# MOJAVE WATER AGENCY

# 2004 REGIONAL WATER MANAGEMENT PLAN

## INTEGRATED REGIONAL WATER MANAGEMENT PLAN
## GROUNDWATER MANAGEMENT PLAN
## URBAN WATER MANAGEMENT PLAN

## VOLUME 2:
## APPENDICES

**September 2004**
**Adopted February 24, 2005**

# MOJAVE WATER AGENCY

## 2004 REGIONAL WATER MANAGEMENT PLAN

### APPENDICES


**Appendix A** Judgment After Trial January 10, 1996, Mojave Basin Area Adjudication

**Appendix B** Technical Memo 3

**Appendix C** Water Demand Estimation

**Appendix D** Issues Questionnaire
Summary of Responses to the Issues Questionnaire

**Appendix E** Technical Advisory Committee to the Mojave Water Agency Minutes

**Appendix F** *The Panorama* –A newsletter published by the Mojave Water Agency

**Appendix G** Resolution approving the Mojave Water Agency 2004 Regional Water Management Plan

**Appendix H** Existing Monitoring Protocols

**Appendix I** Well Construction Data from MWA Well Database

**Appendix J** AB 3030 – Groundwater Management Planning
SB 1938 – Groundwater Management and State Funding
California Urban Water Management Planning Act
Proposition 50 - Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002

# APPENDIX A

Judgment After Trial
January 10, 1996

Mojave Basin Area Adjudication

# JUDGMENT AFTER TRIAL

**JANUARY 10, 1996**

**MOJAVE BASIN AREA ADJUDICATION**
**CITY OF BARSTOW, ET AL V. CITY OF ADELANTO, ET AL**
**RIVERSIDE COUNTY SUPERIOR COURT CASE NO. 208568**

CHAMBERS OF
VICTOR MICELI
JUDGE OF THE SUPERIOR COURT

# Superior Court

STATE OF CALIFORNIA
COUNTY OF RIVERSIDE

COURTHOUSE
4050 MAIN STREET
RIVERSIDE, CALIFORNIA 92501

January 10, 1996

TO: ALL PARTIES LISTED ON THE ATTACHED MAILING LIST

FROM: E. MICHAEL KAISER, JUDGE

SUBJECT: CITY OF BARSTOW VS CITY OF ADELANTO, Case No.: 208568

The Judgment in the above-entitled case was signed on January 10, 1996. Please find attached the amended two pages of Exhibit B, Table B-1.

Please find attached two amended pages of Exhibit B, Table B-1.

~~12/20/92~~
~~01/20/93~~
~~02/03/93~~
~~04/18/93~~
~~04/28/93~~
09/25/95

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
|---|---|---|---|---|---|---|---|
| SAN BERNARDINO CO SERVICE AREA 70J | 1,005 | 0.8213 | 1,005 | 954 | 904 | 854 | 804 |
| SAN BERNARDINO CO SERVICE AREA 70L | 355 | 0.2901 | 355 | 337 | 319 | 301 | 284 |
| SAN FILIPPO, JOSEPH & SHELLEY | 35 | 0.0286 | 35 | 33 | 31 | 29 | 28 |
| SILVER LAKES ASSOCIATION | 3,987 | 3.2583 | 3,987 | 3,787 | 3,588 | 3,388 | 3,189 |
| SOUTHDOWN, INC | 1,519 | 1.2414 | 1,519 | 1,443 | 1,367 | 1,291 | 1,215 |
| SOUTHERN CALIFORNIA WATER COMPANY | 940 | 0.7682 | 940 | 893 | 846 | 799 | 752 |
| SPRING VALLEY LAKE ASSOCIATION | 3,056 | 2.4974 | 3,056 | 2,903 | 2,750 | 2,597 | 2,444 |
| SPRING VALLEY LAKE COUNTRY CLUB | 977 | 0.7984 | 977 | 928 | 879 | 830 | 781 |
| STORM, RANDALL | 62 | 0.0507 | 62 | 58 | 55 | 52 | 49 |
| SUDMEIER, GLENN W | 121 | 0.0989 | 121 | 114 | 108 | 102 | 96 |
| SUMMIT VALLEY RANCH | 452 | 0.3694 | 452 | 429 | 406 | 384 | 361 |
| TATRO, RICHARD K & SANDRA A | 280 | 0.2288 | 280 | 266 | 252 | 238 | 224 |
| TATUM, JAMES B | 829 | 0.6775 | 829 | 787 | 746 | 704 | 663 |
| TAYLOR, ALLEN C / HAYMAKER RANCH | 456 | 0.3727 | 456 | 433 | 410 | 387 | 364 |
| THOMAS, S DALE | 440 | 0.3596 | 440 | 418 | 396 | 374 | 352 |
| THOMAS, WALTER | 36 | 0.0294 | 36 | 34 | 32 | 30 | 28 |
| THOMPSON, JAMES A | 418 | 0.3416 | 418 | 397 | 376 | 355 | 334 |
| THOMPSON, RODGER | 76 | 0.0621 | 76 | 72 | 68 | 64 | 60 |
| THRASHER, GARY | 373 | 0.3048 | 373 | 354 | 335 | 317 | 298 |
| THUNDERBIRD COUNTY WATER DISTRICT | 118 | 0.0964 | 118 | 112 | 106 | 100 | 94 |
| TURNER, ROBERT | 70 | 0.0572 | 70 | 66 | 63 | 59 | 56 |
| VAIL, JOSEPH B & PAULA E | 126 | 0.1030 | 126 | 119 | 113 | 107 | 100 |
| ☆ VAN BURGER, CARL | 710 | 0.5802 | 710 | 674 | 639 | 603 | 568 |
| VAN LEEUWEN FAMILY TRUST | 341 | 0.2787 | 341 | 323 | 306 | 289 | 272 |

☆ Durston Well, location 06N/04W-18F, APN 468-151-11 - water production right of 357 acre/feet, claimed by Durston/Van Burger/CVB Investments and Industrial Asphalt. Product right to be determined in a subsequent severed proceeding, jurisdiction reserved.

~~12/10/92~~
~~01/20/93~~
~~02/03/93~~
~~04/18/93~~
~~04/28/93~~
09/25/95

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN CENTRO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| CENTRO SUBAREA / PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT (PERCENT) [2] | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| AGCON, INC | 0 | 0.0000 | 0 | 0 | 0 | 0 | 0 |
| AGUAYO, JEANETTE L | 212 | 0.3742 | 212 | 201 | 190 | 180 | 169 |
| ATCHISON, TOPEKA, SANTA FE RAILWAY CO | 120 | 0.2118 | 120 | 114 | 108 | 102 | 96 |
| AVDEEF, THOMAS | 34 | 0.0600 | 34 | 32 | 30 | 28 | 27 |
| AZTEC FARM DEVELOPMENT COMPANY (Now, Virgil Gorman) | 220 | 0.3883 | 220 | 209 | 198 | 187 | 176 |
| BARNES, FAY - EXECUTOR OF ESTATE OF WAYNE BARNES | 243 | 0.4289 | 243 | 230 | 218 | 206 | 194 |
| BROMMER, MARVIN | 361 | 0.6372 | 361 | 342 | 324 | 306 | 288 |
| BURNS, RITA J & PAMELA E | 16 | 0.0282 | 16 | 15 | 14 | 13 | 12 |
| CHAPA, LARRY R | 96 | 0.1694 | 96 | 91 | 86 | 81 | 76 |
| CHOI, YONG IL & JOUNG AE | 38 | 0.0671 | 38 | 36 | 34 | 32 | 30 |
| CHRISTISON, JOEL | 75 | 0.1324 | 75 | 71 | 67 | 63 | 60 |
| COOK, KWON W | 169 | 0.2983 | 169 | 160 | 152 | 143 | 135 |
| DE VRIES, NEIL | 3,800 | 6.7070 | 3,800 | 3,610 | 3,420 | 3,230 | 3,040 |
| DESERT COMMUNITY BANK | 156 | 0.2753 | 156 | 148 | 140 | 132 | 124 |
| DURAN, FRANK T | 50 | 0.0883 | 50 | 47 | 45 | 42 | 40 |
| GAINES, JACK | 117 | 0.2065 | 117 | 111 | 105 | 99 | 93 |
| GESIRIECH, WAYNE | 121 | 0.2136 | 121 | 114 | 108 | 102 | 96 |
| GORMAN, VIRGIL | 138 | 0.2436 | 138 | 131 | 124 | 117 | 110 |
| GRIEDER, RAYMOND H & DORISANNE | 30 | 0.0530 | 30 | 28 | 27 | 25 | 24 |
| GRILL, NICHOLAS P & MILLIE D | 21 | 0.0371 | 21 | 19 | 18 | 17 | 16 |
| GROEN, CORNELIS | 1,043 | 1.8409 | 1,043 | 990 | 938 | 886 | 834 |
| HANIFY, DBA - WHITE BEAR RANCH | 152 | 0.2683 | 152 | 144 | 136 | 129 | 121 |
| HARMSEN, JAMES & RUTH ANN | 1,522 | 2.6863 | 1,522 | 1,445 | 1,369 | 1,293 | 1,217 |
| HARPER LAKE COMPANY | 1,433 | 2.5293 | 1,433 | 1,361 | 1,289 | 1,218 | 1,146 |

