removal capacity of desalters described in Program Elements 3 and 5. By 2020, the salt removal capacity of the desalters will reach over 80,000 tons per year. The dairy salt contribution is currently about 30,000 tons per year. It is premature to set salt reduction goals until the salt budget method described above is developed and the salt budget is assessed for the Basin. However, it seems reasonable to expect that the salt budget will be impacted favorably by the desalters and future land use conversions, and that Watermaster should expect a reduction in salt loading of about 80,000 to 100,000 tons of salt per year in the next 20 to 30 years.

Implementation Actions and Schedule

First Three Years (1999/00 to 2001/02). The following actions will be completed in the first three years commencing fiscal year 1999/00:

- Watermaster will form an ad hoc committee, hereafter *water quality committee*. The purposes of the *water quality committee* are to review water quality conditions in the Basin and to develop (with the Regional Board) cooperative strategies and plans to improve water quality in the Basin. The committee would meet regularly with

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Regional Board staff to share information and to recommend cooperative efforts for monitoring groundwater quality and detecting water quality anomalies. The schedule and frequency of meetings will be developed with the Regional Board during the first year of the OBMP implementation.

- Watermaster will refine its monitoring efforts to support the detection and quantification of water quality anomalies. This may require additional budgeting for analytical work and staff/support.
- If necessary, Watermaster will conduct investigations to assist the Regional Board in accomplishing mutually beneficial objectives.
- Watermaster will seek funding from outside sources to accelerate detection and clean up efforts.
- Develop salt budget goals, develop the salt budget method described above and review all the OBMP actions.
- Watermaster will annually review the economics of dairy waste management in the Chino Basin and may contribute funds to subsidize the removal of manure from the Basin. In the first year of the OBMP implementation, Watermaster will contribute \$150,000.

At the conclusion of the third year, the *water quality committee* will have met several times, developed and implemented a cooperative monitoring plan with the Regional Board, and developed a priority list and schedule for cleaning up all known water quality anomalies.

Years Four through Fifty (2002/03 to 2050/51). The following actions will be completed in years four through fifty, commencing fiscal year 2002/03:

- Continue monitoring and coordination efforts with the Regional Board.
- Annually update priority list and schedule for cleaning up all known water quality anomalies.
- Continue to seek funding from outside sources to accelerate clean up efforts.
- Implement projects of mutual interest.
- As part of periodic updates of the OBMP, re-compute the salt budget using the salt budget method. The salt budget method would be used to reassess future OBMP actions to ensure that salt management goals are attained.
- Annually review the economics of dairy waste management in the Chino Basin and consider contributing funds to subsidize the removal of manure from the Basin.

PROGRAM ELEMENT 8 – DEVELOP AND IMPLEMENT GROUNDWATER STORAGE MANAGEMENT PROGRAM

PROGRAM ELEMENT 9 – DEVELOP AND IMPLEMENT CONJUNCTIVE USE PROGRAMS

Need and Function

The first impediment to *Goal 1 – Enhance Basin Water Supplies* can be stated as: “Unless certain actions are taken, safe yield of the Basin will be reduced ... (because) the current manner in which Watermaster manages cyclic and local storage accounts will cause overdraft.” Watermaster is concerned about the magnitude of water lost from the Chino Basin from rising groundwater when groundwater is stored in the

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local storage, cyclic, conjunctive use and other storage accounts. Watermaster is interested in determining how much water can be stored without significant loss from local accounts and in developing a procedure to equitably distribute these losses among entities that have storage accounts. Watermaster may consider setting limits for individual storage accounts for members of the overlying non-agricultural and appropriative pools that ensure reasonable and beneficial use of Chino Basin water.

The third impediment to *Goal 3 – Enhance Management of the Basin* can be stated as: “About 500,000 acre-ft of storage in the Chino Basin cannot be used due to water quality and institutional issues.” The impediment speaks to two issues. The first issue is a concern by the producers of adverse water quality impacts if groundwater storage is significantly (see Section 2) increased. The second issue is the past inability of Watermaster, producers, and MWDSC to be able to agree on a conjunctive use program for the Chino Basin.

Parties to the Judgment can store un-pumped groundwater rights for various reasons that include:

Future use during shortage of other less expensive water supplies. Some parties to the Judgment have access to other sources of water that are less expensive than producing Chino Basin groundwater. The alternative water supplies available to these parties include imported water, local streamflow, and other groundwater basins. By not pumping their Chino Basin rights, they can then store water in the Chino Basin for later use when their other less expensive sources are scarce. This is conjunctive use.

Exchange or sell to other producers. Some parties to the Judgment produce less than their rights resulting from decreased demand, groundwater quality problems, or because they have access to other less expensive supplies. The un-pumped water pursuant to the Judgment can be exchanged or sold to other parties to the Judgment.

Temporary shortfall in production capacity. Some parties may not be able to use all their rights due to temporary shortfalls in production capacity caused by water quality or mechanical problems. The un-pumped water goes into local storage accounts until production capacity is recovered or increased.

As a means of efficiently managing their available water supply, each appropriative and overlying non-agricultural producer tries to minimize the cost of water from the sources of supply available to that producer. Some producers have multiple sources of supply and some have limited supplies. Some agencies are in a position, because of the sources of supply available to them, to accumulate water in local storage accounts in most years. Conversely, some agencies produce groundwater from the Chino Basin in excess of their rights and cannot make use of local storage accounts except through the purchase or lease of other water. There are two fundamental reasons why storage limits should be considered.

Ensure reasonable beneficial use. The accumulation of water in local storage accounts in quantities that cannot be put to a reasonable beneficial use is in conflict with Section 2 of Article X of the California Constitution. Therefore, if a local storage account maximum storage limit needs to be set, the limit should be based on the producer’s ability to put the stored water to reasonable beneficial use.

Reduce groundwater losses to the Santa Ana River. The cumulative losses of water from local storage accounts can grow to be large and, thus, the ability to use the stored water to Chino Basin producers is lost. These losses could be minimized by storing water for shorter periods of time prior to use and by limiting the water put into storage accounts to an amount that can be put to reasonable beneficial use.

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Estimate of the Water Lost from Storage

The accumulation of groundwater in storage without an increase in groundwater production will cause the baseflow to increase in the Santa Ana River and some of its tributaries (Chino Creek and Mill Creek). Investigations conducted by Watermaster in 1995 concluded that losses from water in local storage accounts and cyclic storage are about two percent per year of the water in storage. These losses could reach over four percent in the future if groundwater production patterns are not managed in the southern part of the Basin. Exhibit A in the Program Element 8 Task Memorandum (on file and available from the Watermaster offices) shows the estimated losses from each local storage account, the cyclic storage account, and the Basin as a whole for the 20-year post-Judgment period of 1978 to 1997. The total water lost from local storage accounts and cyclic storage for the 20-year period of 1978 through 1997 is about 50,500 acre-ft. If the water in these storage accounts is produced without accounting for the losses then the Basin will be overdrafted by an amount equal to the water lost from storage.

Storage Limit Concepts

Currently there is no existing aggregate limit for local storage accounts. Watermaster's Uniform Groundwater Rules and Regulations (UGRR) contains an aggregate threshold storage value of 100,000 acre-ft above which losses to rising water are to be computed and allocated to the storage parties on a pro rata basis. The UGRR does not specify whether the loss is to be computed for the increment of storage above 100,000 acre-ft or total storage. The 100,000 acre-ft threshold value is an arbitrary number. Some loss will occur when water is placed into local storage. Using 100,000 acre-ft as a threshold value ensures that up to 2,000 acre-ft/yr of unaccounted-for-losses from storage will occur every year. This water will not be in the Basin when the storage parties attempt to recover the stored water. If losses are not accounted for, then the Basin is not being operated in the safe yield mode as required by the Judgment. Therefore, regardless of how storage limits are set, Watermaster should deduct the rising water losses from planned storage for all local storage accounts and for the storage accounts of non-Judgment parties. There are several different ways to develop upper limits on the individual local storage accounts. Some of these are described below.

Limit based on the ability to use. In this concept, an upper limit is based on the storage party's ability to store and recover all the water in its account over a fixed period, say five years. The storage party would have to demonstrate that it has enough production capacity to recover all the water in storage over a five-year period. The fixed period would be the same for all storage parties. In this concept, each storage party would have to demonstrate to Watermaster that they have the ability to put a specific volume of water into storage and be able to recover that water, adjusted for losses, over a fixed period of time. Thus, the storage party will have the facilities in place for groundwater production. This type of limit ensures that the water is put to a reasonable beneficial use. For example, suppose an agency has Chino Basin production capacity of 25,000 acre-ft/year, an operating yield of 15,000 acre-ft/yr and the fixed period has been set at five years. Then they would be allowed to put 50,000 acre-ft into its local storage account. If an agency were to increase its Chino Basin production capacity then its local storage account limit could be increased by an amount equal to five times the increase in production capacity. The five-year period used above is arbitrary – Watermaster would need to determine the length of the fixed period.

Arbitrary limits. In discussions regarding storage limits in prior years, Watermaster considered setting storage limits based on a multiple of safe yield for overlying non-agricultural pool and a multiple of operating safe yield for the appropriate pool. Parties that have historically over-produced and that will continue to over-produce may not ever be able to use such a local storage account. Parties that under-produce will fill their accounts and may hold water in these accounts for long periods of time and incur

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large storage losses. This has been the trend with the past operation of the local storage accounts. Upper limits based on this concept are arbitrary and may not provide for reasonable beneficial use of Chino Basin water. Storage limits based on a multiple of prior years production, an arbitrary volume equal for all parties, or any other arbitrary volume suffer from the same limitations.

Limit based on time water is in storage. In this concept, no volume limit would be set. Water could not be kept in storage for more than some fixed period of time, say ten years, regardless of the amount of water in storage. Water transferred from the local storage account for use by the storage party would be taken from the earliest water put into the local storage account. The storage party would be required to recover a volume of groundwater from its local storage account, sell or transfer a similar volume to another party, or sell a similar volume to Watermaster in order to reduce the quantity in its storage account by an amount equal to the water stored prior to the fixed period less losses to rising water. Simply stated, unused water from the first year would either be used or sold to Watermaster or other producer in the eleventh year, unused water from the second year would either be used or sold in the twelfth year, and so on if a ten year time limit is used.

Upper limit based on total storage and time water is in storage. This is a composite of the *ability to use* and *time in storage* concepts. In this case a volumetric upper limit would be set for each storage party based on the storage party's ability to store and recover water over a fixed period of time. A time constraint would be added such that water would not be kept in storage more than some fixed period of time.

In all the above storage limit concepts, the storage parties would sell their current year under-production to Watermaster or other parties to the Judgment each year that their local storage accounts are full. Watermaster, or parties to the Judgment, would then use this water to meet current replenishment obligations.

Implementation of Local Storage Account Limits

Watermaster's UGRR presently require an *initial determination of local storage requirements to be made*. Watermaster then allocates this storage to members of the appropriate and overlying non-agricultural pools when specific parties make an application for a local storage agreement. Watermaster must periodically review the status of the local storage accounts and adjust the local storage requirement as described in the UGRR. While not explicitly described in the Judgment or UGRR, local storage account limits based on the *ability to use*, *time in storage*, or a composite of the two, are consistent with the Judgment and could be implemented with some changes in the UGRR.

Local storage account limits based on the *ability to use* require that each agency make a determination of their Chino Basin groundwater production capacity and submit that finding to Watermaster. Watermaster would determine the duration over which the volume in local storage accounts would be used. Storage account limits for each storage party would be computed as:

$$\text{Storage Limit} = \text{duration of storage period} * (\text{Chino Basin production capacity} \\ - \text{average operating yield})$$

The average operating yield would equal the average of previous years operating yield entitlements (*e.g.*, five year average). Watermaster could periodically, or upon petition by a storage party, review and adjust the storage limits.

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Local storage account limits based on the *time in storage* require that Watermaster determine the time-in-storage limit. Watermaster could then go through production and local storage account records to determine if water must be either used or sold to Watermaster. Local storage account limits based on the composite of the *ability to use* and *time in storage* require the implementation steps described for both concepts.

Some storage parties may currently have more water in their local storage accounts than would be allowed in the storage limit concepts listed above. In this case, the storage party would not be allowed to put water into their local storage accounts and under-production would be purchased by Watermaster.

If, as a result of these storage limits, Watermaster is required to purchase more water than is required for replenishment, then either the storage party will be allowed to temporarily store additional water in its local storage account or Watermaster payments for that water may have to be temporarily deferred.

Water in local storage accounts is used for replenishment of overdraft either by the producer's that hold a local storage account, or is sold to other producers with replenishment obligations. It is possible that Watermaster could fulfill all replenishment obligations exclusively from local storage accounts for several years. Watermaster should fulfill the need for replenishment from increased production with imported water for those areas that have a critical need for imported water and use the water stored in local storage accounts for the rest of the replenishment obligation.

Storage Management Program

Since 1995, the producers have developed numerous storage management proposals. This storage management program described here was developed in April and May of 1999 and differs from the previous proposals that sought to assign all the readily-useful storage in the Basin up among producers. If successfully implemented, storage limits on individual storage accounts may not need to be considered by Watermaster. The proposal described herein will allow:

- Watermaster to develop conjunctive use programs that will benefit all the producers in the Basin;
- ensure that Basin water and storage are put to maximum beneficial use; and
- maintain the integrity of the Judgment.

Definitions. *Operational Storage Requirement* – The operational storage requirement is the storage or volume in the Chino Basin that is necessary to maintain safe yield. In the context of this storage management program, the operational storage is estimated to be about 5,300,000 acre-ft. An engineering analysis will be done to assess the operational storage requirement of the Basin as part of the implementation of this program.

Safe Storage – Safe storage is an estimate of the maximum storage in the Basin that will not cause significant water quality and high groundwater-related problems. In the context of this storage management program, the safe storage is estimated to be about 5,800,000 acre-ft. An engineering analysis will be done to assess the safe storage requirement of the Basin as part of the implementation this plan.

Safe Storage Capacity – The safe storage capacity is the difference between safe storage and operational storage requirement and is the storage that could be safely used by producers and Watermaster for storage programs. Based on the above, the safe storage capacity is about 500,000 acre-ft. The allocation and use of storage in excess of safe storage will preemptively require mitigation, that is, mitigation must be defined and resources committed to mitigation prior to allocation and use.

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Key Elements

- No maximum storage limit will be placed on local storage accounts for a period of five years ending on June 30, 2004, and water that becomes eligible for storage can be stored.
- The need for storage limits will be re-evaluated in five years based on the ability of the storing party to use the water in storage (ability to use concept) and on Watermaster's need for storage programs that provide regional benefits.
- Storage is not assignable.
- All water in local storage and other storage accounts will incur losses at a rate of 2 percent of water in storage each year starting in fiscal year 2002/03.
- The storage loss rate and safe yield will be estimated in the year 2012/13 and every ten years thereafter.
- Watermaster will develop regional conjunctive-use programs to store supplemental water for MWDSC and other entities that can cause supplemental water to be stored in the Basin.
- The regional conjunctive-use programs will provide benefits to all producers in the Basin, the people of California and the nation. Watermaster's conjunctive-use programs will take priority over conjunctive-use programs developed by others.
- Storage committed to conjunctive-use programs may consist of two parts, storage within the safe storage capacity and storage in excess of safe storage. Storage in excess of safe storage capacity will preemptively require mitigation.
- The initial target storage for Watermaster's conjunctive-use program will be 150,000 to 300,000 acre-ft within the safe storage capacity.
- Cyclic storage will be folded into conjunctive-use storage.
- Watermaster's conjunctive-use program tentatively consists of the following elements:
 - complete the existing short term conjunctive-use project;
 - seasonal peaking program for in Basin use and dry year program to reduce the demand on Metropolitan to 10 percent of normal summer demand (requiring 150,000 acre-ft of storage);
 - dry-year export program; and
 - seasonal peaking export program.

Re-determination of Safe Yield and Storage Loss Rates. The safe yield and storage loss rate will be assessed every ten years starting in the year 2012/13. The ten-year period of 2002/03 to 2011/12 will be used to compute the safe yield and to estimate the storage loss rate.

Safe yield and storage loss rate determinations require accurate groundwater level and production data. Watermaster does not have accurate production data from agricultural producers. Watermaster estimates most of the production in the agricultural pool using a water duty method that does not meet the requirements of the Judgment. Program Element 1 of the OBMP includes a program to install meters and obtain production measurements from all wells in the Basin. It will take three years to fully meter all agricultural wells. Watermaster will have accurate production monitoring at all wells starting in year

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2002/03. Watermaster is in the process of developing a groundwater level monitoring program for the Basin. This plan should be implemented in the year 1999/00.

The safe yield in the Judgment was developed over the period 1965 to 1974 using the procedure described in Section 2 of the OBMP report. The safe yield will be re-determined in year 2012/13 using the ten-year period 2002/03 to 2011/12 because it will contain accurate production data and groundwater level data. A ten-year period is proposed to be consistent with the method used in the engineering work for the Judgment and is the minimum necessary to estimate a safe yield.

Re-determination of the storage loss rate will require the use of a numerical flow model. The *RAM Tool* developed by Watermaster will be modified and used for this purpose. The model would be used as follows:

- Calibrate the RAM tool for the safe yield period. In the calibration process, the hydrology for the period 2002/03 to 2011/12 will be developed including deep percolation of applied water and precipitation, unmeasured storm water recharge, subsurface inflow from adjacent basins, and uncontrolled discharges from the Basin (rising water).
- Once calibrated, the water supply plans of the producers and other storage entities will be modified to assume that no water would be put into storage accounts. The model will be rerun with this assumption and the results would be compared to the calibration run to determine losses from storage and the storage loss rate.
- The storage loss rate would be set based on the relationship of water in storage and associated losses.

Watermaster's new groundwater level and production monitoring are crucial to this effort.

Implementation Actions and Schedule

First Three Years (1999/00 to 2001/02). The following actions will be completed in the first three years commencing fiscal year 1999/00:

- Receive Court approval of OBMP.
- Evaluate need to modify Watermaster UGRR to reflect the storage management plan.
- Determine the operational storage requirement and safe storage.
- Begin formal implementation of comprehensive monitoring programs described in Program Element 1 (including groundwater level, groundwater quality, production, and surface water monitoring in the Santa Ana River).
- Complete the existing short-term conjunctive-use pilot project with MWDSC.
- Conduct engineering and environmental analyses, other feasibility efforts, and negotiate agreements to:
 - implement a conjunctive-use program that includes seasonal peaking for in Basin use and dry year program to reduce the demand on MWDSC to 10 percent of normal summer in-Basin demand (requiring 150,000 acre-ft of storage);
 - implement a conjunctive-use program for dry-year export; and
 - implement a seasonal peaking program for export.

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Years Four through Ten (2002/03 to 2008/09). The following actions will be completed in years four through ten, commencing fiscal year 2002/03:

- Continue monitoring as described in Program Element 1.
- Begin construction of facilities to implement the conjunctive-use projects listed in *years one through three*, in year 2003/04.
- Commence conjunctive-use operations.
- Start assessing losses in year 2002/03.

Years Eleven through Fifty (2009/10 to 2048/49). The following actions will be completed in years eleven through fifty, commencing fiscal year 2009/10:

- Continue monitoring as described in Program Element 1.
- Continue conjunctive-use operations.
- In year 2012/13, compute safe yield and storage loss rate for period 2002/03 through 2011/12, and reset safe yield and storage loss rates for the next the next ten-year period 2012/13 to 2021/22. Reassess storage management plan and modify Watermaster UGRR, if needed.
- In year 2022/23, compute safe yield and storage loss rate for period 2012/13 through 2021/22, and reset safe yield and storage loss rates for the next the next ten-year period 2022/23 to 2031/32. Reassess storage management plan and modify Watermaster UGRR, if needed.
- In year 2032/33, compute safe yield and storage loss rate for period 2022/23 through 2031/32, and reset safe yield and storage loss rates for the next the next ten-year period 2042/43 to 2041/42. Reassess storage management plan and modify Watermaster UGRR, if needed.
- In year 2042/43, compute safe yield and storage loss rate for period 2032/33 through 2041/42, and reset safe yield and storage loss rates for the next the next ten-year period 2052/53 to 2051/52. Reassess storage management plan and modify Watermaster UGRR, if needed.