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FILED
RIVERSIDE COUNTY
JAN 16 1996
ARTHUR A. SIMS, CLERK
By Y.A. Burns Y.A. Burns Deputy

SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF RIVERSIDE

| | |
|---|---|
| CITY OF BARSTOW, et al,<br>Plaintiff,<br>v.<br>CITY OF ADELANTO, et al,<br>Defendant. | CASE NO. 208568<br><u>ASSIGNED TO JUDGE KAISER DEPT.4 FOR ALL PURPOSES</u><br>JUDGMENT AFTER TRIAL |
| MOJAVE WATER AGENCY,<br>Cross-complainant,<br>v.<br>ANDERSON, RONALD H. et al,<br>Cross-defendants. | |

TABLE OF CONTENTS


I. INTRODUCTION ..... 1

A. The Complaint ..... 1

B. The MWA Cross-Complaint ..... 1

C. The Arc Las Flores Cross-Complaint ..... 2

D. Stipulation and Trial ..... 2

II. DECREE ..... 3

A. JURISDICTION, PARTIES, DEFINITIONS ..... 3

1. Jurisdiction and Parties ..... 3
   a. Jurisdiction ..... 3
   b. Parties ..... 3
   c. Minimal Producers ..... 3

2. Physical and Legal Complexity ..... 5

3. Need for a Declaration of Rights and Obligations and for Physical Solution ..... 5

4. Definitions ..... 7
   a. Afton ..... 7
   b. Annual or Year ..... 7
   c. Aquaculture Water ..... 7
   d. Assessments ..... 7
   e. Barstow ..... 7
   f. Base Annual Production ..... 7
   g. Base Annual Production Right ..... 8
   h. Base Flow ..... 8
   i. Carry Over Right ..... 8
   j. Consumption or Consumptive Use ..... 9
   k. Free Production Allowance ..... 9
   l. Groundwater ..... 9
   m. Harper Lake Basin ..... 9
   n. Lower Narrows ..... 9
   o. Makeup Water ..... 9
   p. Makeup Obligation ..... 9
   q. Minimal Producer ..... 9
   r. Minimum Subarea Obligation ..... 10
   s. Mojave Basin Area or Basin Area ..... 10
   t. MWA ..... 10
   u. Overdraft ..... 10
   v. Party (Parties) ..... 10
   w. Person(s) ..... 11
   x. Produce ..... 11
   y. Producer ..... 11

z. Production..... 11
aa. Production Safe Yield..... 11
bb. Purpose of Use..... 11
cc. Recirculated Water..... 12
dd. Replacement Obligation..... 12
ee. Replacement Water..... 12
ff. Responsible Party..... 12
gg. Stored Water..... 12
hh. Storm Flow..... 12
ii. Subareas..... 13
jj. Subarea Obligation..... 13
kk. Subsurface Flow..... 13
ll. Supplemental Water..... 13
mm. Transition Zone..... 13
nn. Watermaster..... 13

5. Exhibits..... 13

B. DECLARATION OF HYDROLOGIC CONDITIONS..... 14

6. Mojave Basin Area as Common Source of Supply..... 14

7. Existence of Overdraft..... 14

C. DECLARATION OF RIGHTS AND OBLIGATIONS..... 15

8. Production Rights of the Parties..... 15
a. Aquaculture..... 15
b. Camp Cady..... 16
c. Recreational Lakes in Baja Subarea... 16

9. MWA Obligation..... 17
a. Secure Supplemental Water..... 17
b. Supplemental Water Prices..... 17
c. Supplemental Water Deliver Plan..... 17
d. Water Delivery Cost Allocation..... 18
e. Legislative Changes..... 19
f. Court Review and Determination of Benefit..... 19

10. Priority and Determination of Production Rights..... 19

11. Exercise of Carry Over Rights..... 21

12. Production Only Pursuant to Judgment..... 21

13. Declaration of Subarea Rights and Obligations..... 21

III. INJUNCTION..... 22

14. Injunction Against Unauthorized Production..... 22

15. Injunction Re Change in Purpose of Use Without Notice Thereof to Watermaster..... 23

16. Injunction Against Unauthorized Recharge..... 23

17. Injunction Against Transportation from Mojave Basin Area..... 23

18. Injunction Against Diverting Storm Flows..... 23

IV. CONTINUING JURISDICTION..... 24

19. Jurisdiction Reserved..... 24

V. PHYSICAL SOLUTION..... 24

A. GENERAL..... 24

20. Purpose and Objective..... 24

21. Need for Flexibility..... 25

22. General Pattern of Operations..... 25

B. ADMINISTRATION..... 26

23. Administration by Watermaster..... 26
(a) Standard of Performance ..... 27
(b) Removal of Watermaster ..... 27
(c) MWA Appointed as Initial Watermaster..... 27

24. Powers and Duties..... 28
(a) Rules and Regulations..... 28
(b) Employment of Experts and Agents..... 28
(c) Makeup and Replacement Obligations... 29
(d) Measuring Devices, etc..... 29
(e) Hydrologic Data Collection..... 29
(f) Assessments..... 29
(g) Purchase of and Recharge with Supplemental Water..... 30
(h) Water Quality..... 30
(i) Notice List..... 30
(j) Annual Administrative Budget..... 30
(k) Annual Report to Court..... 30
(l) Investment of Funds..... 32
(m) Borrowing..... 32
(n) Transfers..... 32
(o) Free Production Allowance..... 32
(p) Production Reports..... 32
(q) Production Adjustment for Change in Purpose of Use..... 33

(r) Reallocation of Base Annual Production Rights..... 34
(s) Storage Agreements..... 34
(t) Subarea Advisory Committee Meetings..... 34
(u) Unauthorized Production..... 35
(v) Meetings and Records..... 35
(w) Data, Estimates and Procedures..... 35
(x) Biological Resource Mitigation..... 35

C. ASSESSMENTS..... 36

25. Purpose..... 36
(a) Administrative Assessments..... 36
(b) Replacement Water Assessments..... 36
(c) Makeup Water Assessments..... 36
(d) Biological Resource Assessment..... 36
(e) MWA Assessment of Minimal Producers.. 37

26. Procedure..... 37

27. Availability of Supplemental Water..... 38

28. Use of Replacement Water Assessment Proceeds and Makeup Water Assessment Proceeds..... 39

29. MWA Annual Report to the Watermaster..... 39

D. SUBAREA ADVISORY COMMITTEES..... 40

30. Authorization..... 40

31. Composition and Election..... 40

32. Compensation..... 41

33. Powers and Functions..... 41

E. TRANSFERABILITY..... 41

34. Assignment, Transfer, etc. of Rights..... 41

F. MISCELLANEOUS PROVISIONS..... 41

35. Water Quality ..... 41

36. Review Procedures..... 41

(a) Effective Date of Watermaster Action. 41
(b) Notice of Motion..... 42
(c) Time for Motion..... 42
(d) De Novo Nature of Proceeding..... 42
(e) Decision..... 43
(f) Payment of Assessments..... 43

37. Designation of Address for Notice and Service..... 43

38. Service of Documents..... 44

39. No Abandonment of Rights..... 44

40. Intervention After Judgment..... 44

41. Recordation of Notice..... 45

42. Judgment Binding on Successors, etc..... 45

43. Costs..... 45

44. Entry of Judgment..... 45

Exhibit "A" - Map entitled, "Map showing Mojave Water Agency, Mojave River, Mojave Basin Area and Hydrologic Subareas and Limits of Adjudicated Area Together with Geologic and Other Pertinent Features."

Exhibit "B" - Tables entitled, "Table B-1: Table Showing Base Annual Production, Base Annual Production Right of Each Producer Within Each Subarea, and Free Production Allowance for Subareas for First Five Years of the Judgment" and "Table B-2: Table Showing Total Water Production for Aquaculture and Recreational Lake Purposes."

Exhibit "C" - Engineering Appendix.

Exhibit "D" - Time Schedules.

Exhibit "E" - List of Producers and Their Designees.

Exhibit "F" - Transfers of Base Annual Production Rights.

Exhibit "G" - Subarea Obligations.

Exhibit "H" - Biological Resource Mitigation.

Exhibit "I" - Map Showing Potential Groundwater Recharge Areas

## I. INTRODUCTION

A. The Complaint. The original complaint herein was filed by the City of Barstow and Southern California Water Company (collectively "Plaintiffs") in San Bernardino Superior Court, North Desert District, on May 30, 1990 as Case No. BCV6672, and transferred to Riverside County Superior Court on November 27, 1990. Plaintiffs allege that the cumulative water Production upstream of the City of Barstow Overdrafted the Mojave River system, and request an average Annual flow of 30,000 acre-feet of surface water to the City of Barstow area. The complaint also includes a request for a writ of mandate to require the Mojave Water Agency ("MWA") to act pursuant to its statutory authority to obtain and provide Supplemental Water for use within the Mojave Basin Area.

B. The MWA Cross-Complaint. On July 26, 1991, the MWA filed its first amended cross-complaint in this case. The MWA first amended cross-complaint and its ROE amendments name Producers who collectively claim substantially all rights of water use within the Mojave Basin Area, including Parties downstream of the City of Barstow. The MWA cross-complaint, as currently amended, requests a declaration that the available native water supply to the Mojave Basin Area (not including water imported from the California State Water Project) is inadequate to meet the demands of the combined Parties and requests a determination of the water rights of whatever nature within the MWA boundaries and the Mojave Basin Area. The MWA has named as Parties several hundred Producers within the Basin Area.

///

C. The Arc Las Flores Cross-Complaint. On July 3, 1991, Arc Las Flores filed a cross-complaint for declaratory relief seeking a declaration of water rights of certain named cross-defendants and a declaration that the appropriative, overlying and riparian rights of Arc Las Flores be determined to be prior and paramount to any rights of the Plaintiffs and other appropriators.

D. Stipulation and Trial. On October 16, 1991, the Court ordered a litigation standstill. The purpose of the standstill was to give the parties time to negotiate a settlement and develop a solution to the overdraft existing in the Mojave River Basin.

A committee of engineers and attorneys, representing a variety of water users and interests throughout the Mojave River Basin, was created to develop a physical solution to the water shortage problem. The work of the committee resulted in a stipulated interlocutory order and judgment, which was entered by the court on September 23, 1993.

Several non-stipulating parties requested a trial. On April 20, 1994, the Court issued a memorandum setting forth the trial issues. This cause came on regularly for trial on February 6, 1995, and was tried in Department 4 of the above-entitled Court, the Honorable E. Michael Kaiser, Judge, Presiding, without a jury. Oral and documentary evidence was introduced on behalf of the respective parties and the cause was argued and submitted for decision.

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## II. DECREE

NOW, THEREFORE, IT IS ORDERED, ADJUDGED AND DECREED:

A. JURISDICTION, PARTIES, DEFINITIONS.

1. Jurisdiction and Parties.

a. Jurisdiction. This Court has jurisdiction to enter Judgment declaring and adjudicating the rights to reasonable and beneficial use of water by the Parties in the Mojave Basin Area pursuant to Article X, Section 2 of the California Constitution. This Judgment constitutes an adjudication of water rights of the Mojave Basin Area pursuant to Section 37 of Chapter 2146 of Statutes of 1959 ("the MWA Act").

b. Parties. All Parties to the MWA cross-complaint are included in this Judgment. The MWA has notified those Persons claiming any right, title or interest to the natural waters within the Mojave Basin Area to make claims. Such notice has been given: 1) in conformity with the notice requirements of Water Code §§ 2500 et seq.; 2) pursuant to Section 37 of the MWA Act; and 3) pursuant to order of this Court. Subsequently, all Producers making claims have been or will be included as Parties. The defaults of certain Parties have been entered, and certain named cross-defendants to the MWA cross-complaint who are not Producers have been dismissed. All named Parties who have not been dismissed have appeared herein or have been given adequate opportunity to appear herein. The Court has jurisdiction of the subject matter of this action and of the Parties hereto.

c. Minimal Producers. There are numerous Minimal Producers in the Basin Area and their number is expected to increase in the future. In order to minimize the cost of

administering this Judgment and to assure that every Person producing water in the Basin Area participates fairly in the Physical Solution, MWA shall:

i. within one Year following entry of this Judgment, prepare a report to the Court: 1) setting forth the identity and verified Base Annual Production of each Minimal Producer in each Subarea of the Basin Area; and 2) recommending a proposed system of Minimal Producer Assessments. The system of Minimal Producer Assessments shall achieve an equitable allocation of the costs of the Physical Solution that are attributable to Production of verified Base Annual Production amounts by Minimal Producers in each Subarea to and among such Minimal Producers. Minimal Producer Assessments need not be the same for existing Minimal Producers as for future Minimal Producers.

ii. within one Year following entry of this Judgment, prepare a report to the Court setting forth a proposed program to be undertaken by MWA, pursuant to its statutory authority, to implement the proposed system of Minimal Producer Assessments. The Court may order MWA to implement the proposed program or, if MWA's statutory authority is inadequate to enable implementation, or if either the proposed program or the proposed system of Minimal Producer Assessments is unacceptable to the Court, the Court may then order MWA either to implement an alternative program or system, or in the alternative, to name all Minimal Producers as Parties to this litigation and to serve them for the purpose of adjudicating their water rights.

Any Minimal Producer whose Annual Production exceeds ten (10) acre-feet in any Year following the date of entry of Judgment shall be made a Party pursuant to Paragraph 12 and shall be subject to Administrative, Replacement Water, Makeup Water and Biological Resources Assessments. Any Minimal Producer who produced during the 1986-1990 period may become a Party pursuant to Paragraph 40 with a Base Annual Production Right based on such Minimal Producer's verified Base Annual Production. To account properly for aggregate Production by Minimal Producers in each Subarea, Table B-1 of Exhibit B shall include an estimated aggregate amount of Base Annual Production by all Minimal Producers in each Subarea. The Base Annual Production of any Minimal Producer who becomes a Party shall be deducted from the aggregate amount and assigned to such Minimal Producer.

2. Physical and Legal Complexity. The physical and legal issues of the case as framed by the complaint and cross-complaints are extremely complex. Production of more than 1,000 Persons producing water in the Basin Area has been ascertained. In excess of 1,000 Persons have been served. The water supply and water rights of the entire Mojave Basin Area and its hydrologic Subareas extending over 4000 square miles have been brought into issue. Most types and natures of water right known to California law are at issue in the case. Engineering studies by the Parties, jointly and severally, leading toward adjudication of these rights and a Physical Solution, have required the expenditure of over two Years' time and hundreds of thousands of dollars.

3. Need for a Declaration of Rights and Obligations and for Physical Solution. A Physical Solution for the Mojave Basin

Area based upon a declaration of water rights and a formula for Intra- and Inter-Subarea allocation of rights and obligations is necessary to implement the mandate of Article X, Section 2 of the California Constitution and California water policy. Such Physical Solution requires the definition of the individual rights of all Producers within the Basin Area in a manner which will equitably allocate the natural water supplies and which will provide for equitable sharing of costs for Supplemental Water. Nontributary supplemental sources of water are or will be available in amounts, which when combined with water conservation, water reclamation, water transfers, and improved conveyance and distribution methods within the Basin Area, will be sufficient in quantity and quality to assure implementation of a Physical Solution. Sufficient information and data are known to formulate a reasonable and just allocation of existing water supplies as between the hydrologic Subareas within the Basin Area and as among the water users within each Subarea. Such Physical Solution will allow the public water supply agencies and individual water users within each hydrologic Subarea to proceed with orderly water resource planning and development. It will be necessary for MWA to construct conveyance facilities to implement the Physical Solution. Absent the construction of conveyance facilities, some Subareas may be deprived of an equitable share of the benefits made possible by the Physical Solution. Accordingly, this Physical Solution mandates the acquisition or construction of conveyance facilities for importation and equitable distribution of Supplemental Water to the respective Subareas. Such construction is dependent on the availability of appropriate financing, and any such financing

assessed to the Parties will be based upon benefit to the Parties in accordance with the MWA Act.