PROGRAM COST AND EARLY IMPLEMENTATION PLAN

Table 4-14 contains a 20-year cost projection for implementation of the OBMP. The 20-year cost of OBMP implementation is about \$400,000,000. The following program elements will be implemented entirely by Watermaster:

- Program Element 1 – Develop and Implement Comprehensive Monitoring Program
- Program Element 4 – Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1
- Program Element 6 – Develop and Implement Cooperative Programs with the Regional Water Quality Control Board, Santa Ana Region (Regional Board) and Other Agencies to Improve Basin Management
- Program Element 7 – Develop and Implement Salt Management Program
- Program Element 8 – Develop and Implement Groundwater Storage Management Program

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Watermaster has committed to fund these program elements in their entirety through Watermaster assessments and through grants obtained directly by Watermaster. The Watermaster budget for fiscal 1999-2000 provides funding necessary to begin the efforts described in these program elements. The cost of the first three years is about \$2,900,000 and average annual cost for the next 20 years is about \$480,000.

The following program elements will be started by Watermaster in fiscal 1999-2000 and will be completed by others by agreement with Watermaster:

- Program Element 2 – Develop and Implement Comprehensive Recharge Program
- Program Element 3 – Develop and Implement Water Supply Plan for the Impaired Areas of the Basin
- Program Element 5 – Develop and Implement Regional Supplemental Water Program

The Watermaster budget for fiscal 1999-2000 provides funding necessary to begin the planning processes for these program elements. For Program Element 2, Watermaster's projected budget includes funds for completion of Phases 2 and 3 of the recharge master plan of \$430,000 to be spent in the first three years of OBMP implementation. For Program Elements 3 and 5, the Watermaster budget contains funds to start the planning process and to define the scope of the facilities at enough detail so that agreements can be done for others to build and operate the facilities required in these program elements. Watermaster has budgeted about \$650,000 for this process over the first three years of OBMP implementation. These agreements will be described in Part 2 of the OBMP report documents.

The Watermaster budget includes funds to begin the planning process for Program Element 9 – Develop and Implement Conjunctive-Use Programs. Watermaster has budgeted about \$430,000 for this process over the first three years of OBMP implementation. The stakeholders envision that the cost of conjunctive use will be borne by outside interests that will store water in the Chino Basin.

OBMP PROGRESS REPORTS AND PROGRAM UPDATES

Watermaster will report progress on the OBMP in its annual report to the Court. Watermaster will formally review and update the OBMP at a frequency of five years or less.

LEGAL QUESTIONS AND ISSUES

The Judgment prescribes the process by which the Watermaster Board receives recommendations from the producers and is empowered to make decisions. To address the unresolved legal questions and issues identified below, the items will be brought to the individual pool committees for discussion and consideration. The pools in turn will develop their positions and recommendations for discussion and consideration by the Advisory Committee. The Advisory Committee will meet to discuss and consider the questions. The Advisory Committee's recommendations will be forwarded to the Watermaster Board for its consideration and implementation. Should the Watermaster Board disagree with the Advisory Committee recommendation, it has several options based on the Judgment and past practice. These options are:

If the Advisory Committee vote is equal to or greater than 80 percent:

1. Ask the Advisory Committee to reconsider the question based on a Board recommendation.

SECTION 4 MANAGEMENT PLAN

2. If the Advisory Committee does not wish to reconsider the matter, the Watermaster Board may ask the Court to consider the matter.

If the Advisory Committee vote is less than 80 percent:

1. Hold a hearing on the matter and develop written findings and conclusions.

During implementation of the OBMP, all unresolved legal questions and issues listed below will be addressed through the process described above. A schedule to address these items will be developed, and Watermaster will prepare written findings and conclusions to be submitted to the Court as part of the implementation process. This will be done regardless of the Advisory Committee vote or Watermaster findings and conclusions in an effort to more effectively keep the Court apprised of the OBMP implementation progress.

Watermaster recommends this manner of addressing legal questions and issues pursuant to the Judgment and in keeping with the Plaintiff's Post Trial Memorandum filed with the Court on July 12, 1978. At 4:13-20 in Paragraph B. 2. Watermaster Organization and Powers, of the Post Trial Memorandum it states:

“At the same time, the Watermaster Advisory Committee was created and given broad powers to review, advise and consent to the actions of the Watermaster, subject to more detailed actions by the pool committees formed to advise, consent and administer the affairs of the several pools established under the Physical Solution. In these many provisions, there is a balance created to assure the protection of the private rights of the parties and the general public interest in the preservation of the resource. (emphasis added).”

The process described above will be used to address the legal questions and issues listed below.

- Transfers of water within and from the overlying non-agricultural pool
- Clarification and/or expansion of definitions of types of water in Judgment
- Evaluation of Judgment provisions and rules and regulations affected by the OBMP

These questions and issues will be resolved in the first three years of the OBMP implementation.

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San Bernardino County Clerk

OCT 25 1989

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

MICROFILMED

12 CHINO BASIN MUNICIPAL WATER)
13 DISTRICT,)
14 Plaintiff,)
15 v.)
16 CITY OF CHINO, et al.)
17 Defendants.)

No. 164327

REN 51010

JUDGMENT

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12 CHINO BASIN MUNICIPAL WATER)
DISTRICT,)
13)
Plaintiff,) No. 164327
14)
v.) JUDGMENT
15)
CITY OF CHINO, et al.)
16)
Defendants.)
17)

18
19 I. INTRODUCTION

20 1. Pleadings, Parties and Jurisdiction. The complaint here-
21 in was filed on January 2, 1975, seeking an adjudication of water
22 rights, injunctive relief and the imposition of a physical solu-
23 tion. A first amended complaint was filed on July 16, 1976. The
24 defaults of certain defendants have been entered, and certain
25 other defendants dismissed. Other than defendants who have been
26 dismissed or whose defaults have been entered, all defendants have
27 appeared herein. By answers and order of this Court, the issues
28 have been made those of a full inter se adjudication between the

1 parties. This Court has jurisdiction of the subject matter of
2 this action and of the parties herein.

3 2. Stipulation For Judgment. Stipulation for entry of
4 judgment has been filed by and on behalf of a majority of the
5 parties, representing a majority of the quantitative rights herein
6 adjudicated.

7 3. Trial; Findings and Conclusions. Trial was commenced on
8 December 16, 1977, as to the non-stipulating parties, and findings
9 of fact and conclusions of law have been entered disposing of the
10 issues in the case.

11 4. Definitions. As used in this Judgment, the following
12 terms shall have the meanings herein set forth:

13 (a) Active Parties. All parties other than those who
14 have filed with Watermaster a written waiver of service of
15 notices, pursuant to Paragraph 58.

16 (b) Annual or Year -- A fiscal year, July 1 through
17 June 30, following, unless the context shall clearly indicate
18 a contrary meaning.

19 (c) Appropriative Right -- The annual production right
20 of a producer from the Chino Basin other than pursuant to an
21 overlying right.

22 (d) Basin Water -- Ground water within Chino Basin which
23 is part of the Safe Yield, Operating Safe Yield, or replen-
24 ishment water in the Basin as a result of operations under the
25 Physical Solution decreed herein. Said term does not include
26 Stored Water.

27 (e) CBMWD -- Plaintiff Chino Basin Municipal Water
28 District.

1 (f) Chino Basin or Basin -- The ground water basin
2 underlying the area shown as such on Exhibit "B" and within
3 the boundaries described in Exhibit "K".

4 (g) Chino Basin Watershed -- The surface drainage area
5 tributary to and overlying Chino Basin.

6 (h) Ground Water -- Water beneath the surface of the
7 ground and within the zone of saturation, i.e., below the
8 existing water table.

9 (i) Ground Water Basin -- An area underlain by one or
10 more permeable formations capable of furnishing substantial
11 water storage.

12 (j) Minimal Producer -- Any producer whose production
13 does not exceed five acre-feet per year.

14 (k) MWD -- The Metropolitan Water District of Southern
15 California.

16 (l) Operating Safe Yield -- The annual amount of ground
17 water which Watermaster shall determine, pursuant to criteria
18 specified in Exhibit "I", can be produced from Chino Basin by
19 the Appropriative Pool parties free of replenishment obliga-
20 tion under the Physical Solution herein.

21 (m) Overdraft -- A condition wherein the total annual
22 production from the Basin exceeds the Safe Yield thereof.

23 (n) Overlying Right -- The appurtenant right of an owner
24 of lands overlying Chino Basin to produce water from the Basin
25 for overlying beneficial use on such lands.

26 (o) Person. Any individual, partnership, association,
27 corporation, governmental entity or agency, or other organ-
28 ization.

1 (p) PVMWD -- Defendant Pomona Valley Municipal Water
2 District.

3 (q) Produce or Produced -- To pump or extract ground
4 water from Chino Basin.

5 (r) Producer -- Any person who produces water from Chino
6 Basin.

7 (s) Production -- Annual quantity, stated in acre feet,
8 of water produced.

9 (t) Public Hearing -- A hearing after notice to all
10 parties and to any other person legally entitled to notice.

11 (u) Reclaimed Water -- Water which, as a result of
12 processing of waste water, is suitable for a controlled use.

13 (v) Replenishment Water -- Supplemental water used to
14 recharge the Basin pursuant to the Physical Solution, either
15 directly by percolating the water into the Basin or indirectly
16 by delivering the water for use in lieu of production and use
17 of safe yield or Operating Safe Yield.

18 (w) Responsible Party -- The owner, co-owner, lessee or
19 other person designated by multiple parties interested in a
20 well as the person responsible for purposes of filing reports
21 hereunder.

22 (x) Safe Yield -- The long-term average annual quantity
23 of ground water (excluding replenishment or stored water but
24 including return flow to the Basin from use of replenishment
25 or stored water) which can be produced from the Basin under
26 cultural conditions of a particular year without causing an
27 undesirable result.

28 (y) SBVMWD -- San Bernardino Valley Municipal Water

1 District.

2 (z) State Water -- Supplemental Water imported through
3 the State Water Resources Development System, pursuant to
4 Chapter 8, Division 6, Part 6 of the Water Code.

5 (aa) Stored Water -- Supplemental water held in storage,
6 as a result of direct spreading, in lieu delivery, or other-
7 wise, for subsequent withdrawal and use pursuant to agreement
8 with Watermaster.

9 (bb) Supplemental Water -- Includes both water imported
10 to Chino Basin from outside Chino Basin Watershed, and re-
11 claimed water.

12 (cc) WMWD -- Defendant Western Municipal Water District
13 of Riverside County.

14 5. List of Exhibits. The following exhibits are attached to
15 this Judgment and made a part hereof:

16 "A" -- "Location Map of Chino Basin" showing boundaries
17 of Chino Basin Municipal Water District, and other geographic
18 and political features.

19 "B" -- "Hydrologic Map of Chino Basin" showing hydrologic
20 features of Chino Basin.

21 "C" -- Table Showing Parties in Overlying (Agricultural)
22 Pool.

23 "D" -- Table Showing Parties in Overlying (Non-
24 agricultural Pool and Their Rights.

25 "E" -- Table Showing Appropriators and Their Rights.

26 "F" -- Overlying (Agricultural) Pool Pooling Plan.

27 "G" -- Overlying (Non-agricultural) Pool Pooling Plan.

28 "H" -- Appropriative Pool Pooling Plan.

1 "I" -- Engineering Appendix.

2 "J" -- Map of In Lieu Area No. 1.

3 "K" -- Legal Description of Chino Basin.

4
5 II. DECLARATION OF RIGHTS

6 A. HYDROLOGY

7 6. Safe Yield. The Safe Yield of Chino Basin is 140,000 acre
8 feet per year.

9 7. Overdraft and Prescriptive Circumstances. In each year
10 for a period in excess of five years prior to filing of the First
11 Amended Complaint herein, the Safe Yield of the Basin has been
12 exceeded by the annual production therefrom, and Chino Basin is and
13 has been for more than five years in a continuous state of over-
14 draft. The production constituting said overdraft has been open,
15 notorious, continuous, adverse, hostile and under claim of right.
16 The circumstances of said overdraft have given notice to all
17 parties of the adverse nature of such aggregate over-production.

18 B. WATER RIGHTS IN SAFE YIELD

19 8. Overlying Rights. The parties listed in Exhibits "C" and
20 "D" are the owners or in possession of lands which overlie Chino
21 Basin. As such, said parties have exercised overlying water
22 rights in Chino Basin. All overlying rights owned or exercised by
23 parties listed in Exhibits "C" and "D" have, in the aggregate, been
24 limited by prescription except to the extent such rights have been
25 preserved by self-help by said parties. Aggregate preserved
26 overlying rights in the Safe Yield for agricultural pool use,
27 including the rights of the State of California, total 82,800 acre
28 feet per year. Overlying rights for non-agricultural pool use

1 total 7,366 acre feet per year and are individually decreed for
2 each affected party in Exhibit "D". No portion of the Safe Yield
3 of Chino Basin exists to satisfy unexercised overlying rights, and
4 such rights have all been lost by prescription. However, uses may
5 be made of Basin Water on overlying lands which have no preserved
6 overlying rights pursuant to the Physical Solution herein. All
7 overlying rights are appurtenant to the land and cannot be assigned
8 or conveyed separate or apart therefrom.

9 9. Appropriative Rights. The parties listed in Exhibit "E"
10 are the owners of appropriative rights, including rights by pres-
11 cription, in the unadjusted amounts therein set forth, and by
12 reason thereof are entitled under the Physical Solution to share in
13 the remaining Safe Yield, after satisfaction of overlying rights
14 and rights of the State of California, and in the Operating Safe
15 Yield in Chino Basin, in the annual shares set forth in Exhibit
16 "E".

17 (a) Loss of Priorities. By reason of the long continued
18 overdraft in Chino Basin, and in light of the complexity of
19 determining appropriative priorities and the need for con-
20 serving and making maximum beneficial use of the water re-
21 sources of the State, each and all of the parties listed in
22 Exhibit "E" are estopped and barred from asserting special
23 priorities or preferences, inter se. All of said appropri-
24 ative rights are accordingly deemed and considered of equal
25 priority.

26 (b) Nature and Quantity. All rights listed in Exhibit
27 "E" are appropriative and prescriptive in nature. By reason
28 of the status of the parties, and the provisions of Section

1 1007 of the Civil Code, said rights are immune from reduction
2 or limitation by prescription.

3 10. Rights of the State of California. The State of
4 California, by and through its Department of Corrections, Youth
5 Authority and Department of Fish and Game, is a significant pro-
6 ducer of ground water from and the State is the largest owner of
7 land overlying Chino Basin. The precise nature and scope of the
8 claims and rights of the State need not be, and are not, defined
9 herein. The State, through said departments, has accepted the
10 Physical Solution herein decreed, in the interests of implementing
11 the mandate of Section 2 of Article X of the California Constitu-
12 tion. For all purposes of this Judgment, all future production by
13 the State or its departments or agencies for overlying use on
14 State-owned lands shall be considered as agricultural pool use.

15 C. RIGHTS TO AVAILABLE GROUND WATER STORAGE CAPACITY

16 11. Available Ground Water Storage Capacity. There exists in
17 Chino Basin a substantial amount of available ground water storage
18 capacity which is not utilized for storage or regulation of Basin
19 Waters. Said reservoir capacity can appropriately be utilized for
20 storage and conjunctive use of supplemental water with Basin
21 Waters. It is essential that said reservoir capacity utilization
22 for storage and conjunctive use of supplemental water be undertaken
23 only under Watermaster control and regulation, in order to protect
24 the integrity of both such Stored Water and Basin Water in storage
25 and the Safe Yield of Chino Basin.

26 12. Utilization of Available Ground Water Capacity. Any
27 person or public entity, whether a party to this action or not, may
28 make reasonable beneficial use of the available ground water

1 storage capacity of Chino Basin for storage of supplemental water;
2 provided that no such use shall be made except pursuant to written
3 agreement with Watermaster, as authorized by Paragraph 28. In the
4 allocation of such storage capacity, the needs and requirements of
5 lands overlying Chino Basin and the owners of rights in the Safe
6 Yield or Operating Safe Yield of the Basin shall have priority and
7 preference over storage for export.

8
9 III. INJUNCTION

10 13. Injunction Against Unauthorized Production of Basin
11 Water. Each party in each of the respective pools is enjoined, as
12 follows:

13 (a) Overlying (Agricultural) Pool. Each party in the
14 Overlying (Agricultural) Pool, its officers, agents, employees,
15 successors and assigns, is and they each are ENJOINED AND
16 RESTRAINED from producing ground water from Chino Basin in any
17 year hereafter in excess of such party's correlative share of
18 the aggregate of 82,800 acre feet allocated to said Pool,
19 except pursuant to the Physical Solution or a storage water
20 agreement.

21 (b) Overlying (Non-Agricultural) Pool. Each party in
22 the Overlying (Non-agricultural) Pool, its officers, agents,
23 employees, successors and assigns, is and they each are
24 ENJOINED AND RESTRAINED from producing ground water of Chino
25 Basin in any year hereafter in excess of such party's decreed
26 rights in the Safe Yield, except pursuant to the provisions of
27 the Physical Solution or a storage water agreement.

28 (c) Appropriative Pool. Each party in the

1 (c) The determination of specific quantitative rights
2 and shares in the declared Safe Yield or Operating Safe Yield
3 herein declared in Exhibits "D" and "E"; and

4 (d) The amendment or modification of Paragraphs 7(a) and
5 (b) of Exhibit "H", during the first ten (10) years of oper-
6 ation of the Physical Solution, and thereafter only upon
7 affirmative recommendation of at least 67% of the voting power
8 (determined pursuant to the formula described in Paragraph 3
9 of Exhibit "H"), but not less than one-third of the members
10 of the Appropriative Pool Committee representatives of parties
11 who produce water within CBMWD or WMWD; after said tenth year
12 the formula set forth in said Paragraph 7(a) and 7(b) of
13 Exhibit "H" for payment of the costs of replenishment water
14 may be changed to 100% gross or net, or any percentage split
15 thereof, but only in response to recommendation to the Court
16 by affirmative vote of at least 67% of said voting power of
17 the Appropriative Pool representatives of parties who produce
18 ground water within CBMWD or WMWD, but not less than one-third
19 of their number. In such event, the Court shall act in con-
20 formance with such recommendation unless there are compelling
21 reasons to the contrary; and provided, further, that the fact
22 that the allocation of Safe Yield or Operating Safe Yield
23 shares may be rendered moot by a recommended change in the
24 formula for replenishment assessments shall not be deemed to
25 be such a "compelling reason."

26 Said continuing jurisdiction is provided for the purpose of en-
27 abling the Court, upon application of any party, the Watermaster,
28 the Advisory Committee or any Pool Committee, by motion and, upon

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1 at least 30 days' notice thereof, and after hearing thereon, to
2 make such further or supplemental orders or directions as may be
3 necessary or appropriate for interpretation, enforcement or carry-
4 ing out of this Judgment, and to modify, amend or amplify any of
5 the provisions of this Judgment.