4. Definitions. As used in this judgment, the following terms shall have the meanings herein set forth:

a. Afton - The United States Geological Survey gauging station "Mojave River at Afton, CA."

b. Annual or Year - As used in this Judgment refers to the Annual period beginning October 1 and ending September 30 of the following Year.

c. Aquaculture Water - Water so identified in Exhibit "B". Such water may be used only for fish breeding and rearing. The Annual Consumptive Use of such water in acre-feet is equal to the water surface area, in acres, of the fish rearing facilities multiplied by seven (feet).

d. Assessments - Those Assessments levied and collected pursuant to this judgment including Replacement Water, Makeup Water, Administrative and Biological Resource Assessments.

e. Barstow - The United States Geological Survey Gauging Station "Mojave River at Barstow, CA."

f. Base Annual Production - The verified maximum Year Production, in acre-feet, for each Producer for the five Year Period 1986-1990 as set forth in Table B-1 of Exhibit "B", except where otherwise noted therein. The maximum Year Production for each Producer was verified based on one or more of the following: flow meter readings, electrical power

or diesel usage records or estimated applied water duty. The Base Annual Production for recreational lakes in the Baja Subarea and for Aquaculture shall be equal either to the area of water surface multiplied by seven feet or to verified Production, whichever is less. The five Year period 1986-1990 shall also be the time period for which Base Annual Production for Minimal Producers shall be calculated.

g. Base Annual Production Right - The relative Annual right of each Producer to the Free Production Allowance within a given Subarea, expressed as a percentage of the aggregate of all Producers' Base Annual Production in the Subarea. The percentage for each Producer is calculated by multiplying that Producer's Base Annual Production in a Subarea times one hundred (100) and dividing the result by the aggregate Base Annual Production for all Producers in the Subarea. The percentage shall be rounded off to the nearest one ten-thousandth of one per cent.

h. Base Flow - That portion of the total surface flow measured Annually at Lower Narrows which remains after subtracting Storm Flow.

i. Carry Over Right - The right of a Producer to delay and accumulate the Production of such Producer's share of a Subarea Free Production Allowance until

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and only until the following Year free of any Replacement Water Assessment.

j. Consumption or Consumptive Use - The permanent removal of water from the Mojave Basin Area through evaporation or evapo-transpiration. The Consumptive Use rates resulting from particular types of water use are identified in Paragraph 2 of Exhibit "F".

k. Free Production Allowance - The total amount of water, and any Producer's share thereof, that may be Produced from a Subarea each Year free of any Replacement Obligation.

l. Groundwater - Water beneath the surface of the ground and within the zone of saturation; i.e., below the existing water table, whether or not flowing through known and definite channels.

m. Harper Lake Basin - That portion of the Centro Subarea identified as such on Exhibit "A".

n. Lower Narrows - The United States Geological Survey gauging station "Mojave River near Victorville, CA."

o. Makeup Water - Water needed to satisfy a Minimum Subarea Obligation.

p. Makeup Obligation - The obligation of a Subarea to pay for Makeup Water to satisfy its Subarea Obligation.

q. Minimal Producer - Any Person whose Base Annual Production, as verified by MWA is not greater than

ten (10) acre-feet. A Person designated as a Minimal Producer whose Annual Production exceeds ten (10) acre-feet in any Year following the date of entry of Judgment is no longer a Minimal Producer.

r. Minimum Subarea Obligation - The minimum Annual amount of water a Subarea is obligated to provide to an adjoining downstream Subarea or the Transition Zone or, in the case of the Baja Subarea, the minimum Annual Subsurface Flow at the MWA eastern boundary toward Afton in any Year, as set forth in Exhibit "G".

s. Mojave Basin Area or Basin Area - The area shown on Exhibit "A" that lies within the boundaries of the line labelled "Limits of Adjudicated Area" which generally includes the area tributary to the Mojave River and its tributaries except for such area not included within the Mojave Water Agency's jurisdiction.

t. MWA - Cross complainant Mojave Water Agency.

u. Overdraft - A condition wherein the current total Annual Consumptive Use of water in the Mojave Basin Area or any of its Subareas exceeds the long term average Annual natural water supply to the Basin Area or Subarea.

v. Party (Parties) - Any Person(s) named in this action who has intervened in this case or has

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become subject to this Judgment either through stipulation, default, trial or otherwise.

w. Person(s) - Any natural person, firm, association, organization, joint venture, partnership, business, trust, corporation, or public entity.

x. Produce - To pump or divert water.

y. Producer(s) - A Person, other than a Minimal Producer, who Produces water.

z. Production - Annual amount of water produced, stated in acre-feet of water.

aa. Production Safe Yield - The highest average Annual Amount of water that can be produced from a Subarea: (1) over a sequence of years that is representative of long-term average annual natural water supply to the Subarea net of long-term average annual natural outflow from the Subarea, (2) under given patterns of Production, applied water, return flows and Consumptive Use, and (3) without resulting in a long-term net reduction of groundwater in storage in the Subarea.

bb. Purpose of Use - The broad category of type of water use including but not limited to municipal, irrigation, industrial, aquaculture, and lakes purposes. A change in Purpose of Use includes any reallocation of water among mixed or sequential uses, excluding direct reuse of municipal wastewater.

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cc. Recirculated Water - Water that is Produced but not consumed by the Parties listed in Table B-2 of Exhibit "B" and then returned either to the Mojave River or to the Groundwater basin underlying the place of use.

dd. Replacement Obligation - The obligation of a Producer to pay for Replacement Water for Production from a Subarea in any Year in excess of the sum of such Producer's share of that Year's Free Production Allowance for the Subarea plus any Production pursuant to a Carry Over Right.

ee. Replacement Water - Water purchased by Watermaster or otherwise provided to satisfy a Replacement Obligation.

ff. Responsible Party - The Person designated by a Party as the Person responsible for purposes of filing reports and receiving notices pursuant to the provisions of this Judgment.

gg. Stored Water - Water held in storage pursuant to a Storage Agreement with Watermaster.

hh. Storm Flow - That portion of the total surface flow originating from precipitation and runoff without having first percolated to Groundwater storage in the zone of saturation and passing a particular point of reckoning, as determined annually by the Watermaster.

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ii. Subareas - The five Subareas of the Mojave Basin Area -- Este, Oeste, Alto, Centro and Baja -- as shown on Exhibit "A".

jj. Subarea Obligation - The average Annual amount of water that a Subarea is obligated to provide to an adjoining downstream Subarea or the Transition Zone or, in the case of the Baja Subarea, the average Annual Subsurface Flow toward Afton at the MWA eastern boundary as set forth in Exhibit "G".

kk. Subsurface Flow - Groundwater which flows beneath the earth's surface.

ll. Supplemental Water - Water imported to the Basin Area from outside the Basin Area, water that would otherwise be lost from the Basin Area but which is captured and made available for use in the Basin Area, or any Producer's share of Free Production Allowance that is not Produced and is acquired by Watermaster pursuant to this Judgment.

mm. Transition Zone - The portion of the Alto Subarea, shown on Exhibit "A", that lies generally between the Lower Narrows and the Helendale Fault.

nn. Watermaster - The Person(s) appointed by the Court to administer the provisions of this Judgment.

5. Exhibits. The following exhibits are attached to this Judgment and made a part hereof.

Exhibit "A" - Map entitled, "Map showing Mojave Water Agency, Mojave River, Mojave Basin Area and Hydrologic Subareas and

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Limits of Adjudicated Area Together with Geologic and Other Pertinent Features."

Exhibit "B" - Table entitled, "Table B-1: Table Showing Base Annual Production and Base Annual Production Right of Each Producer Within Each Subarea, and Free Production Allowances for Subareas for First Five Years after entry of the Interlocutory Judgment" and "Table B-2: Table Showing Total Water Production for Aquaculture and Recreational Lake Purposes."

Exhibit "C" - Engineering Appendix.

Exhibit "D" - Time Schedules.

Exhibit "E" - List of Producers and Their Designees.

Exhibit "F" - Transfers of Base Annual Production Rights.

Exhibit "G" - Subarea Obligations.

Exhibit "H" - Biological Resource Mitigation.

Exhibit "I" - Map Showing Potential Groundwater Recharge Areas

B. DECLARATION OF HYDROLOGIC CONDITIONS.

6. Mojave Basin Area as Common Source of Supply. The area shown on Exhibit "A" as the Mojave Basin Area is comprised of five Subareas. The waters derived from the Mojave River and its tributaries constitute a common source of supply of the five Subareas and of the Persons producing therefrom.

7. Existence of Overdraft. In each and every Year, for a period in excess of five (5) years prior to the May 30, 1990 filing date of Plaintiffs' Complaint, the Mojave Basin Area and each of its respective Subareas have been and are in a state of Overdraft, and it is hereby found that there is no water available

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for Production from the Basin Area or any Subarea therein except pursuant to this Judgment.

C. DECLARATION OF RIGHTS AND OBLIGATIONS.

8. Production Rights of the Parties. The Base Annual Production and Base Annual Production Right of each Party are declared as set forth in Table B-1 of Exhibit "B". Certain Parties also have the right to continue to Produce Recirculated Water in the amounts set forth in Table B-2 of Exhibit "B", subject to the following:

a. Aquaculture. Two of the Producers listed in Table B-2 of Exhibit "B", California Department of Fish and Game Mojave River Fish Hatchery (Hatchery) and Jess Ranch Water Company (Jess), Produce Recirculated Water for Aquaculture. The Hatchery and Jess or their successors or assignees shall have the right to continue to Produce up to the amounts listed in Table B-2 of Exhibit "B" as Recirculated Water for Aquaculture on the property where it was used in the Year for which Base Annual Production was verified. Production of such amount of Recirculated water by Jess shall be free of any Replacement Water Assessments, Makeup Water Assessments or Administrative Assessments but shall be subject to Biological Resources Assessments and each Jess well producing Recirculated Water shall be subject to an Annual administrative fee equal to the lowest Annual fee paid to MWA by a Minimal Producer. Neither the Hatchery nor Jess Recirculated Water may be transferred or used for any other purpose or transferred for use on any other property, except as provided in Paragraph 7 of Exhibit "F" for the Hatchery. Any Production of Recirculated Water by Jess in excess of the amount shown in Table B-2 shall be subject to all

Assessments. Production of Recirculated Water by the Hatchery will be subject to the rules set forth in Paragraph 7 of Exhibit "F". All Jess Aquaculture Recirculated Water shall be discharged immediately and directly to the Mojave River.

b. Camp Cady. One Producer listed in Table B-2 of Exhibit "B", California Department of Fish and Game-Camp Cady (Camp Cady), Produces Recirculated Water for Lakes containing Tui Chub, an endangered species of fish. Camp Cady or its successors or assignees shall have the right to continue to Produce up to the amount listed in Table-B-2 of Exhibit "B" as Recirculated Water at Camp Cady. Production of each amount of Recirculated water shall be free of any Assessments. Camp Cady Recirculated Water may not be transferred or used for any other purpose or transferred for use on any other property. Any Production of Recirculated Water by Camp Cady in excess of the amount shown in Table B-2 of Exhibit "B" shall be subject to all Assessments except Biological Resource Assessments. All Camp Cady Recirculated Water shall be allowed to percolate immediately and directly to the Groundwater basin underlying Camp Cady.

c. Recreational Lakes in Baja Subarea. All Producers listed in Table B-2 of Exhibit "B" except the Hatchery, Jess and Camp Cady Produce Recirculated Water for recreational lakes in the Baja Subarea. Such Producers or their successors or assignees shall have the right to continue to Produce up to the amounts identified in Table B-2 of Exhibit "B" as Recirculated Water for use in recreational lakes on the property where it was used in the Year for which Base Annual Production was verified, free of any Replacement Water Assessments, Makeup Water

Assessments, or Administrative Assessments, but such Production shall be subject to any Biological Resource Assessment. Each well producing such Recirculated Water shall be subject to an Annual administrative fee equal to the lowest Annual fee paid by a Minimal Producer. Recirculated Water cannot be transferred or used for any other purpose. All recreational lake Recirculated Water shall be allowed to percolate immediately and directly to the Groundwater basin underlying the recreational lake.

9. MWA Obligations. The Physical Solution is intended to provide for delivery and equitable distribution to the respective Subareas by MWA of the best quality of Supplemental Water reasonably available. MWA shall develop conveyance or other facilities to deliver this Supplemental Water to the areas depicted in Exhibit "I," unless prevented by forces outside its reasonable control such as an inability to secure financing consistent with sound municipal financing practices and standards.

a. Secure Supplemental Water. MWA, separate and apart from its duties as the initial Watermaster designated under this Judgment, shall exercise its authority under Sections 1.5 and 15 of the MWA Act to pursue promptly, continuously and diligently all reasonable sources to secure Supplemental Water as necessary to fully implement the provisions of this Judgment.

b. Supplemental Water Prices. The MWA shall establish fair and equitable prices for Supplemental Water delivered to the Watermaster under this Judgment.

c. Supplemental Water Delivery Plan. Not later than September 30, 1996, MWA shall prepare a report on potential alternative facilities or methods to deliver Supplemental Water to

the areas shown on Exhibit "I." The report shall include, for each alternative, a development time schedule, a summary of cost estimates, an analysis of the relative benefits to Producers in each Subarea and an analysis of alternative methods of financing and cost allocation, including any state or federal sources of funding that may be available.

d. Water Delivery Cost Allocation. The report required by subdivision (c) above shall recommend methods of financing and cost allocation that are based on benefits to be received. MWA's cost allocation plan shall be subject to Court review as provided in subdivision (f) below to verify that costs are allocated fairly and according to benefits to be received. The MWA financing and cost allocation plan may include a mix of revenue sources including the following:

(1) Developer or connection fees to the extent MWA can demonstrate a nexus, as required by law, between the fees and the impact of the development upon the water resources of the Mojave Basin Area and each subarea thereof;

(2) Other methods of financing available to MWA, including but not limited to property based taxes, assessments or standby charges;

(3) Water sales revenues, but only to the extent other sources are not available or appropriate, and in no event shall the water sales price to cover facility

capital costs exceed a rate equal to fifty percent of the variable cost rate charged to MWA under its contract for water delivery from the California State Water Project;

e. Legislative Changes. MWA shall seek promptly to have enacted amendments to the MWA Act (Water Code Appendix, Part 97) that allow MWA to implement any methods of governmental financing available to any public entity in California.

f. Court Review and Determination of Benefit. Not later than September 30, 1996, MWA shall submit its report to the Court in a noticed motion pursuant to Paragraph 36. The report shall set forth MWA's recommendations as to the following: (1) which alternatives should be implemented; (2) methods of cost allocation for the recommended alternatives; (3) financing for the recommended alternatives; and (4) a time schedule to complete the recommended alternatives. The Court may approve or reject the recommendations. The Court may further order the use of alternatives and time schedules or it may order additional studies and resubmittals, as it may deem proper.

10. Priority and Determination of Production Rights. The water rights involved herein are of differing types and commenced at different times. Many of the rights involved are devoted to public uses. The Declaration of Water Rights that is part of the judgment and the Physical Solution decreed herein takes into consideration the competing priorities which have been asserted in addition to the equitable principles applicable to apportionment of water in this situation. The following factors

have been considered in the formulation of each Producer's Base Annual Production Right:

a. The Mojave Basin Area and each of its hydrologic Subareas have continuously for many Years been in a state of system-wide Overdraft;

b. All Producers have contributed to the Overdraft;

c. None of the priorities asserted by any of the Producers is without dispute;

d. Under the complex scheme of California water law, the allocation of water and rights mechanically based upon the asserted priorities would be extremely difficult, if not impossible, and would not result in the most equitable apportionment of water;

e. Such mechanical allocation would, in fact, impose undue hardship on many Parties;

f. There is a need for conserving and making maximum beneficial use of the water resources of the State;

g. The economy of the Mojave Basin Area has to a great extent been established on the basis of the existing Production;

h. The Judgment and Physical Solution take into consideration the unique physical and climatic conditions of the Mojave Basin Area, the Consumptive Use of water in the several sections of the Basin, the character and rate of return flows, the extent of established uses, the availability of storage water, the relative benefits and detriments between upstream areas and downstream areas if a limitation is imposed on one and not the

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other, and the need to protect public interest and public trust concerns.

In consideration of the foregoing factors, and in accordance with the terms and conditions of this Judgment, the Parties are estopped and barred from asserting special priorities or preferences.

11. Exercise of Carry Over Rights. The first water Produced by a Producer during any Year shall be deemed to be an exercise of any Carry Over Right. Such Carry Over Right may be transferred in accordance with Exhibit "F".