6
7 V. WATERMASTER

8 A. APPOINTMENT

9 16. Watermaster Appointment. CBMWD, acting by and through a
10 majority of its board of directors, is hereby appointed Water-
11 master, to administer and enforce the provisions of this Judgment
12 and any subsequent instructions or orders of the Court hereunder.
13 The term of appointment of Watermaster shall be for five (5) years.
14 The Court will by subsequent orders provide for successive terms or
15 for a successor Watermaster. Watermaster may be changed at any
16 time by subsequent order of the Court, on its own motion, or on the
17 motion of any party after notice and hearing. Unless there are
18 compelling reasons to the contrary, the Court shall act in con-
19 formance with a motion requesting the Watermaster be changed if
20 such motion is supported by a majority of the voting power of the
21 Advisory Committee.

22 B. POWERS AND DUTIES

23 17. Powers and Duties. Subject to the continuing supervision
24 and control of the Court, Watermaster shall have and may exercise
25 the express powers, and shall perform the duties, as provided in
26 this Judgment or hereafter ordered or authorized by the Court in
27 the exercise of the Court's continuing jurisdiction.

28 18. Rules and Regulations. Upon recommendation by the

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1 Advisory Committee, Watermaster shall make and adopt, after public
2 hearing, appropriate rules and regulations for conduct of Water-
3 master affairs, including meeting schedules and procedures, and
4 compensation of members of Watermaster at not to exceed \$25 per
5 member per meeting, or \$300 per member per year, whichever is less,
6 plus reasonable expenses related to activities within the Basin.
7 Thereafter, Watermaster may amend said rules from time to time upon
8 recommendation, or with approval of the Advisory Committee after
9 hearing noticed to all active parties. A copy of said rules and
10 regulations, and of any amendments thereof, shall be mailed to each
11 active party.

12 19. Acquisition of Facilities. Watermaster may purchase,
13 lease, acquire and hold all necessary facilities and equipment;
14 provided, that it is not the intent of the Court that Watermaster
15 acquire any interest in real property or substantial capital
16 assets.

17 20. Employment of Experts and Agents. Watermaster may
18 employ or retain such administrative, engineering, geologic,
19 accounting, legal or other specialized personnel and consultants as
20 may be deemed appropriate in the carrying out of its powers and
21 shall require appropriate bonds from all officers and employees
22 handling Watermaster funds. Watermaster shall maintain records for
23 purposes of allocation of costs of such services as well as of all
24 other expenses of Watermaster administration as between the several
25 pools established by the Physical Solution.

26 21. Measuring Devices. Watermaster shall cause parties,
27 pursuant to uniform rules, to install and maintain in good opera-
28 ting condition, at the cost of each party, such necessary measuring

1 devices or meters as Watermaster may deem appropriate. Such
2 measuring devices shall be inspected and tested as deemed necessary
3 by Watermaster, and the cost thereof shall constitute an expense of
4 Watermaster.

5 22. Assessments. Watermaster is empowered to levy and
6 collect all assessments provided for in the pooling plans and
7 Physical Solution.

8 23. Investment of Funds. Watermaster may hold and invest any
9 and all Watermaster funds in investments authorized from time to
10 time for public agencies of the State of California.

11 24. Borrowing. Watermaster may borrow from time to time
12 amounts not exceeding the annual anticipated receipts of Water-
13 master during such year.

14 25. Contracts. Watermaster may enter into contracts for the
15 performance of any powers herein granted; provided, however, that
16 Watermaster may not contract with or purchase materials, supplies
17 or services from CBMWD, except upon the prior recommendation and
18 approval of the Advisory Committee and pursuant to written order of
19 the Court.

20 26. Cooperation With Other Agencies. Subject to prior
21 recommendation or approval of the Advisory Committee, Watermaster
22 may act jointly or cooperate with agencies of the United States and
23 the State of California or any political subdivisions, munici-
24 palities or districts or any person to the end that the purpose of
25 the Physical Solution may be fully and economically carried out.

26 27. Studies. Watermaster may, with concurrence of the
27 Advisory Committee or affected Pool Committee and in accordance
28 with Paragraph 54(b), undertake relevant studies of hydrologic

1 conditions, both quantitative and qualitative, and operating
2 aspects of implementation of the management program for Chino
3 Basin.

4 28. Ground Water Storage Agreements. Watermaster shall
5 adopt, with the approval of the Advisory Committee, uniformly
6 applicable rules and a standard form of agreement for storage of
7 supplemental water, pursuant to criteria therefor set forth in
8 Exhibit "I". Upon appropriate application by any person, Water-
9 master shall enter into such a storage agreement; provided that all
10 such storage agreements shall first be approved by written order of
11 the Court, and shall by their terms preclude operations which will
12 have a substantial adverse impact on other producers.

13 29. Accounting for Stored Water. Watermaster shall calculate
14 additions, extractions and losses and maintain an annual account of
15 all Stored Water in Chino Basin, and any losses of water supplies
16 or Safe Yield of Chino Basin resulting from such Stored Water.

17 30. Annual Administrative Budget. Watermaster shall submit
18 to Advisory Committee an administrative budget and recommendation
19 for each fiscal year on or before March 1. The Advisory Committee
20 shall review and submit said budget and their recommendations to
21 Watermaster on or before April 1, following. Watermaster shall
22 hold a public hearing on said budget at its April quarterly meeting
23 and adopt the annual administrative budget which shall include the
24 administrative items for each pool committee. The administrative
25 budget shall set forth budgeted items in sufficient detail as
26 necessary to make a proper allocation of the expense among the
27 several pools, together with Watermaster's proposed allocation.
28 The budget shall contain such additional comparative information

1 or explanation as the Advisory Committee may recommend from time
2 to time. Expenditures within budgeted items may thereafter be
3 made by Watermaster in the exercise of powers herein granted, as a
4 matter of course. Any budget transfer in excess of 20% of a
5 budget category during any budget year or modification of such
6 administrative budget during any year shall be first submitted to
7 the Advisory Committee for review and recommendation.

8 31. Review Procedures. All actions, decisions or rules of
9 Watermaster shall be subject to review by the Court on its own
10 motion or on timely motion by any party, the Watermaster (in the
11 case of a mandated action), the Advisory Committee, or any Pool
12 Committee, as follows:

13 (a) Effective Date of Watermaster Action. Any action,
14 decision or rule of Watermaster shall be deemed to have
15 occurred or been enacted on the date on which written
16 notice thereof is mailed. Mailing of copies of approved
17 Watermaster minutes to the active parties shall constitute
18 such notice to all parties.

19 (b) Noticed Motion. Any party, the Watermaster (as
20 to any mandated action), the Advisory Committee, or any
21 Pool Committee may, by a regularly noticed motion, apply
22 to the Court for review of any Watermaster's action,
23 decision or rule. Notice of such motion shall be served
24 personally or mailed to Watermaster and to all active
25 parties. Unless otherwise ordered by the Court, such
26 motion shall not operate to stay the effect of such
27 Watermaster action, decision or rule.
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1 (c) Time for Motion. Notice of motion to review any
2 Watermaster action, decision or rule shall be served and filed
3 within ninety (90) days after such Watermaster action, de-
4 cision or rule, except for budget actions, in which event said
5 notice period shall be sixty (60) days.

6 (d) De Novo Nature of Proceedings. Upon the filing of
7 any such motion, the Court shall require the moving party to
8 notify the active parties, the Watermaster, the Advisory
9 Committee and each Pool Committee, of a date for taking
10 evidence and argument, and on the date so designated shall
11 review de novo the question at issue. Watermaster's findings
12 or decision, if any, may be received in evidence at said
13 hearing, but shall not constitute presumptive or prima facie
14 proof of any fact in issue.

15 (e) Decision. The decision of the Court in such proceed-
16 ing shall be an appealable supplemental order in this case.
17 When the same is final, it shall be binding upon the Water-
18 master and all parties.

19 C. ADVISORY AND POOL COMMITTEES

20 32. Authorization. Watermaster is authorized and directed to
21 cause committees of producer representatives to be organized to
22 act as Pool Committees for each of the several pools created under
23 the Physical Solution. Said Pool Committees shall, in turn,
24 jointly form an Advisory Committee to assist Watermaster in per-
25 formance of its functions under this judgment. Pool Committees
26 shall be composed as specified in the respective pooling plans, and
27 the Advisory Committee shall be composed of not to exceed ten (10)
28 voting representatives from each pool, as designated by the

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1 respective Pool Committee. WMWD, PVMWD and SBVMWD shall each be
2 entitled to one non-voting representative on said Advisory Com-
3 mittee.

4 33. Term and Vacancies. Members of any Pool Committee, shall
5 serve for the term, and vacancies shall be filled, as specified in
6 the respective pooling plan. Members of the Advisory Committee
7 shall serve at the will of their respective Pool Committee.

8 34. Voting Power. The voting power on each Pool Committee
9 shall be allocated as provided in the respective pooling plan. The
10 voting power on the Advisory Committee shall be one hundred (100)
11 votes allocated among the three pools in proportion to the total
12 assessments paid to Watermaster during the preceding year; pro-
13 vided, that the minimum voting power of each pool shall be

- 14 (a) Overlying (Agricultural) Pool 20,
15 (b) Overlying (Non-agricultural) Pool 5, and
16 (c) Appropriative Pool 20.

17 In the event any pool is reduced to its said minimum vote, the re-
18 maining votes shall be allocated between the remaining pools on
19 said basis of assessments paid to Watermaster by each such remain-
20 ing pool during the preceding year. The method of exercise of
21 each pool's voting power on the Advisory Committee shall be as
22 determined by the respective pool committees.

23 35. Quorum. A majority of the voting power of the Advisory
24 Committee or any Pool Committee shall constitute a quorum for the
25 transaction of affairs of such Advisory or Pool Committee; pro-
26 vided, that at least one representative of each Pool Committee
27 shall be required to constitute a quorum of the Advisory Committee.
28 No Pool Committee representative may purposely absent himself or

1 herself, without good cause, from an Advisory Committee meeting to
2 deprive it of a quorum. Action by affirmative vote of a majority
3 of the entire voting power of any Pool Committee or the Advisory
4 Committee shall constitute action by such committee. Any action or
5 recommendation of a Pool Committee or the Advisory Committee shall
6 be transmitted to Watermaster in writing, together with a report of
7 any dissenting vote or opinion.

8 36. Compensation. Pool or Advisory Committee members may
9 receive compensation, to be established by the respective pooling
10 plan, but not to exceed twenty-five dollars (\$25.00) for each
11 meeting of such Pool or Advisory Committee attended, and provided
12 that no member of a Pool or Advisory Committee shall receive
13 compensation of more than three hundred (\$300.00) dollars for
14 service on any such committee during any one year. All such com-
15 pensation shall be a part of Watermaster administrative expense.
16 No member of any Pool or Advisory Committee shall be employed by
17 Watermaster or compensated by Watermaster for professional or other
18 services rendered to such Pool or Advisory Committee or to Water-
19 master, other than the fee for attendance at meetings herein
20 provided, plus reimbursement of reasonable expenses related to
21 activities within the Basin.

22 37. Organization.

23 (a) Organizational Meeting. At its first meeting in
24 each year, each Pool Committee and the Advisory Committee
25 shall elect a chairperson and a vice chairperson from its
26 membership. It shall also select a secretary, a treasurer
27 and such assistant secretaries and treasurers as may be
28 appropriate, any of whom may, but need not, be members of

1 such Pool or Advisory Committee.

2 (b) Regular Meetings. All Pool Committees and the
3 Advisory Committee shall hold regular meetings at a place and
4 time to be specified in the rules to be adopted by each Pool
5 and Advisory Committee. Notice of regular meetings of any
6 Pool or Advisory Committee, and of any change in time or
7 place thereof, shall be mailed to all active parties in said
8 pool or pools.

9 (c) Special Meetings. Special meetings of any Pool or
10 Advisory Committee may be called at any time by the Chair-
11 person or by any three (3) members of such Pool or Advisory
12 Committee by delivering notice personally or by mail to each
13 member of such Pool or Advisory Committee and to each active
14 party at least 24 hours before the time of each such meeting
15 in the case of personal delivery, and 96 hours in the case of
16 mail. The calling notice shall specify the time and place of
17 the special meeting and the business to be transacted. No
18 other business shall be considered at such meeting.

19 (d) Minutes. Minutes of all Pool Committee, Advisory
20 Committee and Watermaster meetings shall be kept at Water-
21 master's offices. Copies thereof shall be mailed or otherwise
22 furnished to all active parties in the pool or pools con-
23 cerned. Said copies of minutes shall constitute notice of any
24 Pool or Advisory Committee action therein reported, and shall
25 be available for inspection by any party.

26 (e) Adjournments. Any meeting of any Pool or Advisory
27 Committee may be adjourned to a time and place specified in
28 the order of adjournment. Less than a quorum may so adjourn

1 from time to time. A copy of the order or notice of adjourn-
2 ment shall be conspicuously posted forthwith on or near the
3 door of the place where the meeting was held.

4 38. Powers and Functions. The powers and functions of the
5 respective Pool Committees and the Advisory Committee shall be as
6 follows:

7 (a) Pool Committees. Each Pool Committee shall have the
8 power and responsibility for developing policy recommendations
9 for administration of its particular pool, as created under
10 the Physical Solution. All actions and recommendations of any
11 Pool Committee which require Watermaster implementation shall
12 first be noticed to the other two pools. If no objection is
13 received in writing within thirty (30) days, such action or
14 recommendation shall be transmitted directly to Watermaster
15 for action. If any such objection is received, such action or
16 recommendation shall be reported to the Advisory Committee
17 before being transmitted to Watermaster.

18 (b) Advisory Committee. The Advisory Committee shall
19 have the duty to study, and the power to recommend, review
20 and act upon all discretionary determinations made or to be
21 made hereunder by Watermaster.

22 [1] Committee Initiative. When any recommendation
23 or advice of the Advisory Committee is received by
24 Watermaster, action consistent therewith may be taken by
25 Watermaster; provided, that any recommendation approved
26 by 80 votes or more in the Advisory Committee shall
27 constitute a mandate for action by Watermaster consistent
28 therewith. If Watermaster is unwilling or unable to act

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1 pursuant to recommendation or advice from the Advisory
2 Committee (other than such mandatory recommendations),
3 Watermaster shall hold a public hearing, which shall be
4 followed by written findings and decision. Thereafter,
5 Watermaster may act in accordance with said decision,
6 whether consistent with or contrary to said Advisory
7 Committee recommendation. Such action shall be subject
8 to review by the Court, as in the case of all other
9 Watermaster determinations.

10 [2] Committee Review. In the event Watermaster
11 proposes to take any discretionary action, other than
12 approval or disapproval of a Pool Committee action or
13 recommendation properly transmitted, or execute any
14 agreement not theretofore within the scope of an Advisory
15 Committee recommendation, notice of such intended action
16 shall be served on the Advisory Committee and its members
17 at least thirty (30) days before the Watermaster meeting
18 at which such action is finally authorized.

19 (c) Review of Watermaster Actions. Watermaster (as to
20 mandated action), the Advisory Committee or any Pool Committee
21 shall be entitled to employ counsel and expert assistance in
22 the event Watermaster or such Pool or Advisory Committee seeks
23 Court review of any Watermaster action or failure to act. The
24 cost of such counsel and expert assistance shall be Water-
25 master expense to be allocated to the affected pool or pools.

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1 VI. PHYSICAL SOLUTION

2 A. GENERAL

3 39. Purpose and Objective. Pursuant to the mandate of
4 Section 2 of Article X of the California Constitution, the Court
5 hereby adopts and orders the parties to comply with a Physical
6 Solution. The purpose of these provisions is to establish a legal
7 and practical means for making the maximum reasonable beneficial
8 use of the waters of Chino Basin by providing the optimum economic,
9 long-term, conjunctive utilization of surface waters, ground waters
10 and supplemental water, to meet the requirements of water users
11 having rights in or dependent upon Chino Basin.

12 40. Need for Flexibility. It is essential that this Physical
13 Solution provide maximum flexibility and adaptability in order that
14 Watermaster and the Court may be free to use existing and future
15 technological, social, institutional and economic options, in order
16 to maximize beneficial use of the waters of Chino Basin. To that
17 end, the Court's retained jurisdiction will be utilized, where
18 appropriate, to supplement the discretion herein granted to the
19 Wastermaster.

20 41. Watermaster Control. Watermaster, with the advice of the
21 Advisory and Pool Committees, is granted discretionary powers in
22 order to develop an optimum basin management program for Chino
23 Basin, including both water quantity and quality considerations.
24 Withdrawals and supplemental water replenishment of Basin Water,
25 and the full utilization of the water resources of Chino Basin,
26 must be subject to procedures established by and administered
27 through Watermaster with the advice and assistance of the Advisory
28 and Pool Committees composed of the affected producers. Both the

1 quantity and quality of said water resources may thereby be pre-
2 served and the beneficial utilization of the Basin maximized.

3 42. General Pattern of Operations. It is contemplated that
4 the rights herein decreed will be divided into three (3) operating
5 pools for purposes of Watermaster administration. A fundamental
6 premise of the Physical Solution is that all water users dependent
7 upon Chino Basin will be allowed to pump sufficient waters from the
8 Basin to meet their requirements. To the extent that pumping
9 exceeds the share of the Safe Yield assigned to the Overlying
10 Pools, or the Operating Safe Yield in the case of the Appropriative
11 Pool, each pool will provide funds to enable Watermaster to replace
12 such overproduction. The method of assessment in each pool shall
13 be as set forth in the applicable pooling plan.

14 B. POOLING

15 43. Multiple Pools Established. There are hereby established
16 three (3) pools for Watermaster administration of, and for the
17 allocation of responsibility for, and payment of, costs of re-
18 plenishment water and other aspects of this Physical Solution.

19 (a) Overlying (Agricultural) Pool. The first pool shall
20 consist of the State of California and all overlying producers
21 who produce water for other than industrial or commercial
22 purposes. The initial members of the pool are listed in
23 Exhibit "C".

24 (b) Overlying (Non-agricultural) Pool. The second pool
25 shall consist of overlying producers who produce water for
26 industrial or commercial purposes. The initial members of
27 this pool are listed in Exhibit "D".

28 (c) Appropriative Pool. A third and separate pool shall

1 consist of owners of appropriative rights. The initial
2 members of the pool are listed in Exhibit "E".

3 Any party who changes the character of his use may, by sub-
4 sequent order of the Court, be reassigned to the proper pool; but
5 the allocation of Safe Yield under Paragraph 44 hereof shall not be
6 changed. Any non-party producer or any person who may hereafter
7 commence production of water from Chino Basin, and who may become a
8 party to this physical solution by intervention, shall be assigned
9 to the proper pool by the order of the Court authorizing such
10 intervention.

11 44. Determination and Allocation of Rights to Safe Yield of
12 Chino Basin. The declared Safe Yield of Chino Basin is hereby
13 allocated as follows:

14	<u>Pool</u>	<u>Allocation</u>
15	Overlying (Agricultural) Pool	414,000 acre feet in any five (5) consecutive years.
16	Overlying (Non-agricultural) 17 Pool.	7,366 acre feet per year.
18	Appropriative Pool	49,834 acre feet per year.

19 The foregoing acre foot allocations to the overlying pools are
20 fixed. Any subsequent change in the Safe Yield shall be debited or
21 credited to the Appropriative Pool. Basin Water available to the
22 Appropriative Pool without replenishment obligation may vary from
23 year to year as the Operating Safe Yield is determined by Water-
24 master pursuant to the criteria set forth in Exhibit "I".

25 45. Annual Replenishment. Watermaster shall levy and collect
26 assessments in each year, pursuant to the respective pooling plans,
27 in amounts sufficient to purchase replenishment water to replace
28 production by any pool during the preceding year which exceeds that

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1 pool's allocated share of Safe Yield in the case of the overlying
2 pools, or Operating Safe Yield in the case of the Appropriative
3 Pool. It is anticipated that supplemental water for replenishment
4 of Chino Basin may be available at different rates to the various
5 pools to meet their replenishment obligations. If such is the
6 case, each pool will be assessed only that amount necessary for the
7 cost of replenishment water to that pool, at the rate available to
8 the pool, to meet its replenishment obligation.