12. Production Only Pursuant to Judgment. This Judgment, and the Physical Solution decreed herein, addresses all Production within the Mojave Basin Area. Because of the existence of Overdraft, any Production outside the framework of this Judgment and Physical Solution will contribute to an increased Overdraft, potentially damage the Mojave Basin Area and public interests in the Basin Area, injure the rights of all Parties, and interfere with the Physical Solution. Watermaster shall bring an action or a motion to enjoin any Production that is not pursuant to the terms of this Judgment.

13. Declaration of Subarea Rights and Obligations. In the aggregate, Producers within certain Subareas have rights, as against those in adjoining upstream Subareas, to receive average Annual water supplies and, in any one Year, to receive minimum Annual water supplies equal to the amounts set forth in Exhibit "G", in addition to any Storm Flows. In turn, in the aggregate, Producers within certain Subareas have an obligation to provide to adjoining downstream Subareas such average Annual water supplies in

the amounts and in the manner set forth in Exhibit "G". In any one Year, Producers within certain Subareas have an obligation to provide to adjoining downstream Subareas such minimum Annual water supplies in the amounts and in the manner set forth in Exhibit "G". The Producers in the Baja Subarea have an obligation to provide average and minimum Subsurface Flows toward Afton at the MWA eastern boundary equal to the amounts shown in Exhibit "G". Producers in each of the Subareas have rights in the aggregate, as against each adjoining downstream Subarea or, in the case of the Baja Subarea, as against flows at the MWA eastern boundary toward Afton, to divert, pump, extract, conserve, and use all surface water and Groundwater supplies originating therein or accruing thereto, and so long as the adjoining downstream Subarea Obligations are satisfied under this Judgment and there is compliance with all of its provisions. Watermaster shall maintain a continuing account of the status of each Subarea's compliance with its Subarea Obligation, including any cumulative credits or debits and any requirement for providing Makeup Water. The accounting and determinations relative to Subarea Obligations shall be made in accordance with procedures set forth in Exhibit "G".

## III. INJUNCTION

14. Injunction Against Unauthorized Production. Each and every Party, its officers, agents, employees, successors, and assigns, is ENJOINED AND RESTRAINED from Producing water from the Basin Area except pursuant to the provisions of the Physical Solution in this Judgment.

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15. Injunction Re Change in Purpose of Use Without Notice Thereof to Watermaster. Each and every Party, its officers, agents, employees, successors, and assigns, is ENJOINED AND RESTRAINED from changing its Purpose of Use at any time without first notifying Watermaster of the intended change.

16. Injunction Against Unauthorized Recharge. Each and every Party, its officers, agents, employees, successors and assigns, is ENJOINED AND RESTRAINED from claiming any right to recapture Water that has been recharged in the Basin Area except pursuant to a Storage Agreement with Watermaster. This provision does not prohibit Parties from importing Supplemental Water into the Basin Area for direct use.

17. Injunction Against Transportation from Mojave Basin Area. Except upon further order of the Court, each and every Party, its officers, agents, employees, successors and assigns, is ENJOINED AND RESTRAINED from transporting water hereafter Produced from the Basin Area to areas outside the Basin Area.

18. Injunction Against Diverting Storm Flows. No Party may undertake or cause the construction of any project that will directly reduce the amount of Storm Flow that would otherwise go through the naturally occurring hydrologic regime to a downstream Subarea or that will reduce the surface area over which Storm Flow currently occurs by alteration to the bed of the Mojave River. This paragraph shall not prevent any flood control agency or municipality from taking such emergency action as may be necessary to protect the physical safety of its residents and its structures from flooding. Any such action shall be done in a manner that will minimize any reduction in the quantity of Storm Flows.

## IV. CONTINUING JURISDICTION

19. Jurisdiction Reserved. Full jurisdiction, power and authority are retained by and reserved to the Court for purposes of enabling the Court upon the application of any Party, by a motion noticed in accordance with the notice procedures of Paragraph 36 hereof, to make such further or supplemental order or directions as may be necessary or appropriate for interim operation before the Physical Solution is fully operative, or for interpretation, enforcement or carrying out of this Judgement, and to modify, amend or amplify any of the provisions of this Judgment or to add to the provisions thereof consistent with the rights herein decreed; provided, that nothing in this paragraph shall authorize either a reduction of the Base Annual Production Right of any Party, except in accordance with the rules set forth in Exhibit "F", or a reduction of the Base Flow portion of any Subarea Obligation.

## V. Physical Solution

### A. GENERAL

20. Purpose and Objective. The Court hereby declares and decrees that the Physical Solution herein contained: 1) is a fair and equitable basis for satisfaction of all water rights in the Mojave Basin Area; 2) is in furtherance of the mandate of the State Constitution and the water policy of the State of California; and 3) takes into account applicable public trust interests; and therefore adopts and orders the Parties to comply with the Physical Solution. As noted in Paragraph 3 of this Judgment, the declaration of rights and obligations of the Parties and Subareas is a necessary component of this Physical Solution. The purpose of

the Physical Solution is to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of the Basin Area by providing for the long-term conjunctive utilization of all water available thereto to meet the reasonable beneficial use requirements of water users therein.

21. Need for Flexibility. It is essential that this Physical Solution provide maximum flexibility and adaptability in order that the Court may be free to use existing and future technological, social, institutional and economic options in order to maximize reasonable beneficial use of the waters of the Basin Area. To that end, the Court's retained jurisdiction may be utilized where appropriate, to supplement the Physical Solution.

22. General Pattern of Operations. The Producers will be divided into five Subareas for purposes of administration. The Subarea rights and obligations are herein decreed. A fundamental premise of the Physical Solution is that all Parties will be allowed, subject to this Judgment, to Produce sufficient water to meet their reasonable beneficial use requirements. To the extent that Production by a Producer in any Subarea exceeds such Producer's share of the Free Production Allowance of that Subarea, Watermaster will provide Replacement Water to replace such excess Production according to the methods set forth herein. To the extent that any Subarea incurs a Makeup Obligation, Watermaster will provide Supplemental Water to satisfy such Makeup Obligation according to the methods set forth herein. For the initial five (5) full Years after entry of this Judgment (including any interlocutory Judgment), the Free Production Allowance for each Subarea shall be set as the amount of water equal to the following

percentages of the aggregate Base Annual Production for that Subarea:

| | Judgment Year | Percentage |
|---|---|---|
| 1993-1994 | First Full Year | 100 |
| 1994-1995 | Second Full Year | 95 |
| 1995-1996 | Third Full Year | 90 |
| 1996-1997 | Fourth Full Year | 85 |
| 1997-1998 | Fifth Full Year | 80 |

The extent of Overdraft now varies between Subareas and the reasonableness of any physical solution as applied to each Producer depends in part upon such Producer's foreseeable needs and the present and future availability of water within the Subarea in which each Producer is located. The Physical Solution described in this Judgment in part generally contemplates (i) initially allowing significant unassessed production on a substantially uniform basis for all Producers and Subareas and (ii) a phasing in of the monetary obligations necessary to obtain Supplemental Water. The above two provisions will affect each Subarea differently, may not be sufficient to ultimately eliminate the condition of Overdraft in each Subarea and could result in increased Overdraft within a Subarea. Any adverse impact to any Subarea caused by the implementation of the provisions shall be the responsibility of the Producers in each such Subarea.

B. ADMINISTRATION.

23. Administration by Watermaster. Watermaster shall administer and enforce the provisions of the Judgment and any subsequent instructions or orders of this Court.

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(a) Standard of Performance. Watermaster shall, in carrying out its duties, powers and responsibilities herein, act in an impartial manner without favor or prejudice to any Subarea, Producer, Party or Purpose of Use.

(b) Removal of Watermaster. Full jurisdiction, power and authority are retained and reserved by the Court for the purpose of enabling the Court on its own motion, or upon application of any Party, and upon notice in accordance with the notice procedures of paragraph 36 hereof, and after hearing thereon, to remove any appointed Watermaster and substitute a new Watermaster in its place. The Court shall find good cause for the removal of Watermaster upon a showing that Watermaster has failed to perform its duties, powers and responsibilities in an impartial manner, or has otherwise failed to act in the manner consistent with the provisions set forth in this Judgment or subsequent order of the Court.