9 46. Initial Pooling Plans. The initial pooling plans, which
10 are hereby adopted, are set forth in Exhibits "F", "G" and "H",
11 respectively. Unless and until modified by amendment of the
12 judgment pursuant to the Court's continuing jurisdiction, each
13 such plan shall control operation of the subject pool.

14 C. REPORTS AND ACCOUNTING

15 47. Production Reports. Each party or responsible party
16 shall file periodically with Watermaster, pursuant to Watermaster
17 rules, a report on a form to be prescribed by Watermaster showing
18 the total production of such party during the preceding reportage
19 period, and such additional information as Watermaster may require,
20 including any information specified by the affected Pool Com-
21 mittee.

22 48. Watermaster Reports and Accounting. Watermaster's
23 annual report, which shall be filed on or before November 15 of
24 each year and shall apply to the preceding year's operation, shall
25 contain details as to operation of each of the pools and a certi-
26 fied audit of all assessments and expenditures pursuant to this
27 Physical Solution and a review of Watermaster activities.

28 - - - - -

D. REPLENISHMENT

1
2 49. Sources of Supplemental Water. Supplemental water may be
3 obtained by Watermaster from any available source. Watermaster
4 shall seek to obtain the best available quality of supplemental
5 water at the most reasonable cost for recharge in the Basin. To
6 the extent that costs of replenishment water may vary between
7 pools, each pool shall be liable only for the costs attributable to
8 its required replenishment. Available sources may include, but are
9 not limited to:

10 (a) Reclaimed Water. There exist a series of agreements
11 generally denominated the Regional Waste Water Agreements
12 between CBMWD and owners of the major municipal sewer systems
13 within the basin. Under those agreements, which are recog-
14 nized hereby but shall be unaffected and unimpaired by this
15 judgment, substantial quantities of reclaimed water may be
16 made available for replenishment purposes. There are addi-
17 tional sources of reclaimed water which are, or may become,
18 available to Watermaster for said purposes. Maximum benefi-
19 cial use of reclaimed water shall be given high priority by
20 Watermaster.

21 (b) State Water. State water constitutes a major
22 available supply of supplemental water. In the case of State
23 Water, Watermaster purchases shall comply with the water
24 service provisions of the State's water service contracts.
25 More specifically, Watermaster shall purchase State Water from
26 MWD for replenishment of excess production within CBMWD, WMWD
27 and PVMWD, and from SBVMWD to replenish excess production
28 within SBVMWD's boundaries in Chino Basin, except to the

1 extent that MWD and SBVMWD give their consent as required by
2 such State water service contracts.

3 (c) Local Import. There exist facilities and methods
4 for importation of surface and ground water supplies from
5 adjacent basins and watersheds.

6 (d) Colorado River Supplies. MWD has water supplies
7 available from its Colorado River Aqueduct.

8 50. Methods of Replenishment. Watermaster may accomplish
9 replenishment of overproduction from the Basin by any reasonable
10 method, including:

11 (a) Spreading and percolation or Injection of water in
12 existing or new facilities, subject to the provisions of
13 Paragraphs 19, 25 and 26 hereof.

14 (b) In Lieu Procedures. Watermaster may make, or cause
15 to be made, deliveries of water for direct surface use, in
16 lieu of ground water production.

17 E. REVENUES

18 51. Production Assessment. Production assessments, on what-
19 ever basis, may be levied by Watermaster pursuant to the pooling
20 plan adopted for the applicable pool.

21 52. Minimal Producers. Minimal Producers shall be exempted
22 from payment of production assessments, upon filing of production
23 reports as provided in Paragraph 47 of this Judgment, and payment
24 of an annual five dollar (\$5.00) administrative fee as specified by
25 Watermaster rules.

26 53. Assessment Proceeds -- Purposes. Watermaster shall have
27 the power to levy assessments against the parties (other than
28 minimal pumpers) based upon production during the preceding period

1 of assessable production, whether quarterly, semi-annually or
2 annually, as may be determined most practical by Watermaster or the
3 affected Pool Committee.

4 54. Administrative Expenses. The expenses of administration
5 of this Physical Solution shall be categorized as either (a) gen-
6 eral Watermaster administrative expense, or (b) special project
7 expense.

8 (a) General Watermaster Administrative Expense shall
9 include office rental, general personnel expense, supplies and
10 office equipment, and related incidental expense and general
11 overhead.

12 (b) Special Project Expense shall consist of special
13 engineering, economic or other studies, litigation expense,
14 meter testing or other major operating expenses. Each such
15 project shall be assigned a Task Order number and shall be
16 separately budgeted and accounted for.

17 General Watermaster administrative expense shall be allocated
18 and assessed against the respective pools based upon allocations
19 made by the Watermaster, who shall make such allocations based upon
20 generally accepted cost accounting methods. Special Project
21 Expense shall be allocated to a specific pool, or any portion there-
22 of, only upon the basis of prior express assent and finding of
23 benefit by the Pool Committee, or pursuant to written order of the
24 Court.

25 55. Assessments -- Procedure. Assessments herein provided
26 for shall be levied and collected as follows:

27 (a) Notice of Assessment. Watermaster shall give
28 written notice of all applicable assessments to each party on

1 or before ninety (90) days after the end of the production
2 period to which such assessment is applicable.

3 (b) Payment. Each assessment shall be payable on or
4 before thirty (30) days after notice, and shall be the ob-
5 ligation of the party or successor owning the water production
6 facility at the time written notice of assessment is given,
7 unless prior arrangement for payment by others has been made
8 in writing and filed with Watermaster.

9 (c) Delinquency. Any delinquent assessment shall bear
10 interest at 10% per annum (or such greater rate as shall equal
11 the average current cost of borrowed funds to the Watermaster)
12 from the due date thereof. Such delinquent assessment and
13 interest may be collected in a show-cause proceeding herein
14 instituted by the Watermaster, in which case the Court may
15 allow Watermaster its reasonable costs of collection, includ-
16 ing attorney's fees.

17 56. Accumulation of Replenishment Water Assessment Proceeds.

18 In order to minimize fluctuation in assessment and to give Water-
19 master flexibility in purchase and spreading of replenishment
20 water, Watermaster may make reasonable accumulations of replen-
21 ishment water assessment proceeds. Interest earned on such re-
22 tained funds shall be added to the account of the pool from which
23 the funds were collected and shall be applied only to the purchase
24 of replenishment water.

25 57. Effective Date. The effective date for accounting and
26 operation under this Physical Solution shall be July 1, 1977, and
27 the first production assessments hereunder shall be due after July
28 1, 1978. Watermaster shall, however, require installation of

1 meters or measuring devices and establish operating procedures
2 immediately, and the costs of such Watermaster activity (not
3 including the cost of such meters and measuring devices) may be
4 recovered in the first administrative assessment in 1978.

5
6 VII. MISCELLANEOUS PROVISIONS

7 58. Designation of Address for Notice and Service. Each
8 party shall designate the name and address to be used for purposes
9 of all subsequent notices and service herein, either by its en-
10 dorsement on the Stipulation for Judgment or by a separate desig-
11 nation to be filed within thirty (30) days after Judgment has been
12 served. Said designation may be changed from time to time by
13 filing a written notice of such change with the Watermaster. Any
14 party desiring to be relieved of receiving notices of Watermaster
15 or committee activity may file a waiver of notice on a form to be
16 provided by Watermaster. Thereafter such party shall be removed
17 from the Active Party list. Watermaster shall maintain at all
18 times a current list of active parties and their addresses for
19 purposes of service. Watermaster shall also maintain a full
20 current list of names and addresses of all parties or their suc-
21 cessors, as filed herein. Copies of such lists shall be available,
22 without cost, to any party, the Advisory Committee or any Pool
23 Committee upon written request therefor.

24 59. Service of Documents. Delivery to or service upon any
25 party or active party by the Watermaster, by any other party, or by
26 the Court, of any item required to be served upon or delivered to
27 such party or active party under or pursuant to the Judgment shall
28 be made personally or by deposit in the United States mail, first

1 class, postage prepaid, addressed to the designee and at the
2 address in the latest designation filed by such party or active
3 party.

4 60. Intervention After Judgment. Any non-party assignee of
5 the adjudicated appropriative rights of any appropriator, or any
6 other person newly proposing to produce water from Chino Basin, may
7 become a party to this judgment upon filing a petition in inter-
8 vention. Said intervention must be confirmed by order of this
9 Court. Such intervenor shall thereafter be a party bound by this
10 judgment and entitled to the rights and privileges accorded under
11 the Physical Solution herein, through the pool to which the Court
12 shall assign such intervenor.

13 61. Loss of Rights. Loss, whether by abandonment, forfeiture
14 or otherwise, of any right herein adjudicated shall be accomplished
15 only (1) by a written election by the owner of the right filed with
16 Watermaster, or (2) by order of the Court upon noticed motion and
17 after hearing.

18 62. Scope of Judgment. Nothing in this Judgment shall be
19 deemed to preclude or limit any party in the assertion against a
20 neighboring party of any cause of action now existing or hereafter
21 arising based upon injury, damage or depletion of water supply
22 available to such party, proximately caused by nearby pumping which
23 constitutes an unreasonable interference with such complaining
24 party's ability to extract ground water.

25 63. Judgment Binding on Successors. This Judgment and all
26 provisions thereof are applicable to and binding upon not only the
27 parties to this action, but also upon their respective heirs,
28 executors, administrators, successors, assigns, lessees and

LAW OFFICES
DONALD D. STARK
A PROFESSIONAL CORPORATION
SUITE 201
2061 BUSINESS CENTER DRIVE
IRVINE, CALIFORNIA 92715
(714) 752-8971

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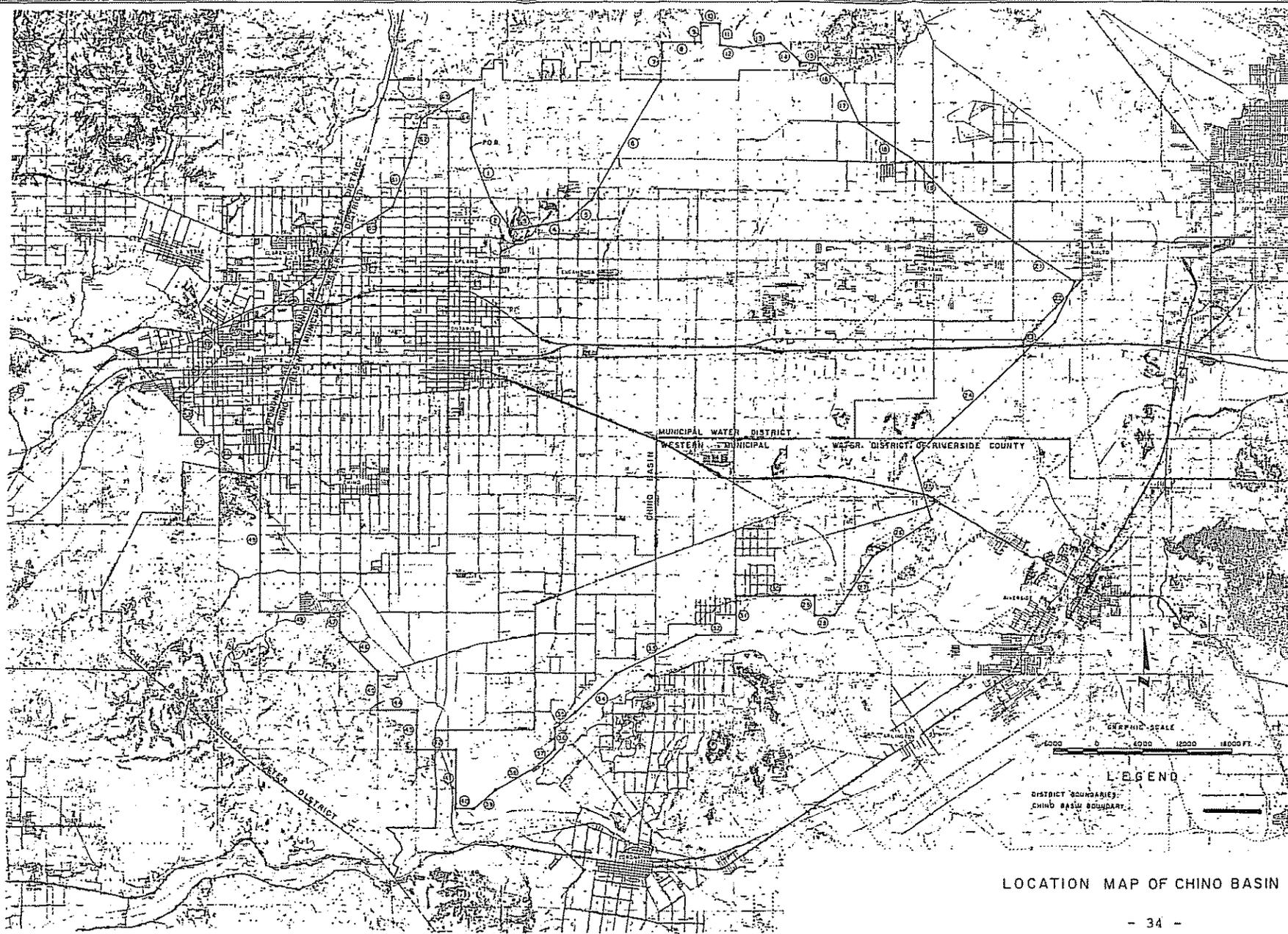
licensees and upon the agents, employees and attorneys in fact of all such persons.

64. Costs. No party shall recover any costs in this proceeding from any other party.

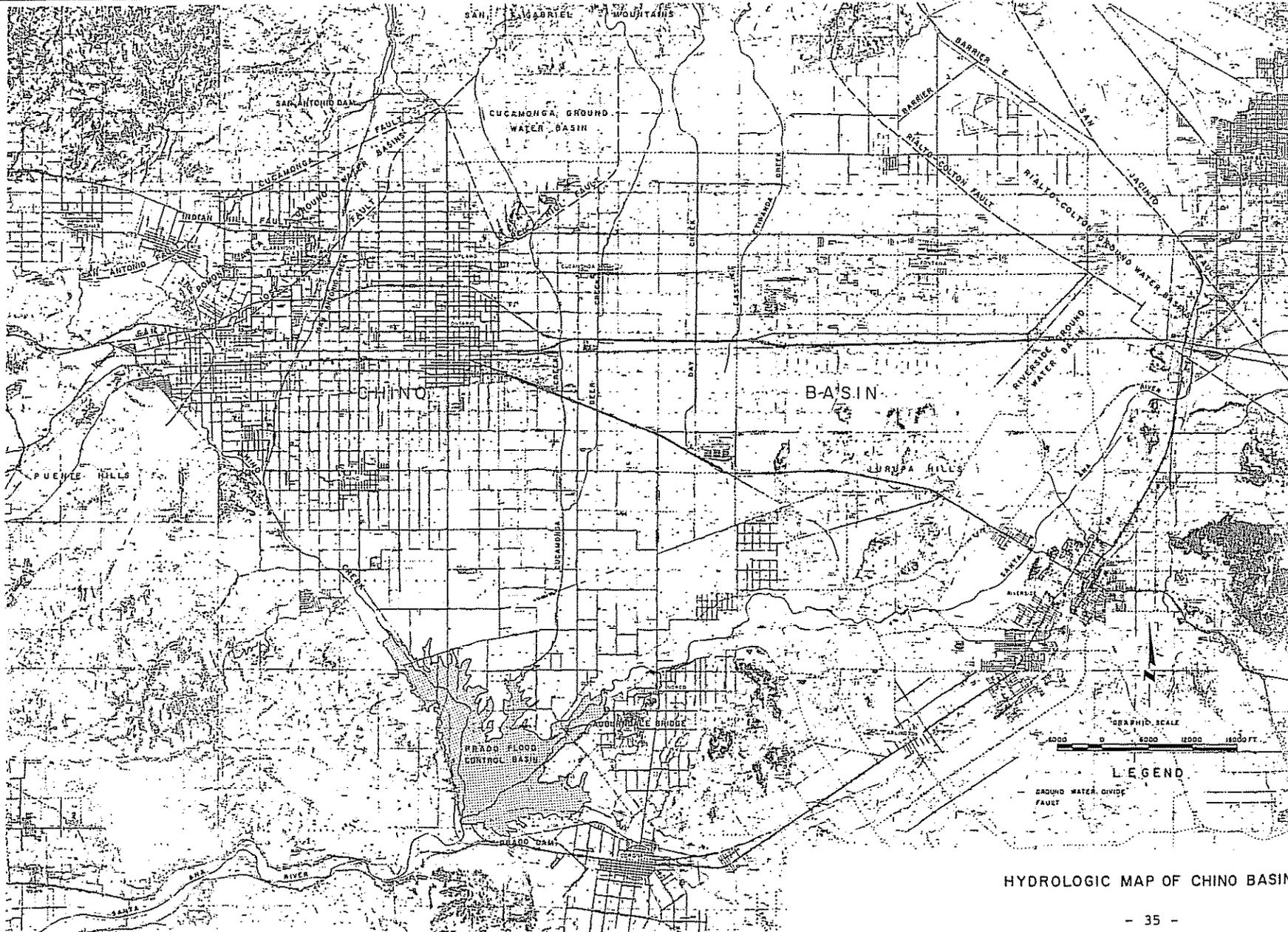
Dated: JAN 27 1978.

Arnold B. Weiss

Judge



LOCATION MAP OF CHINO BASIN



HYDROLOGIC MAP OF CHINO BASIN

STIPULATING OVERLYING AGRICULTURAL PRODUCERS

1	STATE OF CALIFORNIA	Aphessetche, Xavier
2	COUNTY OF SAN BERNARDINO	Arena Mutual Water Assn.
3	Abacherli Dairy, Inc.	Armstrong Nurseries, Inc.
4	Abacherli, Frank	Arretche, Frank
5	Abacherli, Shirley	Arretche, Jean Pierre
6	Abbona, Anna	Arvidson, Clarence F.
7	Abbona, James	Arvidson, Florence
8	Abbona, Jim	Ashley, George W.
9	Abbona, Mary	Ashley, Pearl E.
10	Agliani, Amelia H.	Atlas Farms
11	Agman, Inc.	Atlas Ornamental Iron Works, Inc.
12	Aguerre, Louis B.	Aukeman, Carol
13	Ahmanson Trust Co.	Aukeman, Lewis
14	Akiyama, Shizuye	Ayers, Kenneth C., aka
15	Akiyama, Tomoo	Kelley Ayers
16	Akkerman, Dave	Bachoc, Raymond
17	Albers, J. N.	Baldwin, Edgar A.
18	Albers, Nellie	Baldwin, Lester
19	Alewyn, Jake J.	Banbury, Carolyn
20	Alewyn, Normalee	Bangma Dairy
21	Alger, Mary D.	Bangma, Arthur
22	Alger, Raymond	Bangma, Ida
23	Allen, Ben F.	Bangma, Martin
24	Allen, Jane F.	Bangma, Sam
25	Alta-Dena Dairy	Barba, Anthony B.
26	Anderson Farms	Barba, Frank
27	Anguiano, Sarah L. S.	Barcellos, Joseph
28	Anker, Gus	Barnhill, Maurine W.

1	Barnhill, Paul	Boersma, Angie
2	Bartel, Dale	Boersma, Berdina
3	Bartel, Ursula	Boersma, Frank
4	Bartel, Willard	Boersma, Harry
5	Barthelemy, Henry	Boersma, Paul
6	Barthelemy, Roland	Boersma, Sam
7	Bassler, Donald V., M.D.	Boersma, William L.
8	Bates, Lowell R.	Bohlender & Holmes, Inc.
9	Bates, Mildred L.	Bokma, Peter
10	Beahm, James W.	Bollema, Jacob
11	Beahm, Joan M.	Boonstoo, Edward
12	Bekendam, Hank	Bootsma, Jim
13	Bekendam, Pete	Borba, Dolene
14	Bello, Eugene	Borba, Dolores
15	Bello, Olga	Borba, Emily
16	Beltman, Evelyn	Borba, George
17	Beltman, Tony	Borba, John
18	Bergquist Properties, Inc.	Borba, John & Sons
19	Bevacqua, Joel A.	Borba, John Jr.
20	Bevacqua, Marie B.	Borba, Joseph A.
21	Bidart, Bernard	Borba, Karen E.
22	Bidart, Michael J.	Borba, Karen M.
23	Binnell, Wesley	Borba, Pete, Estate of
24	Black, Patricia E.	Borba, Ricci
25	Black, Victor	Borba, Steve
26	Bodger, John & Sons Co.	Borba, Tom
27	Boer, Adrian	Bordisso, Alleck
28	Boersma and Wind Dairy	Borges, Angelica M.

1	Borges, Bernadette	Bothof, Roger W.
2	Borges, John O.	Bouma, Cornie
3	Borges, Linda L.	Bouma, Emma
4	Borges, Manual Jr.	Bouma, Henry P.
5	Borges, Tony	Bouma, Martin
6	Bos, Aleid	Bouma, Peter G. & Sons Dairy
7	Bos, Gerrit	Bouma, Ted
8	Bos, John	Bouman, Helen
9	Bos, John	Bouman, Sam
10	Bos, Margaret	Bower, Mabel E.
11	Bos, Mary	Boys Republic
12	Bos, Mary Beth	Breedyk, Arie
13	Bos, Tony	Breedyk, Jessie
14	Bosch, Henrietta	Briano Brothers
15	Bosch, Peter T.	Briano, Albert
16	Boschma, Betty	Briano, Albert Trustee for
17	Boschma, Frank	Briano, Albert Frank
18	Boschma, Greta	Briano, Lena
19	Boschma, Henry	Brink, Russell N.
20	Bosma, Dick	Brinkerhoff, Margaret
21	Bosma, Florence G.	Brinkerhoff, Robert L.
22	Bosma, Gerrit	Britschgi, Florence
23	Bosma, Jacob J.	Britschgi, Magdalena Garetto
24	Bosma, Jeanette Thea	Britschgi, Walter P.
25	Bosman, Frank	Brommer, Marvin
26	Bosman, Nellie	Brookside Enterprizes, dba
27	Bosnyak, Goldie M.	Brookside Vineyard Co.
28	Bosnyak, Martin	Brothers Three Dairy

1	Brown, Eugene	Chino Corona Investment
2	Brun, Martha M.	Chino Water Co.
3	Brun, Peter Robert	Christensen, Leslie
4	Buma, Duke	Christensen, Richard G.
5	Buma, Martha	Christian, Ada R.
6	Bunse, Nancy	Christian, Harold F.
7	Bunse, Ronnie L.	Christy, Ella J.
8	Caballero, Bonnie L.	Christy, Ronald S.
9	Caballero, Richard F.	Cihigoyenette, Jean
10	Cable Airport Inc.	Cihigoyenette, Leona
11	Cadlani, Donald	Cihigoyenette, Martin
12	Cadlani, Jesse R.	Clarke, Arthur B.
13	Cadlani, Marie Edna	Clarke, Nancy L.
14	Cambio, Anna	Clarke, Phyllis J.
15	Cambio, Charles, Estate of	Coelho, Isabel
16	Cambio, William V.	Coelho, Joe A. Jr.
17	Cardoza, Florence	Collins, Howard E.
18	Cardoza, Olivi	Collins, Judith F.
19	Cardoza, Tony	Collinsworth, Ester L.
20	Carnesi, Tom	Collinsworth, John E.
21	Carver, Robt M., Trustee	Collinsworth, Shelby
22	Cauffman, John R.	Cone Estate (05-2-00648/649)
23	Chacon Bros.	Consolidated Freightways Corp.
24	Chacon, Elvera P.	of Delaware
25	Chacon, Joe M.	Corona Farms Co.
26	Chacon, Robert M.	Corra, Rose
27	Chacon, Virginia L.	Costa, Dimas S.
28	Chez, Joseph C.	Costa, Laura

1	Costa, Myrtle	De Boer, L. H.
2	Costamagna, Antonio	De Boer, Sidney
3	Costamagna, Joseph	De Bos, Andrew
4	Cousyn, Claus B.	De Graaf, Anna Mae
5	Cramer, Carole F.	De Graaf, Gerrit
6	Cramer, William R.	De Groot, Dick
7	Crossroads Auto Dismantlers, Inc.	De Groot, Dorothy
8	Crouse, Beatrice I.	De Groot, Ernest
9	Crouse, Roger	De Groot, Henrietta
10	Crowley, Juanita C.	De Groot, Jake
11	Crowley, Ralph	De Groot, Pete Jr.
12	Cucamonga Vintners	De Haan, Bernadena
13	D'Astici, Teresa	De Haan, Henry
14	Da Costa, Cecilia B.	De Hoog, Adriana
15	Da Costa, Joaquim F.	De Hoog, Joe
16	Daloisio, Norman	De Hoog, Martin
17	De Berard Bros.	De Hoog, Martin L.
18	De Berard, Arthur, Trustee	De Hoog, Mitch
19	De Berard, Charles	De Hoog, Tryntje
20	De Berard, Chas., Trustee	De Jager, Cobi
21	De Berard, Helan J.	De Jager, Edward D.
22	De Berard, Robert	De Jong Brothers Dairy
23	De Berard, Robert, Trustee	De Jong, Cornelis
24	De Bie, Adrian	De Jong, Cornelius
25	De Bie, Henry	De Jong, Grace
26	De Bie, Margaret M.	De Jong, Jake
27	De Bie, Marvin	De Jong, Lena
28	De Boer, Fred	De Leeuw, Alice

1	De Leeuw, Sam	Dirkse, Catherine
2	De Soete, Agnes	Dirkse, Charles C.
3	De Soete, Andre	Dixon, Charles E.
4	De Vries, Abraham	Dixon, Geraldine A.
5	De Vries, Case	Doesberg, Hendrica
6	De Vries, Dick	Doesburg, Theodorus P.
7	De Vries, Evelyn	Dolan, Marion
8	De Vries, Henry, Estate of	Dolan, Michael H.
9	De Vries, Hermina	Dominguez, Helen
10	De Vries, Jack H.	Dominguez, Manual
11	De Vries, Jane	Donkers, Henry A.
12	De Vries, Janice	Donkers, Nellie G.
13	De Vries, John	Dotta Bros.
14	De Vries, John J.	Douma Brothers Dairy
15	De Vries, Neil	Douma, Betty A.
16	De Vries, Ruth	Douma, Fred A.
17	De Vries, Theresa	Douma, Hendrika
18	De Wit, Gladys	Douma, Herman G.
19	De Wit, Peter S.	Douma, Narleen J.
20	De Wyn, Evert	Douma, Phillip M.
21	De Zoete, Hattie V.	Dow Chemical Co.
22	De Zoete, Leo A.	Dragt, Rheta
23	Decker, Hallie	Dragt, William
24	Decker, Henry A.	Driftwood Dairy Farm
25	Demmer, Ernest	Droogh, Case
26	Di Carlo, Marie	Duhalde, Marian
27	Di Carlo, Victor	Duhalde, Lauren
28	Di Tommaso, Frank	Duits, Henrietta

1	Duits, John	Excelsior Farms F.D.I.C.
2	Dunlap, Edna Kraemer,	Fagundes, Frank M.
3	Estate of	Fagundes, Mary
4	Durrington, Glen	Fernandes, Joseph Jr.
5	Durrington, William F.	Fernandes, Velma C.
6	Dusi, John, Sr.	Ferraro, Ann
7	Dykstra, Dick	Ferreira, Frank J.
8	Dykstra, John	Ferreira, Joe C. Jr.
9	Dykstra, John & Sons	Ferreira, Narcie
10	Dykstra, Wilma	Filippi, J. Vintage Co.
11	Dyt, Cor	Filippi, Joseph
12	Dyt, Johanna	Filippi, Joseph A.
13	E and S Grape Growers	Filippi, Mary E.
14	Eaton, Thomas, Estate of	Fitzgerald, John R.
15	Echeverria, Juan	Flameling Dairy Inc.
16	Echeverria, Carlos	Flamingo Dairy
17	Echeverria, Pablo	Foss, Douglas E.
18	Eilers, E. Myrle	Foss, Gerald R.
19	Eilers, Henry W.	Foss, Russel
20	El Prado Golf Course	Fred & John Troost No. 1 Inc.
21	Ellsworth, Rex C.	Fred & Maynard Troost No. 2 Inc.
22	Engelsma, Jake	Freitas, Beatriz
23	Engelsma, Susan	Freitas, Tony T.
24	Escojeda, Henry	Gakle, Louis L.
25	Etiwanda Grape Products Co.	Galleano Winery, Inc.
26	Euclid Ave. Investment One	Galleano, Bernard D.
27	Euclid Ave. Investment Four	Galleano, D.
28	Euclid Ave. Three Investment	Galleano, Mary M.

1	Garcia, Pete	Hansen, Raymond F.
2	Gardner, Leland V.	Hanson, Ardeth W.
3	Gardner, Lola M.	Harada, James T.
4	Garrett, Leonard E.	Harada, Violet A.
5	Garrett, Patricia T.	Haringa, Earl and Sons
6	Gastelluberry, Catherine	Haringa, Herman
7	Gastelluberry, Jean	Haringa, Rudy
8	Gilstrap, Glen E.	Haringa, William
9	Gilstrap, Marjorie J.	Harper, Cecilia de Mille
10	Godinho, John	Harrington, Winona
11	Godinho, June	Harrison, Jacqueline A.
12	Gonsalves, Evelyn	Hatanaka, Kenichi
13	Gonsalves, John	Heida, Annie
14	Gorzeman, Geraldine	Heida, Don
15	Gorzeman, Henry A.	Heida, Jim
16	Gorzeman, Joe	Heida, Sam
17	Govea, Julia	Helms, Addison D.
18	Goyenette, Albert	Helms, Irma A.
19	Grace, Caroline E.	Hermans, Alma I.
20	Grace, David J.	Hermans, Harry
21	Gravatt, Glenn W.	Hettinga, Arthur
22	Gravatt, Sally Mae	Hettinga, Ida
23	Greydanus Dairy, Inc.	Hettinga, Judy
24	Greydanus, Rena	Hettinga, Mary
25	Griffin Development Co.	Hettinga, Wilbur
26	Haagsma, Dave	Heublein, Inc., Grocery Products
27	Haagsma, John	Group
28	Hansen, Mary D.	Hibma, Catherine M.

1	Hibma, Sidney	Hohberg, Harold C.
2	Hicks, Kenneth I.	Hohberg, Harold W.
3	Hicks, Minnie M.	Holder, Arthur B.
4	Higgins Brick Co.	Holder, Dorothy F.
5	Highstreet, Alfred V.	Holmes, A. Lee
6	Highstreet, Evada V.	Holmes, Frances P.
7	Hilarides, Bertha as Trustee	Hoogeboom, Gertrude
8	Hilarides, Frank	Hoogeboom, Pete
9	Hilarides, John as Trustee	Hoogendam, John
10	Hindelang, Tillie	Hoogendam, Tena
11	Hindelang, William	Houssels, J. K. Thoroughbred Farm
12	Hobbs, Bonnie C.	
13	Hobbs, Charles W.	Hunt Industries
14	Hobbs, Hazel I.	Idsinga, Ann
15	Hobbs, Orlo M.	Idsinga, William W.
16	Hoekstra, Edward	Imbach Ranch, Inc.
17	Hoekstra, George	Imbach, Kenneth E.
18	Hoekstra, Grace	Imbach, Leonard K.
19	Hoekstra, Louie	Imbach, Oscar K.
20	Hofer, Paul B.	Imbach, Ruth M.
21	Hofer, Phillip F.	Indaburu, Jean
22	Hofstra, Marie	Indaburu, Marceline
23	Hogeboom, Jo Ann M.	Iseli, Kurt H.
24	Hogeboom, Maurice D.	Ito, Kow
25	Hogg, David V.	J & B Dairy Inc.
26	Hogg, Gene P.	Jaques, Johnny C. Jr.
27	Hogg, Warren G.	Jaques, Mary
28	Hohberg, Edith J.	Jaques, Mary Lou

1	Jay Em Bee Farms	Knevelbaard, John
2	Johnson Bro's Egg Ranches, Inc.	Knudsen, Ejnar
3	Johnston, Ellwood W.	Knudsen, Karen M.
4	Johnston, George F. Co.	Knudsen, Kenneth
5	Johnston, Judith H.	Knudson, Robert
6	Jones, Leonard P.	Knudson, Darlene
7	Jongsma & Sons Dairy	Koel, Helen S.
8	Jongsma, Diana A.	Koetsier, Gerard
9	Jongsma, Dorothy	Koetsier, Gerrit J.
10	Jongsma, George	Koetsier, Jake
11	Jongsma, Harold	Koning, Fred W.
12	Jongsma, Henry	Koning, Gloria
13	Jongsma, John	Koning, J. W. Estate
14	Jongsma, Nadine	Koning, James A.
15	Jongsma, Tillie	Koning, Jane
16	Jordan, Marjorie G.	Koning, Jane C.
17	Jordan, Troy O.	Koning, Jennie
18	Jorritsma, Dorothy	Koning, John
19	Juliano, Albert	Koning, Victor A.
20	Kamper, Cornelis	Kooi Holstein Corporation
21	Kamstra, Wilbert	Koolhaas, Kenneth E.
22	Kaplan, Lawrence J.	Koolhaas, Simon
23	Kasbergen, Martha	Koolhaas, Sophie Grace
24	Kasbergen, Neil	Koopal, Grace
25	Kazian, Angelen Estate of	Koopal, Silas
26	Kingsway Const. Corp.	Koopman, Eka
27	Klapps Market	Koopman, Gene T.
28	Kline, James K.	Koopman, Henry G.

1	Koopman, Ted	Leck, Arthur A.
2	Koopman, Tena	Leck, Evelyn M.
3	Koot, Nick	Lee, Harold E.
4	Koster, Aart	Lee, Helen J.
5	Koster, Frances	Lee, Henrietta C.
6	Koster, Henry B.	Lee, R. T. Construction Co.
7	Koster, Nellie	Lekkerkerk, Adriana
8	Kroes, Jake R.	Lekkerkerk, L. M.
9	Kroeze, Bros	Lekkerkerker, Nellie
10	Kroeze, Calvin E.	Lekkerkerker, Walt
11	Kroeze, John	Lewis Homes of California
12	Kroeze, Wesley	Livingston, Dorothy M.
13	Kruckenber, Naomi	Livingston, Rex E.
14	Kruckenber, Perry	Lokey, Rosemary Kraemer
15	L. D. S. Welfare Ranch	Lopes, Candida A.
16	Labrucherie, Mary Jane	Lopes, Antonio S.
17	Labrucherie, Raymond F.	Lopez, Joe D.
18	Lako, Samuel	Lourenco, Carlos, Jr.
19	Landman Corp.	Lourenco, Carmelina P.
20	Lanting, Broer	Lourenco, Jack C.
21	Lanting, Myer	Lourenco, Manual H.
22	Lass, Jack	Lourenco, Mary
23	Lass, Sandra L.	Lourenco, Mary
24	Lawrence, Cecelia, Estate of	Luiten, Jack
25	Lawrence, Joe H., Estate of	Luiz, John M.
26	Leal, Bradley W.	Luna, Christine I.
27	Leal, John C.	Luna, Ruben T.
28	Leal, John Craig	Lusk, John D. and Son a California corporation

1	Lyon, Gregory E.	Mickel, Louise
2	Lyon, Paula E.	Miersma, Dorothy
3	M & W Co. #2	Meirsma, Harry C.
4	Madole, Betty M.	Minaberry, Arnaud
5	Madole, Larry B.	Minaberry, Marie
6	Marquez, Arthur	Mistretta, Frank J.
7	Marquine, Jean	Mocho and Plaa Inc.
8	Martin, Lelon O.	Mocho, Jean
9	Martin, Leon O.	Mocho, Noeline
10	Martin, Maria D.	Modica, Josephine
11	Martin, Tony J.	Montes, Elizabeth
12	Martins, Frank	Montes, Joe
13	Mathias, Antonio	Moons, Beatrice
14	Mc Cune, Robert M.	Moons, Jack
15	Mc Masters, Gertrude	Moramarco, John A. Enterprises
16	Mc Neill, J. A.	Moreno, Louis W.
17	Mc Neill, May F.	Moss, John R.
18	Mees, Leon	Motion Pictures Associates, Inc.
19	Mello and Silva Dairy	Moynier, Joe
20	Mello and Sousa Dairy	Murphy, Frances V.
21	Mello, Emilia	Murphy, Myrl L.
22	Mello, Enos C.	Murphy, Naomi
23	Mello, Mercedes	Nanne, Martin Estate of
24	Mendiondo, Catherine	Nederend, Betty
25	Mendiondo, Dominique	Nederend, Hans
26	Meth. Hosp. - Sacramento	Norfolk, James
27	Metzger, R. S.	Norfolk, Martha
28	Metzger, Winifred	Notrica, Louis

1	Nyberg, Lillian M.	Ormonde, Viva
2	Nyenhuis, Annie	Ortega, Adeline B.
3	Nyenhuis, Jim	Ortega, Bernard Dino
4	Occidental Land Research	Osterkamp, Joseph S.
5	Okumura, Marion	Osterkamp, Margaret A.
6	Okumura, Yuiche	P I E Water Co.
7	Oldengarm, Effie	Palmer, Eva E.
8	Oldengarm, Egbert	Palmer, Walter E.
9	Oldengarm, Henry	Parente, Luis S.
10	Oliviera, Manuel L.	Parente, Mary Borba .
11	Oliviera, Mary M.	Parks, Jack B.
12	Olson, Albert	Parks, Laura M.
13	Oltmans Construction Co.	Patterson, Lawrence E. Estate of
14	Omlin, Anton	Payne, Clyde H.
15	Omlin, Elsie L.	Payne, Margo
16	Ontario Christian School Assn.	Pearson, Athelia K.
17	Oord, John	Pearson, William C.
18	Oostdam, Jacoba	Pearson, William G.
19	Oostdam, Pete	Pene, Robert
20	Oosten, Agnes	Perian, Miller
21	Oosten, Anthonia	Perian, Ona E.
22	Oosten, Caroline	Petrissans, Deanna
23	Oosten, John	Petrissans, George
24	Oosten, Marinus	Petrissans, Jean P.
25	Oosten, Ralph	Petrissans, Marie T.
26	Orange County Water District	Pickering, Dora M.
27	Ormonde, Manuel	(Mrs. A. L. Pickering)
28	Ormonde, Pete, Jr.	Pierce, John

1	Pierce, Sadie	Righetti, A. T.
2	Pietszak, Sally	Riley, George A.
3	Pine, Joe	Riley, Helen C.
4	Pine, Virginia	Robbins, Jack K.
5	Pires, Frank	Rocha, John M.
6	Pires, Marie	Rocha, Jose C.
7	Plaa, Jeanne	Rodrigues, John
8	Plaa, Michel	Rodrigues, Manuel
9	Plantenga, Agnes	Rodrigues, Manuel, Jr.
10	Plantenga, George	Rodrigues, Mary L.
11	Poe, Arlo D.	Rodriquez, Daniel
12	Pomona Cemetery Assn.	Rogers, Jack D.
13	Porte, Cecelia, Estate of	Rohrer, John A.
14	Porte, Garritt, Estate of	Rohrer, Theresa D.
15	Portsmouth, Vera McCarty	Rohrs, Elizabeth H.
16	Ramella, Mary M.	Rossetti, M. S.
17	Ramirez, Concha	Roukema, Angeline
18	Rearick, Hildegard H.	Roukema, Ed.
19	Rearick, Richard R.	Roukema, Nancy
20	Reinalda, Clarence	Roukema, Siebren
21	Reitsma, Greta	Ruderian, Max J.
22	Reitsma, Louis	Russell, Fred J.
23	Rice, Bernice	Rusticus, Ann
24	Rice, Charlie E.	Rusticus, Charles
25	Richards, Karin	Rynsburger, Arie
26	(Mrs. Ronnie Richards)	Rynsburger, Berdena, Trust
27	Richards, Ronald L.	Rynsburger, Joan Adele
28	Ridder, Jennie Wassenaar	Rynsburger, Thomas

1	S. P. Annex, Inc.	Scott, Frances M.
2	Salisbury, Elinor J.	Scott, Linda F.
3	Sanchez, Edmundo	Scott, Stanley A.
4	Sanchez, Margarita O.	Scritsmier, Lester J.
5	Santana, Joe Sr.	Serl, Charles A.
6	Santana, Palmira	Serl, Rosalie P.
7	Satragni, John B. Jr.	Shady Grove Dairy, Inc.
8	Scaramella, George P.	Shamel, Burt A.
9	Schaafsma Bros.	Shelby, Harold E.
10	Schaafsma, Jennie	Shelby, John A.
11	Schaafsma, Peter	Shelby, Velma M.
12	Schaafsma, Tom	Shelton, Alice A.
13	Schaap, Andy	Sherwood, Robert W.
14	Schaap, Ids	Sherwood, Sheila J.
15	Schaap, Maria	Shue, Eva
16	Schacht, Sharon C.	Shue, Gilbert
17	Schakel, Audrey	Sieperda, Anne
18	Schakel, Fred	Sieperda, James
19	Schmid, Olga	Sigrist, Hans
20	Schmidt, Madeleine	Sigrist, Rita
21	Schoneveld, Evert	Silveira, Arline L.
22	Schoneveld, Henrietta	Silveira, Frank
23	Schoneveld, John	Silveira, Jack
24	Schoneveld, John Allen	Silveira, Jack P. Jr.
25	Schug, Donald E.	Simas, Dolores
26	Schug, Shirley A.	Simas, Joe
27	Schuh, Bernatta M.	Singleton, Dean
28	Schuh, Harold H.	Singleton, Elsie R.