(c) MWA Appointed as Initial Watermaster. The MWA is hereby appointed, until further order of the Court, as Watermaster to administer and enforce the provisions of this Judgment and any subsequent orders of this Court issued in the performance of its continuing jurisdiction. In carrying out this appointment, MWA shall segregate and separately exercise in all respects the Watermaster powers delegated by the Court under this Judgment from MWA's statutory powers. All funds received, held, and disbursed by MWA as Watermaster shall be by way of separate Watermaster accounts, subject to separate accounting and auditing. Meetings and hearings held by the MWA Board of Directors when acting as Watermaster shall be noticed and conducted separately from MWA

meetings. All Watermaster staff and consultant functions shall be separate and distinct from MWA staff and consultant functions; provided, however, that pursuant to duly adopted Watermaster rules, which shall be subject to review according to Paragraph 36 hereof, Watermaster staff and consultant functions may be accomplished by MWA staff and consultants, subject to strict time and cost accounting principles so that Watermaster functions, and the Assessments provided under this Judgment, do not subsidize, and are not subsidized by, MWA functions. Subject to these principles, MWA shall implement practicable cost efficiencies through consolidation of Watermaster and MWA staff and consultant functions.

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

a. Rules and Regulations. To adopt any and all appropriate rules and regulations for conduct pursuant to this Judgment after public hearing. Notice of hearing and a copy of the proposed rules and regulations, and any amendments thereof, shall be mailed to all Parties thirty days prior to the date of the hearing thereon.

b. Employment of Experts and Agents. To employ such administrative personnel, engineering, legal, accounting, or other specialty services and consulting assistants as may be deemed appropriate in carrying out the terms of this Judgment.

c. Makeup and Replacement Obligations. To determine the Makeup Obligations for each Subarea and Replacement Obligations for each Producer and each Subarea, pursuant to the terms of the Judgment.

d. Measuring Devices, etc. To adopt rules and regulations regarding determination of amounts of Production and installation of individual water meters. The rules and regulations shall provide for approved devices or methods to measure or estimate Production. Producers who meter Production on the date of entry of this Judgment shall continue to meter Production. Thereafter, Producers who do not meter Production on the effective date of entry of this Judgment may be required by Watermaster rules and regulations to install water meters upon a showing that then employed measurement devices or methods do not accurately determine actual Production. The rules and regulations shall require that within three Years after the date of entry of this Judgment, any Producer who provides piped water for human Consumption to more than five service connections shall have installed an individual water meter on each service connection.

e. Hydrologic Data Collection. To install, operate and maintain such wells, measuring devices and/or meters necessary to monitor stream flow, precipitation and groundwater levels and to obtain such other data as may be necessary to carry out the provisions of this Judgment, including a study of the Basin Area phreatophyte consumptive use.

f. Assessments. To set, levy and collect all Assessments specified herein.

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g. Purchase of and Recharge with Supplemental Water. In accordance with Paragraph 27, to the extent Supplemental Water is available and is reasonably needed for Replacement Water or Makeup Water, to use Replacement Water Assessment proceeds to purchase Replacement Water, and to use Makeup Water Assessment proceeds to purchase Makeup Water and to have such Replacement Water and Makeup Water provided to the appropriate Subarea as soon as practicable. Watermaster may prepurchase Supplemental Water and apply subsequent Assessments towards the costs of such prepurchases.

h. Water Quality. To take all reasonable steps to assist and encourage appropriate regulatory agencies to enforce reasonable water quality regulations affecting the Basin Area, including regulation of solid and liquid waste disposal.

i. Notice List. To maintain a current list of Responsible Parties to receive notice hereunder.

j. Annual Administrative Budget. To prepare a proposed administrative budget for each Year, hold hearings thereon, and adopt an administrative budget according to the time schedule set forth in Exhibit "D". The administrative budget shall set forth budgeted items and Administrative Assessments in sufficient detail to show the allocation of the expense among the Producers. Following the adoption of the budget, expenditures within budgeted items may thereafter be made by Watermaster in the exercise of powers herein granted, as a matter of course.

k. Annual Report to Court.

(1) To file an Annual report with this Court not later than April 1 of each Year beginning April 1 following the

first full Year after entry of Judgment. Prior to filing the Annual report with the Court, Watermaster shall notify all Parties that a draft of the report is available for review and shall provide notice of a hearing to receive comments and recommendations for changes in the report. The public hearing shall be conducted on the same date and at the same place as the hearings required by Paragraphs 3 and 4 of Exhibit "D". The notice of hearing may include such summary of the draft report as Watermaster may deem appropriate. Watermaster shall also distribute the report to the Parties requesting copies.

(2) The Annual report shall include an Annual fiscal report of the preceding Year's operation and shall include details as to operation of each of the Subareas and an audit of all Assessments and expenditures pursuant to this Physical Solution and a review of Watermaster activities pursuant to this Judgment. The Annual report shall include a compilation of at least the following:

Determinations and data required by:

i) Paragraph 24(c) (Makeup and Replacement Obligations)

ii) Paragraph 24(e) (Hydrologic Data Collection)

iii) Paragraph 24(g) (Purchase of and Recharge with Supplemental Water)

iv) Paragraph 24(i) (Notice List)

Rules and regulations adopted pursuant to:

v) Paragraph 24(a) (Rules and Regulations)

vi) Paragraph 24(d) (Measuring Devices, etc.)

vii) Paragraph 24(s) (Storage Agreements)

Reports required by:

viii) Paragraph 24(j) (Annual Administrative Budget)

ix) Paragraph 24(n) (Transfers)

x) Paragraph 24(o) (Free Production Allowance)

xi) Paragraph 24(p) (Production Reports)

xii) Exhibit "D" (Prior Year Report)

xiii) Exhibit "F" (Transfers of Base Annual Production Rights)

xiv) Exhibit "G" (Status of Subarea Obligation)

xv) Exhibit "H" (Biological Resource Mitigation)

l. Investment of Funds. To hold and invest any funds in investments authorized from time to time for public agencies in the State of California.

m. Borrowing. To borrow in anticipation of receipt of Assessment proceeds in an amount not to exceed the Annual amount of Assessments levied but uncollected.

n. Transfers. To prepare on an Annual basis and maintain a report or record of any transfer of Base Annual Production Rights. Such report or record shall be available for inspection by any Party upon reasonable notice to the Watermaster.

o. Free Production Allowance. Not later than the end of the 1997-1998 Water Year, and Annually thereafter, to recommend in the Watermaster Annual Report an adjustment, if needed, to the Free Production Allowance for any Subarea. In making its recommendation, Watermaster shall be guided by the factors set forth in Exhibit "C", including but not limited to an annual calculation of the change of water in storage. The Annual report shall include all assumptions and calculations relied upon in making its recommendations. Following the 1997-1998 Water Year,

or any time thereafter, Watermaster shall obtain prior Court approval for any increase or reduction of any Subarea's Free Production Allowance. In no event shall a reduction in any Year for a Subarea exceed five percent of the aggregate Base Annual Production of that Subarea. In the event Watermaster recommends in its report to the Court that the Free Production Allowance for any Subarea may need to be increased or reduced, the Court shall conduct a hearing, after notice given by Watermaster according to paragraph 36, upon Watermaster's recommendations and may order such changes in Subarea Free Production Allowance. The most recent Subarea Free Production Allowances shall remain in effect until revised according to this Paragraph 24(o).

p. Production Reports. To require each Producer to file with Watermaster, pursuant to procedures and time schedules to be established by Watermaster, a report on a form to be prescribed by Watermaster showing the total Production of such Party for each reporting period rounded off to the nearest tenth of an acre foot, and such additional information and supporting documentation as Watermaster may require.

q. Production Adjustment for Change in Purpose of Use. If Watermaster determines, using the Consumptive Use rates set forth in Exhibit "F", that a new Purpose of Use of any Producer's Production for any Year has resulted in a higher rate of Consumption than the rate applicable to the original Purpose of Use of that Producer's Production in the Year for which Base Annual Production was determined, Watermaster shall use a multiplier (1) to adjust upward such Production for the purpose of determining the Producer's Replacement Water Assessment and, (2) to adjust upward

the Free Production Allowance portion of such Production for the purpose of determining the Producer's Makeup Water Assessment. The multiplier shall be determined by dividing the number of acre feet of Consumption that occurred under the new Purpose of Use by the number of acre feet of Consumption that would have occurred under the original Purpose of Use for the same Production.

r. Reallocation of Base Annual Production Rights. To reallocate annually the Base Annual Production Rights in each Subarea to reflect any permanent transfers of such Rights among Parties.