1	Sinnott, Jim	Staal, John
2	Sinnott, Mildred B.	Stahl, Zippora P.
3	Slegers, Dorothy	Stampfl, Berta
4	Slegers, Hubert J.	Stampfl, William
5	Slegers, Jake	Stanley, Robert E.
6	Slegers, Jim	Stark, Everett
7	Slegers, Lenwood M.	Stellingwerf, Andrew
8	Slegers, Martha	Stellingwerf, Henry
9	Slegers, Tesse J.	Stellingwerf, Jenette
10	Smith, Edward S.	Stellingwerf, Shana
11	Smith, Helen D.	Stellingwerf, Stan
12	Smith, James E.	Stelzer, Mike C.
13	Smith, Keith J.	Sterk, Henry
14	Smith, Lester W.	Stiefel, Winifred
15	Smith, Lois Maxine	Stiefel, Jack D.
16	Smith, Marjorie W.	Stigall, Richard L.
17	Soares, Eva	Stigall, Vita
18	Sogioka, Mitsuyoshi	Stockman's Inn
19	Sogioka, Yoshimato	Stouder, Charlotte A.
20	Sousa, Sam	Stouder, William C.
21	Southern Pacific Land Co.	Struikmans, Barbara
22	Southfield, Eddie	Struikmans, Gertie
23	Souza, Frank M.	Struikmans, Henry Jr.
24	Souza, Mary T.	Struikmans, Henry Sr.
25	Spickerman, Alberta	Struikmans, Nellie
26	Spickerman, Florence	Swager, Edward
27	Spickerman, Rudolph	Swager, Gerben
28	Spyksma, John	Swager, Johanna

1	Swager, Marion	Terpstra, Theodore G.
2	Swierstra, Donald	Teune, Tony
3	Swierstra, Fanny	Teunissen, Bernard
4	Sybrandy, Ida	Teunissen, Jane
5	Sybrandy, Simon	Thomas, Ethel M.
6	Sytsma, Albert	Thommen, Alice
7	Sytsma, Edith	Thommen, Fritz
8	Sytsma, Jennie	Tillema, Allie
9	Sytsma, Louie	Tillema, Harold
10	Te Velde, Agnes	Tillema, Klaas D.
11	Te Velde, Bay	Timmons, William R.
12	Te Velde, Bernard A.	Tollerup, Barbara
13	Te Velde, Bonnie	Tollerup, Harold
14	Te Velde, Bonnie G.	Trapani, Louis A.
15	Te Velde, George	Trimlett, Arlene R.
16	Te Velde, George, Jr.	Trimlett, George E.
17	Te Velde, Harm	Tristant, Pierre
18	Te Velde, Harriet	Tuinhout, Ale
19	Te Velde, Henry J.	Tuinhout, Harry
20	Te Velde, Jay	Tuinhout, Hilda
21	Te Velde, Johanna	Tuls, Elizabeth
22	Te Velde, John H.	Tuls, Jack S.
23	Te Velde, Ralph A.	Tuls, Jake
24	Te Velde, Zwaantina, Trustee	Union Oil Company of California
25	Ter Maaten, Case	United Dairyman's Co-op.
26	Ter Maaten, Cleone	Urquhart, James G.
27	Ter Maaten, Steve	Usle, Cathryn
28	Terpstra, Carol	Usle, Faustino

1	V & Y Properties	Van Hofwegen, Clara
2	Vaile, Beryl M.	Van Hofwegen, Jessie
3	Valley Hay Co.	Van Klaveren, A.
4	Van Beek Dairy Inc.	Van Klaveren, Arie
5	Van Canneyt Dairy	Van Klaveren, Wilhelmina
6	Van Canneyt, Maurice	Van Klaveren, William
7	Van Canneyt, Wilmer	Van Leeuwen, Arie C.
8	Van Dam, Bas	Van Leeuwen, Arie C.
9	Van Dam, Isabelle	Van Leeuwen, Arlan
10	Van Dam, Nellie	Van Leeuwen, Clara G.
11	Van Den Berg, Gertrude	Van Leeuwen, Cornelia L.
12	Van Den Berg, Joyce	Van Leeuwen, Harriet
13	Van Den Berg, Marinus	Van Leeuwen, Jack
14	Van Den Berg, Marvin	Van Leeuwen, John
15	Van Der Linden, Ardith	Van Leeuwen, Letie
16	Van Der Linden, John	Van Leeuwen, Margie
17	Van Der Linden, Stanley	Van Leeuwen, Paul
18	Van Der Veen, Kenneth	Van Leeuwen, William A.
19	Van Diest, Anna T.	Van Ravenswaay, Donald
20	Van Diest, Cornelius	Van Ryn Dairy
21	Van Diest, Ernest	Van Ryn, Dick
22	Van Diest, Rena	Van Surksum, Anthonetta
23	Van Dyk, Bart	Van Surksum, John
24	Van Dyk, Jeanette	Van Veen, John
25	Van Foeken, Martha	Van Vliet, Effie
26	Van Foeken, William	Van Vliet, Hendrika
27	Van Hofwegan, Steve	Van Vliet, Hugo
28	Van Hofwegen, Adrian A.	Van Vliet, Klaas

1	Vande Witte, George	Vander Laan, Katie
2	Vanden Berge, Gertie	Vander Laan, Martin Jr.
3	Vanden Berge, Gertie	Vander Laan, Tillie
4	Vanden Berge, Jack	Vander Leest, Anna
5	Vanden Berge, Jake	Vander Leest, Ann
6	Vanden Brink, Stanley	Vander Meer, Alice
7	Vander Dussen, Agnes	Vander Meer, Dick
8	Vander Dussen, Cor	Vander Poel, Hank
9	Vander Dussen, Cornelius	Vander Poel, Pete
10	Vander Dussen, Edward	Vander Pol, Irene
11	Vander Dussen, Geraldine Marie	Vander Pol, Margie
12	Vander Dussen, James	Vander Pol, Marines
13	Vander Dussen, John	Vander Pol, William P.
14	Vander Dussen, Nelvina	Vander Schaaf, Earl
15	Vander Dussen, Rene	Vander Schaaf, Elizabeth
16	Vander Dussen, Sybrand Jr.	Vander Schaaf, Henrietta
17	Vander Dussen, Sybrand Sr.	Vander Schaaf, John
18	Vander Dussen Trustees	Vander Schaaf, Ted
19	Vander Eyk, Case Jr.	Vander Stelt, Catherine
20	Vander Eyk, Case Sr.	Vander Stelt, Clarence
21	Vander Feer, Peter	Vander Tuig, Arlene
22	Vander Feer, Rieka	Vander Tuig, Sylvester
23	Vander Laan, Ann	Vander Veen, Joe A.
24	Vander Laan, Ben	Vandervlag, Robert
25	Vander Laan, Bill	Vander Zwan, Peter
26	Vander Laan, Corrie	Vanderford, Betty W.
27	Vander Laan, Henry	Vanderford, Claud R.
28	Vander Laan, James	Vanderham, Adrian

1	Vanderham, Cornelius	Vestal, J. Howard
2	Vanderham, Cornelius P.	Visser, Gerrit
3	Vanderham, Cory	Visser, Grace
4	Vanderham, E. Jane	Visser, Henry
5	Vanderham, Marian	Visser, Jess
6	Vanderham, Martin	Visser, Louie
7	Vanderham, Pete C.	Visser, Neil
8	Vanderham, Wilma	Visser, Sam
9	Vasquez, Eleanor	Visser, Stanley
10	Veenendaal, Evert	Visser, Tony D.
11	Veenendaal, John H.	Visser, Walter G.
12	Veiga, Dominick Sr.	Von Der Ahe, Fredric T.
13	Verbree, Jack	Von Euw, George
14	Verbree, Tillie	Von Euw, Marjorie
15	Verger, Bert	Von Lusk, a limited partnership
16	Verger, Betty	Voortman, Anna Marie
17	Verhoeven, Leona	Voortman, Edward
18	Verhoeven, Martin	Voortman, Edwin J.
19	Verhoeven, Wesley	Voortman, Gertrude Dena
20	Vermeer, Dick	Wagner, Richard H.
21	Vermeer, Jantina	Walker, Carole R.
22	Vernola Ranch	Walker, Donald E.
23	Vernola, Anthonietta	Walker, Wallace W.
24	Vernola, Anthony	Wardle, Donald M.
25	Vernola, Frank	Warner, Dillon B.
26	Vernola, Mary Ann	Warner, Minnie
27	Vernola, Pat F.	Wassenaar, Peter W.
28	Vestal, Frances Lorraine	Waters, Michael

1	Weeda, Adriana	Wiersma, Jake
2	Weeda, Daniel	Wiersma, Otto
3	Weeks, O. L.	Wiersma, Pete
4	Weeks, Verona E.	Winchell, Verne H., Trustee
5	Weidman, Maurice	Wind, Frank
6	Weidman, Virginia	Wind, Fred
7	Weiland, Adaline I.	Wind, Hilda
8	Weiland, Peter J.	Wind, Johanna
9	Wesselink, Jules	Woo, Frank
10	West, Katharine R.	Woo, Sem Gee
11	West, Russel	Wybenga, Clarence
12	West, Sharon Ann	Wybenga, Gus
13	Western Horse Property	Wybenga, Gus K.
14	Westra, Alice	Wybenga, Sylvia
15	Westra, Henry	Wynja, Andy
16	Westra, Hilda	Wynja, Iona F.
17	Westra, Jake J.	Yellis, Mildred
18	Weststeyn, Freida	Yellis, Thomas E.
19	Weststeyn, Pete	Ykema-Harmsen Dairy
20	Whitehurst, Louis G.	Ykema, Floris
21	Whitehurst, Pearl L.	Ykema, Harriet
22	Whitmore, David L.	Yokley, Betty Jo
23	Whitmore, Mary A.	Yokley, Darrell A.
24	Whitney, Adolph M.	Zak, Zan
25	Wiersema, Harm	Zivelonghi, George
26	Wiersema, Harry	Zivelonghi, Margaret
27	Wiersma, Ellen H.	Zwaagstra, Jake
		Zwaagstra, Jessie M.
28	Wiersma, Gladys J.	Zwart, Case

NON-PRODUCER WATER DISTRICTS

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- Chino Basin Municipal Water District
- Chino Basin Water Conservation District
- Pomona Valley Municipal Water District
- Western Municipal Water District of Riverside County

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DEFAULTING OVERLYING AGRICULTURAL PRODUCERS

1		
2	Cheryl L. Bain	Roy W. Lantis
3	Warren Bain	Sharon I. Lantis
4	John M. Barcelona	Frank Lorenz
5	Letty Bassler	Dagney H. MacDonald
6	John Brazil	Frank E. Martin
7	John S. Briano	Ruth C. Martin
8	Lupe Briano	Connie S. Mello
9	Paul A. Briano	Naldiro J. Mello
10	Tillie Briano	Felice Miller
11	Arnie B. Carlson	Ted Miller
12	John Henry Fikse	Masao Nerio
13	Phyllis S. Fikse	Tom K. Nerio
14	Lewellyn Flory	Toyo Nerio
15	Mary I. Flory	Yuriko Nerio
16	L. H. Glazer	Harold L. Rees
17	Dorothy Goodman	Alden G. Rose
18	Sidney D. Goodman	Claude Rouleau, Jr.
19	Frank Grossi	Patricia M. Rouleau
20	Harada Brothers	Schultz Enterprises
21	Ellen Hettinga	Albert Shaw
22	Hein Hettinga	Lila Shaw
23	Dick Hofstra, Jr.	Cathy M. Stewart
24	Benjamin M. Hughey	Marvin C. Stewart
25	Frieda L. Hughey	Betty Ann Stone
26	Guillaume Indart	John B. Stone
27	Ellwood B. Johnston, Trustee	Vantoll Cattle Co., Inc.
28	Perry Kruckenberg, Jr.	Catherine Verburg

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- 1 Martin Verburg
- 2 Donna Vincent
- 3 Larry Vincent
- 4 Cliff Wolfe & Associates
- 5 Ada M. Woll
- 6 Zarubica Co.
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EXHIBIT "D"

OVERLYING NON-AGRICULTURAL RIGHTS

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<u>Party</u>	<u>Total Overlying Non-Agricultural Rights (Acre Feet)</u>	<u>Share of Safe Yield (Acre Feet)</u>
Ameron Steel Producers, Inc.	125	97.858
County of San Bernardino	171	133.870
Conrock Company	406	317.844
Kaiser Steel Corporation	3,743	2,930.274
Red Star Fertilizer	20	15.657
Southern California Edison Co.	1,255	982.499
Space Center, Mira Loma	133	104.121
Southern Service Co., dba		
Blue Seal Linen	24	18.789
Sunkist, Orange Products Division	2,393	1,873.402
Carlsberg Mobile Home Properties,		
Ltd. '73	593	464.240
Union Carbide Corporation	546	427.446
Quaker Chemical Co.	<u>0</u>	<u>0</u>
Totals	9,409	7,366.000

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EXHIBIT "E"
APPROPRIATIVE RIGHTS

<u>Party</u>	<u>Appropriative Right (Acre Feet)</u>	<u>Share of Initial Operating Safe Yield (Acre Feet)</u>	<u>Share of Operating Safe Yield (Percent)</u>
City of Chino	5,271.7	3,670.067	6.693
City of Norco	289.5	201.545	0.368
City of Ontario	16,337.4	11,373.816	20.742
City of Pomona	16,110.5	11,215.852	20.454
City of Upland	4,097.2	2,852.401	5.202
Cucamonga County Water District	4,431.0	3,084.786	5.626
Jurupa Community Ser- vices District	1,104.1	768.655	1.402
Monte Vista County Water District	5,958.7	4,148.344	7.565
West San Bernardino County Water District	925.5	644.317	1.175
Etiwanda Water Company	768.0	534.668	0.975
Felspar Gardens Mutual Water Company	68.3	47.549	0.087
Fontana Union Water Co.	9,188.3	6,396.736	11.666
Marygold Mutual Water Co.	941.3	655.317	1.195
Mira Loma Water Co.	1,116.0	776.940	1.417
Monta Vista Irr. Co.	972.1	676.759	1.234
Mutual Water Company of Glen Avon Heights	672.2	467.974	0.853
Park Water Company	236.1	164.369	0.300
Pomona Valley Water Co.	3,106.3	2,162.553	3.944
San Antonio Water Co.	2,164.5	1,506.888	2.748
Santa Ana River Water Company	1,869.3	1,301.374	2.373
Southern California Water Company	1,774.5	1,235.376	2.253
West End Consolidated Water Company	<u>1,361.3</u>	<u>947.714</u>	<u>1.728</u>
TOTAL	78,763.8	54,834.000	100.000

EXHIBIT "F"
OVERLYING (AGRICULTURAL) POOL
POOLING PLAN

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3 1. Membership in Pool. The State of California and all pro-
4 ducers listed in Exhibit "C" shall be the initial members of this
5 pool, which shall include all producers of water for overlying
6 uses other than industrial or commercial purposes.

7 2. Pool Meetings. The members of the pool shall meet
8 annually, in person or by proxy, at a place and time to be desig-
9 nated by Watermaster for purposes of electing members of the Pool
10 Committee and conducting any other business of the pool. Special
11 meetings of the membership of the pool may be called and held as
12 provided in the rules of the pool.

13 3. Voting. All voting at meetings of pool members shall be
14 on the basis of one vote for each 100 acre feet or any portion
15 thereof of production from Chino Basin during the preceding year,
16 as shown by the records of Watermaster.

17 4. Pool Committee. The Pool Committee for this pool shall
18 consist of not less than nine (9) representatives selected at
19 large by members of the pool. The exact number of members of the
20 Pool Committee in any year shall be as determined by majority vote
21 of the voting power of members of the pool in attendance at the
22 annual pool meeting. Each member of the Pool Committee shall have
23 one vote and shall serve for a two-year term. The members first
24 elected shall classify themselves by lot so that approximately
25 one-half serve an initial one-year term. Vacancies during any
26 term shall be filled by a majority of the remaining members of the
27 Pool Committee.

28 5. Advisory Committee Representatives. The number of

1 representatives of the Pool Committee on the Advisory Committee
2 shall be as provided in the rules of the pool from time to time
3 but not exceeding ten (10). The voting power of the pool on the
4 Advisory Committee shall be apportioned and exercised as deter-
5 mined from time to time by the Pool Committee.

6 6. Replenishment Obligation. The pool shall provide funds
7 for replenishment of any production by persons other than members
8 of the Overlying (Non-agricultural) Pool or Appropriator Pool, in
9 excess of the pool's share of Safe Yield. During the first five
10 (5) years of operations of the Physical Solution, reasonable
11 efforts shall be made by the Pool Committee to equalize annual
12 assessments.

13 7. Assessments. All assessments in this pool (whether for
14 replenishment water cost or for pool administration or the allo-
15 cated share of Watermaster administration) shall be in an amount
16 uniformly applicable to all production in the pool during the
17 preceding year or calendar quarter. Provided, however, that the
18 Agricultural Pool Committee, may recommend to the Court modifica-
19 tion of the method of assessing pool members, inter se, if the
20 same is necessary to attain legitimate basin management objectives,
21 including water conservation and avoidance of undesirable socio-
22 economic consequences. Any such modification shall be initiated
23 and ratified by one of the following methods:

24 (a) Excess Production. In the event total pool
25 production exceeds 100,000 acre feet in any year, the Pool
26 Committee shall call and hold a meeting, after notice to all
27 pool members, to consider remedial modification of the
28 assessment formula.

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1 (b) Producer Petition. At any time after the fifth
2 full year of operation under the Physical Solution, a peti-
3 tion by ten percent (10%) of the voting power or membership
4 of the Pool shall compel the holding of a noticed meeting
5 to consider revision of said formula of assessment for re-
6 plenishment water.

7 In either event, a majority action of the voting power in attend-
8 ance at such pool members' meeting shall be binding on the Pool
9 Committee.

10 8. Rules. The Pool Committee shall adopt rules for con-
11 ducting meetings and affairs of the committee and for adminis-
12 tering its program and in amplification of the provisions, but not
13 inconsistent with, this pooling plan.

EXHIBIT "G"
OVERLYING (NON-AGRICULTURAL) POOL
POOLING PLAN

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3 1. Membership in Pool. The initial members of the pool,
4 together with the decreed share of the Safe Yield of each, are
5 listed in Exhibit "D". Said pool includes producers of water for
6 overlying industrial or commercial (non-agricultural) purposes, or
7 such producers within the Pool who may hereafter take water pur-
8 suant to Paragraph 8 hereof.

9 2. Pool Committee. The Pool Committee for this pool shall
10 consist of one representative designated by each member of the
11 pool. Voting on the committee shall be on the basis of one vote
12 for each member, unless a volume vote is demanded, in which case
13 votes shall be allocated as follows:

14 The volume voting power on the Pool Committee shall
15 be 1,484 votes. Of these, 742 votes shall be allocated on
16 the basis of one vote for each ten (10) acre feet or fraction
17 thereof of decreed shares in Safe Yield. (See Exhibit "D".)
18 The remaining 742 votes shall be allocated proportionally
19 on the basis of assessments paid to Watermaster during the
20 preceding year.*

21 3. Advisory Committee Representatives. At least three (3)
22 members of the Pool Committee shall be designated by said committee
23 to serve on the Advisory Committee. The exact number of such
24 representatives at any time shall be as determined by the Pool
25 Committee. The voting power of the pool shall be exercised in the
26

27 *Or production assessments paid under Water Code Section
28 72140 et seq., as to years prior to the second year of operation
under the Physical Solution hereunder.

1 Advisory Committee as a unit, based upon the vote of a majority of
2 said representatives.

3 4. Replenishment Obligation. The pool shall provide funds
4 for replenishment of any production in excess of the pool's share
5 of Safe Yield in the preceding year.

6 5. Assessment. Each member of this pool shall pay an assess-
7 ment equal to the cost of replenishment water times the number of
8 acre feet of production by such producer during the preceding year
9 in excess of (a) his decreed share of the Safe Yield, plus (b) any
10 carry-over credit under Paragraph 7 hereof. In addition, the cost
11 of the allocated share of Watermaster administration expense shall
12 be recovered on an equal assessment against each acre foot of
13 production in the pool during such preceding fiscal year or calen-
14 dar quarter; and in the case of Pool members who take substitute
15 ground water as set forth in Paragraph 8 hereof, such producer
16 shall be liable for its share of administration assessment, as if
17 the water so taken were produced, up to the limit of its decreed
18 share of Safe Yield.

19 6. Assignment. Rights herein decreed are appurtenant to the
20 land and are only assignable with the land for overlying use
21 thereon; provided, however, that any appropriator who may, directly
22 or indirectly, undertake to provide water service to such overlying
23 lands may, by an appropriate agency agreement on a form approved by
24 Watermaster, exercise said overlying right to the extent, but only
25 to the extent necessary to provide water service to said overlying
26 lands.

27 7. Carry-over. Any member of the pool who produces less than
28 its assigned water share of Safe Yield may carry such unexercised

1 right forward for exercise in subsequent years. The first water
2 produced during any such subsequent year shall be deemed to be an
3 exercise of such carry-over right. In the event the aggregate
4 carry-over by any pool member exceeds its share of Safe Yield, such
5 member shall, as a condition of preserving such surplus carry-over,
6 execute a storage agreement with Watermaster.

7 8. Substitute Supplies. To the extent that any Pool member,
8 at the request of Watermaster and with the consent of the Advisory
9 Committee, takes substitute surface water in lieu of producing
10 ground water otherwise subject to production as an allocated share
11 of Safe Yield, said party shall nonetheless remain a member of this
12 Pool.

13 9. Rules. The Pool Committee shall adopt rules for adminis-
14 tering its program and in amplification of the provisions, but not
15 inconsistent with, this pooling plan.
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EXHIBIT "H"
APPROPRIATIVE POOL
POOLING PLAN

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3 1. Qualification for Pool. Any city, district or other
4 public entity and public utility -- either regulated under Public
5 Utilities Commission jurisdiction, or exempt therefrom as a non-
6 profit mutual water company (other than those assigned to the
7 Overlying [Agricultural] Pool) -- shall be a member of this pool.
8 All initial members of the pool are listed in Exhibit "E", together
9 with their respective appropriative rights and acre foot allocation
10 and percentage shares of the initial and subsequent Operating Safe
11 Yield.

12 2. Pool Committee. The Pool Committee shall consist of one
13 (1) representative appointed by each member of the Pool.

14 3. Voting. The total voting power on the Pool Committee
15 shall be 1,000 votes. Of these, 500 votes shall be allocated in
16 proportion to decreed percentage shares in Operating Safe Yield.
17 The remaining 500 votes shall be allocated proportionally on the
18 basis of assessments paid to Watermaster during the preceding
19 year.* Routine business of the Pool Committee may be conducted on
20 the basis of one vote per member, but upon demand of any member a
21 weighted vote shall be taken. Affirmative action of the Committee
22 shall require a majority of the voting power of members in attend-
23 ance, provided that it includes concurrence by at least one-third
24 of its total members.

25 4. Advisory Committee Representatives. Ten (10) members of
26

27 *Or production assessments paid under Water Code Section 72140
28 et seq., as to years prior to the second year of operation under
the Physical Solution hereunder.

1 the Pool Committee shall be designated to represent this pool on
2 the Advisory Committee. Each major appropriator, i.e., the owner
3 of an adjudicated appropriative right in excess of 3,000 acre feet,
4 shall be entitled to one representative. The remaining members
5 representing the Appropriative Pool on the Advisory Committee shall
6 be elected at large by the remaining members of the pool. The
7 voting power of the Appropriative Pool on the Advisory Committee
8 shall be apportioned between the major appropriator representatives
9 in proportion to their respective voting power in the Pool Com-
10 mittee. The remaining two representatives shall exercise equally
11 the voting power proportional to the Pool Committee voting power
12 of all remaining appropriators; provided, however, that if any
13 representative fails to attend an Advisory Committee meeting, the
14 voting power of that representative shall be allocated among the
15 representatives of the Appropriator Pool in attendance in the same
16 proportion as their own respective voting powers.

17 5. Replenishment Obligation. The pool shall provide funds
18 for purchase of replenishment water to replace any production by
19 the pool in excess of Operating Safe Yield during the preceding
20 year.

21 6. Administrative Assessment. Costs of administration of
22 this pool and its share of general Watermaster expense shall be
23 recovered by a uniform assessment applicable to all production
24 during the preceding year.

25 7. Replenishment Assessment. The cost of replenishment water
26 required to replace production from Chino Basin in excess of
27 Operating Safe Yield in the preceding year shall be allocated and
28 recovered as follows:

1 (a) For production, other than for increased export,
2 within CBMWD or WMWD:

3 (1) Gross Assessment. 15% of such replenishment
4 water costs shall be recovered by a uniform assessment
5 against all production of each appropriator producing in
6 said area during the preceding year.

7 (2) Net Assessment. The remaining 85% of said
8 costs shall be recovered by a uniform assessment on each
9 acre foot of production from said area by each such
10 appropriator in excess of his allocated share of Oper-
11 ating Safe Yield during said preceding year.

12 (b) For production which is exported for use outside
13 Chino Basin in excess of maximum export in any year through
14 1976, such increased export production shall be assessed
15 against the exporting appropriator in an amount sufficient to
16 purchase replenishment water from CBMWD or WMWD in the amount
17 of such excess.

18 (c) For production within SBVMWD or PVMWD:

19 By an assessment on all production in excess of
20 an appropriator's share of Operating Safe Yield in an
21 amount sufficient to purchase replenishment water through
22 SBVMWD or MWD in the amount of such excess.

23 8. Socio-Economic Impact Review. The parties have conducted
24 certain preliminary socio-economic impact studies. Further and
25 more detailed socio-economic impact studies of the assessment
26 formula and its possible modification shall be undertaken for the
27 Appropriator Pool by Watermaster no later than ten (10) years from
28 the effective date of this Physical Solution, or whenever total

1 production by this pool has increased by 30% or more over the
2 decreed appropriative rights, whichever is first.

3 9. Facilities Equity Assessment. Watermaster may, upon
4 recommendation of the Pool Committee, institute proceedings for
5 levy and collection of a Facilities Equity Assessment for the
6 purposes and in accordance with the procedures which follow:

7 (a) Implementing Circumstances. There exist several
8 sources of supplemental water available to Chino Basin, each
9 of which has a differential cost and quantity available. The
10 optimum management of the entire Chino Basin water resource
11 favors the maximum use of the lowest cost supplemental water
12 to balance the supplies of the Basin, in accordance with the
13 Physical Solution. The varying sources of supplemental water
14 include importations from MWD and SBVMWD, importation of
15 surface and ground water supplies from other basins in the
16 immediate vicinity of Chino Basin, and utilization of re-
17 claimed water. In order to fully utilize any of such alter-
18 nate sources of supply, it will be essential for particular
19 appropriators having access to one or more of such supplies to
20 have invested, or in the future to invest, directly or in-
21 directly, substantial funds in facilities to obtain and
22 deliver such water to an appropriate point of use. To the
23 extent that the use of less expensive alternate sources of
24 supplemental water can be maximized by the inducement of a
25 Facilities Equity Assessment, as herein provided, it is to the
26 long-term benefit of the entire basin that such assessment be
27 authorized and levied by Watermaster.

28 (b) Study and Report. At the request of the Pool

1 Committee, Watermaster shall undertake a survey study of the
2 utilization of alternate supplemental supplies by members of
3 the Appropriative Pool which would not otherwise be utilized
4 and shall prepare a report setting forth the amount of such
5 alternative supplies being currently utilized, the amount of
6 such supplies which could be generated by activity within the
7 pool, and the level of cost required to increase such uses and
8 to optimize the total supplies available to the basin. Said
9 report shall contain an analysis and recommendation for the
10 levy of a necessary Facilities Equity Assessment to accomplish
11 said purpose.

12 (c) Hearing. If the said report by Watermaster contains
13 a recommendation for imposition of a Facilities Equity Assess-
14 ment, and the Pool Committee so requests, Watermaster shall
15 notice and hold a hearing not less than 60 days after dis-
16 tribution of a copy of said report to each member of the pool,
17 together with a notice of the hearing date. At such hearing,
18 evidence shall be taken with regard to the necessity and
19 propriety of the levy of a Facilities Equity Assessment and
20 full findings and decision shall be issued by Watermaster.

21 (d) Operation of Assessment. If Watermaster determines
22 that it is appropriate that a Facilities Equity Assessment be
23 levied in a particular year, the amount of additional supple-
24 mental supplies which should be generated by such assessment
25 shall be estimated. The cost of obtaining such supplies,
26 taking into consideration the investment in necessary
27 facilities shall then be determined and spread equitably among
28 the producers within the pool in a manner so that those

1 producers not providing such additional lower cost supple-
2 mental water, and to whom a financial benefit will result, may
3 bear a proportionate share of said costs, not exceeding said
4 benefit; provided that any producer furnishing such supple-
5 mental water shall not thereby have its average cost of water
6 in such year reduced below such producer's average cost of
7 pumping from the Basin. In so doing, Watermaster shall
8 establish a percentage of the total production by each party
9 which may be produced without imposition of a Facilities
10 Equity Assessment. Any member of the pool producing more
11 water than said percentage shall pay such Facilities Equity
12 Assessment on any such excess production. Watermaster is
13 authorized to transmit and pay the proceeds of such Facilities
14 Equity Assessment to those producers who take less than their
15 share of Basin water by reason of furnishing a higher per-
16 centage of their requirements through use of supplemental
17 water.

18 10. Unallocated Safe Yield Water. To the extent that, in any
19 five years, any portion of the share of Safe Yield allocated to
20 the Overlying (Agricultural) Pool is not produced, such water shall
21 be available for reallocation to members of the Appropriative Pool,
22 as follows:

23 (a) Priorities. Such allocation shall be made in the
24 following sequence:

25 (1) to supplement, in the particular year, water
26 available from Operating Safe Yield to compensate for any
27 reduction in the Safe Yield by reason of recalculation
28 thereof after the tenth year of operation hereunder.

1 (2) pursuant to conversion claims as defined in
2 Subparagraph (b) hereof.

3 (3) as a supplement to Operating Safe Yield,
4 without regard to reductions in Safe Yield.

5 (b) Conversion Claims. The following procedures may be
6 utilized by any appropriator:

7 (1) Record of Land Use Conversion. Any appro-
8 priator who undertakes, directly or indirectly, dur-
9 ing any year, to permanently provide water service to
10 lands which during the immediate preceding five (5)
11 consecutive years was devoted to irrigated agriculture
12 may report such change in land use or water service to
13 Watermaster. Watermaster shall thereupon verify such
14 change in water service and shall maintain a record and
15 account for each appropriator of the total acreage
16 involved and the average annual water use during said
17 five-year period.

18 (2) Establishment of Allocation Percentage. In
19 any year in which unallocated Safe Yield water from
20 the Overlying (Agricultural) Pool is available for such
21 conversion claims, Watermaster shall establish allocable
22 percentages for each appropriator based upon the total
23 of such converted acreage recorded to each such appro-
24 priator's account.

25 (3) Allocation and Notice. Watermaster shall
26 thereafter apply the allocated percentage to the total
27 unallocated Safe Yield water available for special
28 allocation to derive the amount thereof allocable to

1 each appropriator; provided that in no event shall the
2 allocation to any appropriator as a result of such
3 conversion claim exceed 50% of the average annual amount
4 of water actually applied to the areas converted by such
5 appropriator prior to such conversion. Any excess water
6 by reason of such limitation on any appropriator's right
7 shall be added to Operating Safe Yield. Notice of such
8 special allocation shall be given to each appropriator
9 and shall be treated for purposes of this Physical
10 Solution as an addition to such appropriator's share of
11 the Operating Safe Yield for the particular year only.

12 (4) Administrative Costs. Any costs of Water-
13 master attributable to administration of such special
14 allocations and conversion claims shall be assessed
15 against appropriators participating in such reporting.

16 11. In Lieu Procedures. There are, or may develop, certain
17 areas within Chino Basin where good management practices dictate
18 that recharge of the basin be accomplished, to the extent prac-
19 tical, by taking surface supplies of supplemental water in lieu of
20 ground water otherwise subject to production as an allocated share
21 of Operating Safe Yield.

22 (a) Method of Operation. Any appropriator producing
23 water within such designated in lieu area who is willing to
24 abstain for any reason from producing any portion of such
25 producer's share of Operating Safe Yield in any year may
26 offer such unpumped water to Watermaster. In such event,
27 Watermaster shall purchase said water in place, in lieu of
28 spreading replenishment water, which is otherwise required to

1 make up for over production. The purchase price for in lieu
2 water shall be the lesser of:

3 (1) Watermaster's current cost of replenishment
4 water, whether or not replenishment water is currently
5 then obtainable, plus the cost of spreading; or

6 (2) The cost of supplemental surface supplies to
7 the appropriator, less

8 a. said appropriator's average cost of
9 ground water production, and

10 b. the applicable production assessment
11 were the water produced.

12 Where supplemental surface supplies consist of MWD or
13 SBVMWD supplies, the cost of treated, filtered State
14 water from such source shall be deemed the cost of
15 supplemental surface supplies to the appropriator for
16 purposes of such calculation.

17 In any given year in which payments may be made pursuant to
18 a Facilities Equity Assessment, as to any given quantity of
19 water the party will be entitled to payment under this
20 section or pursuant to the Facilities Equity Assessment, as
21 the party elects, but not under both.

22 (b) Designation of In Lieu Areas. The first in lieu
23 area is designated as the "In Lieu Area No. 1" and consists
24 of an area wherein nitrate levels in the ground water gen-
25 erally exceed 45 mg/l, and is shown on Exhibit "J" hereto.
26 Other in lieu areas may be designated by subsequent order of
27 Watermaster upon recommendation or approval by Advisory
28 Committee. Said in lieu areas may be enlarged, reduced or

1 eliminated by subsequent orders; provided, however, that
2 designation of In Lieu Areas shall be for a minimum fixed
3 term sufficient to justify necessary capital investment. In
4 Lieu Area No. 1 may be enlarged, reduced or eliminated in
5 the same manner, except that any reduction of its original
6 size or elimination thereof shall require the prior order of
7 Court.

8 12. Carry-over. Any appropriator who produces less than his
9 assigned share of Operating Safe Yield may carry such unexercised
10 right forward for exercise in subsequent years. The first water
11 produced during any such subsequent year shall be deemed to be an
12 exercise of such carry-over right. In the event the aggregate
13 carry-over by any appropriator exceeds its share of Operating Safe
14 Yield, such appropriator shall, as a condition of preserving such
15 surplus carry-over, execute a storage agreement with Watermaster.
16 Such appropriator shall have the option to pay the gross assess-
17 ment applicable to such carry-over in the year in which it accrued.

18 13. Assignment, Transfer and Lease. Appropriative rights,
19 and corresponding shares of Operating Safe Yield, may be assigned
20 or may be leased or licensed to another appropriator for exercise
21 in a given year. Any transfer, lease or license shall be ineffec-
22 tive until written notice thereof is furnished to and approved as
23 to form by Watermaster, in compliance with applicable Watermaster
24 rules. Watermaster shall not approve transfer, lease or license of
25 a right for exercise in an area or under conditions where such
26 production would be contrary to sound basin management or detri-
27 mental to the rights or operations of other producers.

28 14. Rules. The Pool Committee shall adopt rules for

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1 administering its program and in amplification of the provisions,
2 but not inconsistent with, this pooling plan.

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EXHIBIT "I"

ENGINEERING APPENDIX

1
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3 1. Basin Management Parameters. In the process of imple-
4 menting the physical solution for Chino Basin, Watermaster shall
5 consider the following parameters:

6 (a) Pumping Patterns. Chino Basin is a common supply
7 for all persons and agencies utilizing its waters. It is an
8 objective in management of the Basin's waters that no pro-
9 ducer be deprived of access to said waters by reason of
10 unreasonable pumping patterns, nor by regional or localized
11 recharge of replenishment water, insofar as such result may
12 be practically avoided.

13 (b) Water Quality. Maintenance and improvement of
14 water quality is a prime consideration and function of
15 management decisions by Watermaster.

16 (c) Economic Considerations. Financial feasibility,
17 economic impact and the cost and optimum utilization of the
18 Basin's resources and the physical facilities of the parties
19 are objectives and concerns equal in importance to water
20 quantity and quality parameters.

21 2. Operating Safe Yield. Operating Safe Yield in any year
22 shall consist of the Appropriative Pool's share of Safe Yield of
23 the Basin, plus any controlled overdraft of the Basin which
24 Watermaster may authorize. In adopting the Operating Safe Yield
25 for any year, Watermaster shall be limited as follows:

26 (a) Accumulated Overdraft. During the operation of
27 this Judgment and Physical Solution, the overdraft accumu-
28 lated from and after the effective date of the Physical

1 Solution and resulting from an excess of Operating Safe Yield
2 over Safe Yield shall not exceed 200,000 acre feet.

3 (b) Quantitative Limits. In no event shall Operating
4 Safe Yield in any year be less than the Appropriative Pool's
5 share of Safe Yield, nor shall it exceed such share of Safe
6 Yield by more than 10,000 acre feet. The initial Operating
7 Safe Yield is hereby set at 54,834 acre feet per year.

8 Operating Safe Yield shall not be changed upon less than five
9 (5) years' notice by Watermaster.

10 Nothing contained in this paragraph shall be deemed to authorize,
11 directly or indirectly, any modification of the allocation of
12 shares in Safe Yield to the overlying pools, as set forth in
13 Paragraph 44 of the Judgment.

14 3. Ground Water Storage Agreements. Any agreements author-
15 ized by Watermaster for storage of supplemental water in the
16 available ground water storage capacity of Chino Basin shall
17 include, but not be limited to:

18 (a) The quantities and term of the storage right.

19 (b) A statement of the priority or relation of said
20 right, as against overlying or Safe Yield uses, and other
21 storage rights.

22 (c) The procedure for establishing delivery rates,
23 schedules and procedures which may include

24 [1] spreading or injection, or

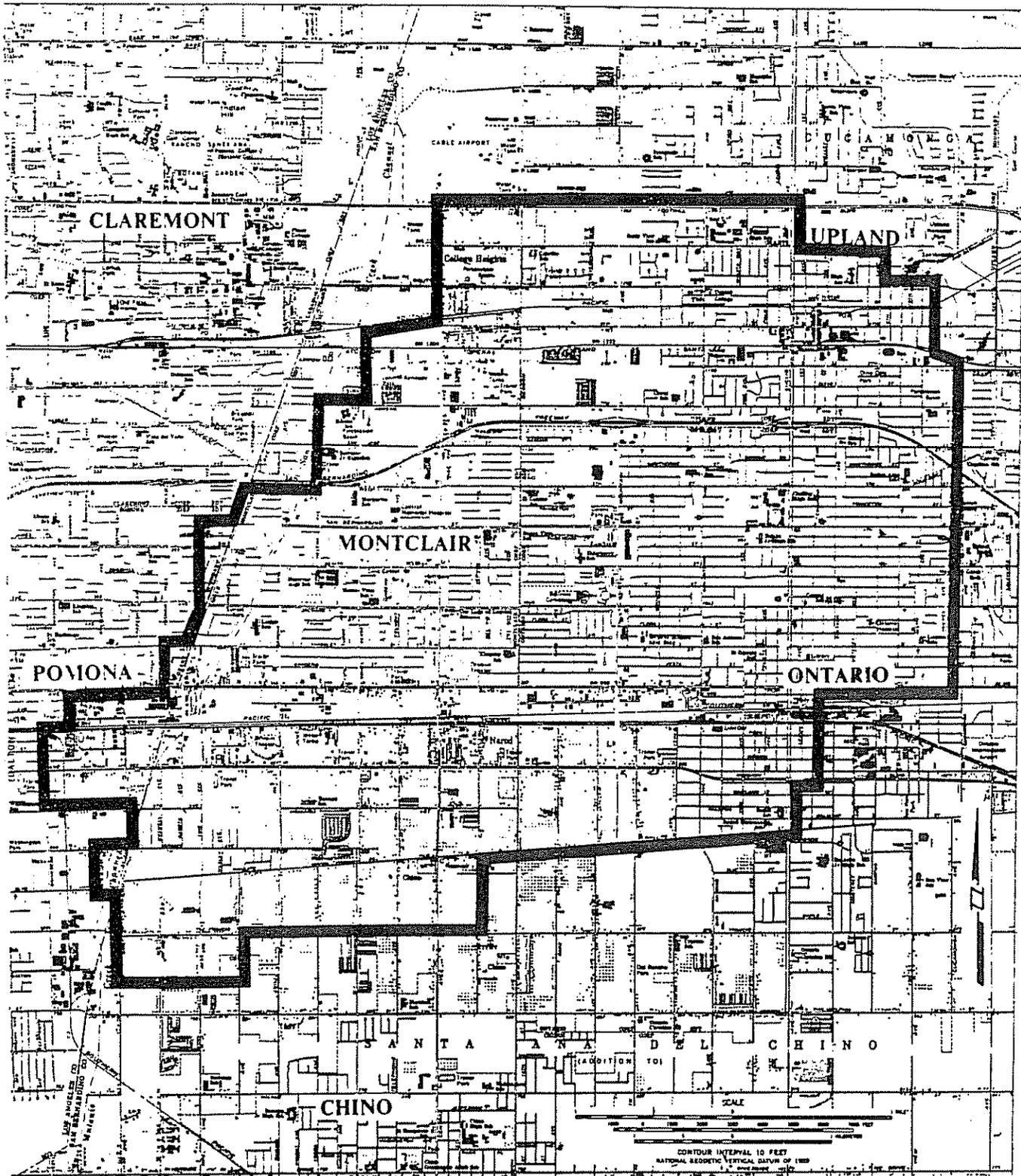
25 [2] in lieu deliveries of supplemental water for
26 direct use.

27 (d) The procedures for calculation of losses and annual
28 accounting for water in storage by Watermaster.

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(e) The procedures for establishment and administration of withdrawal schedules, locations and methods.



**CHINO BASIN
IN LIEU AREA NO. 1**

EXHIBIT "J"
-82-

LEGAL DESCRIPTION

OF CHINO BASIN

Preamble

All of the townships and ranges referred to in the following legal description are the San Bernardino Base and Meridian. Certain designated sections are implied as the System of Government Surveys may be extended where not established. Said sections are identified as follows:

Section 20, T1N, R8W is extended across Rancho Cucamonga;

Section 36, T1N, R8W is extended across the City of Upland;

Sections 2, 3, and 4, T1S, R7W are extended across Rancho Cucamonga;

Section 10, T1S, R8W is extended across the City of Claremont;

Sections 19, 20, 21, 30, 31 and 32, T1S, R8W are extended across the City of Pomona;

Sections 4, 5, and 28, T2S, R8W are extended across Rancho Santa Ana Del Chino;

Sections 15 and 16, T3S, R7W are extended across Rancho La Sierra; and

Sections 17 and 20, T3S, R7W are extended across Rancho El Rincon.

Description

Chino Basin is included within portions of the Counties of San Bernardino, Riverside and Los Angeles, State of California, bounded by a continuous line described as follows:

BEGINNING at the Southwest corner of Lot 241 as shown on Map of Ontario Colony Lands, recorded in Map Book 11, page 6, Office of the County Recorder of San Bernardino County, said corner being the Point of Beginning;

1. Thence Southeasterly to the Southeast corner

of Lot 419 of said Ontario Colony Lands;

2. Thence Southeasterly to a point 1300 feet North of the South line and 1300 feet East of the West line of Section 4, T1S, R7W;

3. Thence Easterly to a point on the East line of Section 4, 1800 feet North of the Southeast corner of said Section 4;

4. Thence Easterly to the Southeast corner of the Southwest quarter of the Northeast quarter of Section 3, T1S, R7W;

5. Thence Northeasterly to a point on the North line of Section 2, T1S, R7W, 1400 feet East of the West line of said Section 2;

6. Thence Northeasterly to the Southwest corner of Section 18, T1N, R6W;

7. Thence Northerly to the Northwest corner of said Section 18;

8. Thence Easterly to the Northeast corner of said Section 18;

9. Thence Northerly to the Northwest corner of the Southwest quarter of Section 8, T1N, R6W;

10. Thence Easterly to the Northeast corner of said Southwest quarter of said Section 8;

11. Thence Southerly to the Southeast corner of said Southwest quarter of said Section 8;

12. Thence Easterly to the Northeast corner of Section 17, T1N, R6W;

13. Thence Easterly to the Northeast corner of Section 16, T1N, R6W;

14. Thence Southeasterly to the Northwest corner of the Southeast quarter of Section 15, T1N, R6W;

15. Thence Easterly to the Northeast corner of said Southeast quarter of said Section 15;

16. Thence Southeasterly to the Northwest corner of the Northeast quarter of Section 23, T1N, R6W;

17. Thence Southeasterly to the Northwest corner

of Section 25, T1N, R6W;

18. Thence Southeasterly to the Northwest corner of the Northeast quarter of Section 31, T1N, R5W;

19. Thence Southeasterly to the Northeast corner of the Northwest quarter of Section 5, T1S, R5W;

20. Thence Southeasterly to the Southeast corner of Section 4, T1S, R5W;

21. Thence Southeasterly to the Southeast corner of the Southwest quarter of Section 11, T1S, R5W;

22. Thence Southwesterly to the Southwest corner of Section 14, T1S, R5W;

23. Thence Southwest to the Southwest corner of Section 22, T1S, R5W;

24. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 6, T2S, R5W;

25. Thence Southeasterly to the Northeast corner of Section 18 T2S, R5W;

26. Thence Southwesterly to the Southwest corner of the Southeast quarter of Section 13, T2S, R6W;

27. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 26, T2S, R6W;

28. Thence Westerly to the Southwest corner of the Northwest quarter of said Section 26;

29. Thence Northerly to the Northwest corner of said Section 26;

30. Thence Westerly to the Southwest corner of Section 21, T2S, R6W;

31. Thence Southerly to the Southeast corner of Section 29, T2S, R6W;

32. Thence Westerly to the Southeast corner of Section 30, T2S, R6W;

33. Thence Southwesterly to the Southwest corner of Section 36, T 2 S, R 7 W;

34. Thence Southwesterly to the Southeast corner

of Section 3, T3S, R7W;

35. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 10, T3S, R7W;

36. Thence Southerly to the Northeast corner of the Northwest quarter of Section 15, T3S, R7W;

37. Thence Southwesterly to the Southeast corner of the Northeast quarter of Section 16, T3S, R7W;

38. Thence Southwesterly to the Southwest corner of said Section 16;

39. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 20, T3S, R7W;

40. Thence Westerly to the Southwest corner of the Northwest quarter of said Section 20;

41. Thence Northerly to the Northwest corner of Section 17, T3S, R7W;

42. Thence Westerly to the Southwest corner of Section 7, T3S, R7W;

43. Thence Northerly to the Southwest corner of Section 6, T3S, R7W;

44. Thence Westerly to the Southwest corner of Section 1, T3S, R8W;

45. Thence Northerly to the Southeast corner of Section 35, T2S, R8W;

46. Thence Northwesterly to the Northwest corner of said Section 35;

47. Thence Northerly to the Southeast corner of Lot 33, as shown on Map of Tract 3193, recorded in Map Book 43, pages 46 and 47, Office of the County Recorder of San Bernardino County;

48. Thence Westerly to the Northwest corner of the Southwest quarter of Section 28, T2S, R8W;

49. Thence Northerly to the Southwest corner of Section 4, T2S, R8W;

50. Thence Westerly to the Southwest corner of Section 5, T2S, R8W;

51. Thence Northerly to the Southwest corner of Section 32, T1S, R8W;

52. Thence Westerly to the Southwest corner of Section 31, T1S, R8W;

53. Thence Northerly to the Southwest corner of Section 30, T1S, R8W;

54. Thence Northeasterly to the Southwest corner of Section 20, T1S, R8W;

55. Thence Northerly to the Northwest corner of the Southwest quarter of the Southwest quarter of said Section 20;

56. Thence Northwesterly to the Northeast corner of the Southeast quarter of the Southeast quarter of the Northwest quarter of Section 19, T1S, R8W;

57. Thence Easterly to the Northwest corner of Section 21, T1S, R8W;

58. Thence Northeasterly to the Southeast corner of the Southwest quarter of the Southwest quarter of Section 10, T1S, R8W;

59. Thence Northeasterly to the Southwest corner of Section 2, T1S, R8W;

60. Thence Northeasterly to the Southeast corner of the Northwest quarter of the Northwest quarter of Section 1, T1S, R8W;

61. Thence Northerly to the Northeast corner of the Northwest quarter of the Northeast quarter of Section 36, T1N, R8W;

62. Thence Northerly to the Southeast corner of Section 24, T1N, R8W;

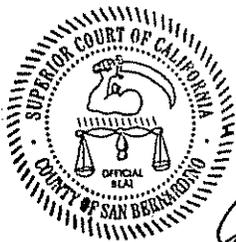
63. Thence Northeasterly to the Southeast corner of the Northwest quarter of the Northwest quarter of Section 20, T1N, R7W; and

64. Thence Southerly to the Point of Beginning.

Sections Included

Said perimeter description includes all or portions of the following Townships, Ranges and Sections of San Bernardino Base and Meridian:

- T1N, R5W - Sections: 30, 31 and 32
- T1N, R6W - Sections: 8, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36
- T1N, R7W - Sections: 19, 20, 24, 25, 26, 29, 30, 31, 32, 35 and 36
- T1N, R8W - Sections: 25 and 36
- T1S, R5W - Sections: 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 28, 29, 30, 31 and 32.
- T1S, R6W - Sections: 1 through 36, inclusive
- T1S, R7W - Sections: 1 through 36, inclusive
- T1S, R8W - Sections: 1, 2, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36
- T2S, R5W - Sections: 6, 7 and 18
- T2S, R6W - Sections: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 29, 30 and 31
- T2S, R7W - Sections: 1 through 36, inclusive
- T2S, R8W - Sections: 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, 35 and 36
- T3S, R7W - Sections: 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17 and 20
- T3S, R8W - Section: 1.



THE DOCUMENT TO WHICH THIS CERTIFICATION IS ATTACHED IS A FULL, TRUE AND CORRECT COPY OF THE ORIGINAL ON FILE AND OF RECORD IN MY OFFICE.

OCT 29 2002

ATTEST
Clerk of the Superior Court of the State of California, in and for the County of San Bernardino

Terry Wittenborn
Deputy

Terry Wittenborn

92 pages

- **Groundwater Pumping In Six Basins.**

The amount of *Supplier – Produced Groundwater* listed on **Table 8 Current and Planned Water Supplies** reflects an increase from 20,850 to 22,900 acre-feet per year, respectively.

The amount of groundwater pumping shown for the *Pomona Basin* listed on **Table 12 Amount of Groundwater Projected to be Pumped** reflects an increase from 750 to 2,800 acre-feet per year, respectively.

Water Supply Sources	2005	2010	2015	2020	2025	2030
Wholesale Water Providers						
Three Valleys Municipal Water District	7,000	6,000	6,000	6,000	6,000	6,000
Supplier Surface Diversions						
San Antonio Spreading Grounds	2,000	2,000	2,000	2,000	2,000	2,000
Transfers in or out	2,500	0	0	0	0	0
Exchanges in or out	NA	NA	NA	NA	NA	NA
Supplier-Produced Groundwater	18,659	22,900	22,900	22,900	22,900	22,900
Recycled Water (current and projected use)	6,000	7,000	7,000	7,000	7,000	7,000
Desalination	0	0	0	0	0	0
Other						
Local Groundwater Production	0	0	0	0	0	0
Total	36,159	37,900	37,900	37,900	37,900	37,900

Basin Name(s)	2010	2015	2020	2025	2030 - opt
Chino	18,000	18,000	18,000	18,000	18,000
Six Basins					
Claremont	1,200	1,200	1,200	1,200	1,200
Pomona	2,800	2,800	2,800	2,800	2,800
Spadra	900	900	900	900	900
% of Total Water Supply	60.42%	60.42%	60.42%	60.42%	60.42%

- **Impact On Customer’s Deliveries As A Result Of Expected Increase In Recycled Water Usage.**

We are anticipating an increase of 1,000 ac-ft of recycled water usage by 2010 as a result of our current planning efforts. Consequently, staff expects the increase in recycled water usage will result in an equivalent decrease in landscape irrigation demands. Therefore, beginning with the Year 2010, in **Table 15-Past, Current, and Projected Water Deliveries**, the potable water *Deliveries AF/Y* for landscape were decreased by 1,000 acre-feet.

Year	Water Use Sectors	Single Family	Multi-family	Com-mercial	Industrial	Instit/gov	Land-scape	Agic	Total
2000	metered								
	# of Accounts	23,587	2,443	2,583	150	749	304	-	29,816
	Deliveries AF/Y	14,203	5,503	5,824	705	75	1,127	-	27,438
2005	metered								
	# of Accounts	24,790	2,568	2,715	158	787	320	-	31,337
	Deliveries AF/Y	14,927	5,784	6,121	741	79	1,185	-	28,837
2010	metered								
	# of Accounts	26,055	2,699	2,853	166	827	336	-	32,935
	Deliveries AF/Y	15,263	6,079	6,433	778	83	245	-	28,882
2015	metered								
	# of Accounts	27,384	2,836	2,999	174	870	353	-	34,615
	Deliveries AF/Y	15,816	6,389	6,761	818	88	309	-	30,181
2020	metered								
	# of Accounts	28,781	2,981	3,152	183	914	371	-	36,381
	Deliveries AF/Y	16,560	6,715	7,106	860	92	375	-	31,708
2025	metered								
	# of Accounts	30,249	3,133	3,313	192	961	390	-	38,237
	Deliveries AF/Y	17,310	7,058	7,469	904	97	446	-	33,283
2030	metered								
	# of Accounts	31,013	3,212	3,396	197	985	400	-	39,203
	Deliveries AF/Y	18,349	7,236	7,657	926	99	482	-	34,750

- **Future Water Uses And Losses Summed With The City's Total Demand.**

In our original submission, the shift obligation pursuant to MWD's Dry Year Yield Conjunctive Use Program (Program), was listed in **Table 16 Additional Water Uses and Losses** as a category of use. The Program's intent is to defer pumping by taking surface water in times of surplus and maximize groundwater pumping in times of water droughts.

Water Use	2000	2005	2010	2015	2020	2025	2030
Groundwater Recharge (Basin Loss)	0	0	0	0	0	0	0
Conjunctive Use	0	0	0	0	0	0	0
Recycled	1,400	1,400	1,000	1,000	1,000	1,000	1,000
Unaccounted-For System Losses	1,413	2,148	2,035	1,922	1,809	1,696	1,696
Total	2,813	3,548	3,035	2,922	2,809	2,696	2,696

- **Future Water Supply Projects.**

Well 32 and 37, are located in the Six Basins and will be operable by this calendar year. As listed in **Table 17 Future Water Supply Projects** below, the well production is expected to boost water supply in the Six Basins.

Project Name	Projected Start Date	Projected Completion Date	Normal-year AF to agency	Single-dry year yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Well 32	Jan-07	Sept, 2008	744	722	700	679	659
Well 37	Jan-07	Aug, 2008	1,032	1,001	971	942	914
			1,776	1,723	1,671	1,621	1,572

- **Discussion Regarding Wholesaler Deliveries.**

Three Valleys Municipal Water District (TVMWD) is the wholesale water supplier for the Pomona. To that end, the supply projections listed in **Table 20 Wholesaler Identified & Quantified the Existing and Planned Sources of Water** are consistent projections listed in TVMWD's 2005 UMWP.

Wholesaler sources	2010	2015	2020	2025	2030 - opt
TVMWD	6,000	6,000	6,000	6,000	6,000
(source 2)					
(source 3)					

- **Supply And Demand Scenarios.**

Table 42 Projected Supply and Demand Comparison illustrates, the water supply totals exceed the water demand for every five-year increment.

	2010	2015	2020	2025	2030 - opt
Supply totals	37900	37900	37900	37900	37900
Demand totals	31916	33103	34523	35980	34749
Difference	5,984	4,797	3,377	1,920	3,151
Difference as % of Supply	15.8%	12.7%	8.9%	5.1%	8.3%
Difference as % of Demand	18.7%	14.5%	9.8%	5.3%	9.1%