s. Storage Agreements. To enter into Storage Agreements with any Party in order to accommodate the acquisition of Supplemental Water. Watermaster may not enter into Storage Agreements with non-Parties unless such non-Parties become subject to the provisions of this Judgment and the jurisdiction of the Court. Such Storage Agreements shall by their terms preclude operations which will have a substantial adverse impact on any Producer. If a Party pursuant to a Storage Agreement has provided for predelivery or postdelivery of Replacement Water for the Party's use, Watermaster shall at the Party's request credit such water to the Party's Replacement Obligation. Watermaster shall adopt uniformly applicable rules for Storage Agreements. Watermaster shall calculate additions, extractions and losses of water stored under Storage Agreements and maintain an Annual account of all such water.

t. Subarea Advisory Committee Meetings. To meet on a regular basis and at least semi-annually with the Subarea Advisory Committees to review Watermaster activities pursuant to

this Judgment and to receive advisory recommendations from the Subarea Advisory Committees.

u. Unauthorized Production. To bring such action or motion as is necessary to enjoin unauthorized Production as provided in Paragraph 12 hereinabove.

v. Meetings and Records. To ensure that all meetings and hearings by Watermaster shall be noticed and conducted according to then current requirements of the Ralph M. Brown Act, Government Code Sections 54950, et seq. Watermaster files and records shall be available to any person according to the provisions of the Public Records Act, Government Code §§ 6200 et seq.

w. Data, Estimates and Procedures. To rely on and use the best available records and data to support the implementation of this Judgment. Where actual records of data are not available, Watermaster shall rely on and use sound scientific and engineering estimates. Watermaster may use preliminary records of measurements, and, if revisions are subsequently made, Watermaster may reflect such revisions in subsequent accounting. Exhibit "C" sets forth methods and procedures for determining surface flow components. Watermaster shall use either the same procedures or procedures that will yield results of equal or greater accuracy.

x. Biological Resource Mitigation. To implement the Biological Resource Mitigation measures set forth in Exhibit "H" herein.

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C. ASSESSMENTS

25. Purpose. Watermaster shall levy and collect Assessments from the Parties based upon Production in accordance with the time schedules set forth in Exhibit "D". Watermaster shall levy and collect such Assessments as follows:

a. Administrative Assessments. Administrative Assessments to fund the Administrative Budget adopted by the Watermaster pursuant to Paragraph 24(j) shall be levied uniformly against each acre foot of Production. A Producer who does not Produce in a given Year shall pay an Administrative Assessment in amount equal to the lowest MWA assessment for Minimal Producers for that Year.

b. Replacement Water Assessments. Replacement Water Assessments shall be levied against each Producer on account of such Producer's Production, after any adjustment pursuant to Paragraph 24(q), in excess of such Producer's share of the Free Production Allowance in each Subarea during the prior Year.

c. Makeup Water Assessments. Makeup Water Assessments shall be levied against each Producer in each Subarea on account of each acre-foot of Production therein which does not bear a Replacement Assessment hereunder, after any adjustment pursuant to Paragraph 24(q), to pay all necessary costs of satisfying the Makeup Obligation, if any, of that Subarea.

d. Biological Resource Assessment. To establish and, to the extent needed, to maintain the Biological Resource Trust Fund balance at one million dollars (in 1993 dollars) pursuant to Paragraph 24(x) and Exhibit "H", a Biological Resource Assessment in an amount not to exceed fifty cents (in 1993 dollars)

for each acre-feet of Production shall be levied uniformly against each producer except the California Department of Fish and Game.

e. MWA Assessment of Minimal Producers. The MWA shall identify and assess Minimal Producers through its own administrative procedures, and not acting as Watermaster.

26. Procedure. Each Party hereto is ordered to pay the Assessments herein provided for, which shall be levied and collected in accordance with the procedures and schedules set forth in Exhibit "D". Any Assessment which becomes delinquent, as defined in Paragraph 7 of Exhibit "D", shall bear interest at the then current San Bernardino County property tax delinquency rate Said interest rate shall be applicable to any said delinquent Assessment from the due date thereof until paid. Such delinquent Assessment, together with interest thereon, costs of suit, attorneys fees and reasonable costs of collection, may be collected pursuant to motion giving notice to the delinquent Party only, or Order to Show Cause proceeding, or such other lawful proceeding as may be instituted by the Watermaster; and shall, if provided for in the MWA Act, constitute a lien on the property of the Party as of the same time and in the same manner as does the tax lien securing County property taxes. The Watermaster shall Annually certify a list of all such unpaid delinquent Assessments to the MWA (in accordance with applicable provisions of the MWA Act). The MWA (in accordance with applicable provisions of the MWA Act) shall include the names of those Parties and the amounts of the liens in its list to the County Assessor's Office in the same manner and at the same time as it does its administrative assessments. MWA shall account for receipt of all collections of Assessments collected pursuant to

this Judgment, and shall pay such amounts collected pursuant to this Judgment to the Watermaster. The Watermaster shall also have the ability to enjoin production of those Persons who do not pay Assessments pursuant to this Judgment.

27. Availability of Supplemental Water. All Replacement and Makeup Water Assessments collected by the Watermaster shall be used to acquire Supplemental Water from MWA. Watermaster shall determine when to request Supplemental Water from MWA and shall determine the amount of Supplemental Water to be requested. MWA shall use its best efforts to acquire as much Supplemental Water as possible in a timely manner. If MWA encounters delays in the acquisition of Supplemental Water which, due to cost increases, results in collected assessment proceeds being insufficient to purchase all Supplemental Water for which the Assessments were made, MWA shall purchase as much water as the proceeds will allow when the water becomes available. If available Supplemental Water is insufficient to meet all Makeup and Replacement Water obligations, Watermaster shall allocate the Supplemental Water for delivery to the Subareas on an equitable and practicable basis pursuant to duly adopted Watermaster rules and regulations, giving preference to: First, Transition Zone Replacement Water Obligations as set forth in Exhibit "G"; Second, Makeup Water Obligations; and Third, other Replacement Water Obligations. MWA may acquire Supplemental Water at any time. MWA shall be entitled to enter into a Storage Agreement with Watermaster to store water MWA acquires prior to being paid to do so by Watermaster. Such water, including such water acquired and stored prior to the date of this Judgment or prior to the entry of

a Storage Agreement, may later be used to satisfy MWA's duty under this paragraph.

28. Use of Replacement Water Assessment Proceeds and Makeup Water Assessment Proceeds. The Proceeds of Replacement Water Assessments and any interest accrued thereon shall only be used for the purchase of Replacement Water for that Subarea from which they were collected. In addition, the proceeds of Replacement Water Assessments collected on account of Production in the Transition Zone, except as provided in Exhibit "G", shall only be used for the purchase of Replacement Water for the Transition Zone, and the proceeds of Replacement Water Assessments collected on account of Production in that portion of the Baja Subarea downstream of the Calico-Newberry fault shall only be used for the purchase of Replacement Water for that portion of the Baja Subarea downstream of the Calico-Newberry fault. The proceeds of Makeup Water Assessments and any interest accrued thereon shall only be used for the purchase of Makeup Water to satisfy the Makeup Obligation for which they are collected.

29. MWA Annual Report to the Watermaster. MWA shall Produce and deliver to Watermaster an Annual written report regarding actions of MWA required by the terms of this Judgment. The report shall contain: 1) a summary of the actions taken by MWA in identifying and assessing Minimal Producers, including a report of Assessments made and collected; 2) a summary of other MWA activities in collecting Assessment on behalf of Watermaster; 3) a report of water purchases and water distribution for the previous Year; 4) actions taken to implement its Regional Water Management Plan, including actions relating to conveyance facilities referred

to in this Judgment. The MWA report will be provided to Watermaster not less than 30 days prior to the Annual Watermaster report to the Court required by this Judgment.

D. SUBAREA ADVISORY COMMITTEES.

30. Authorization. The Producers in each of the five Subareas are hereby authorized and directed to cause committees of Producer representatives to be organized and to act as Subarea Advisory Committees.

31. Composition and Election. Each Subarea Advisory Committee shall consist of five (5) Persons who shall be called advisors. In the election of advisors, every Party shall be entitled to one vote for every acre-foot of Base Annual Production for that Party in that particular Subarea. Parties may cumulate their votes and give one candidate a number of votes equal to the number of advisors to be elected multiplied by the number of votes to which the Party is normally entitled, or distribute the Party's votes on the same principle among as many candidates as the Party thinks fit. In any election of advisors, the candidates receiving the highest number of affirmative votes of the Parties are elected. Elections shall be held upon entry of this Judgment and thereafter every third year. In the event a vacancy arises, a temporary advisor shall be appointed by unanimous decision of the other four advisors to continue in office until the next scheduled election. The California Department of Fish and Game shall serve as a permanent ex-officio member of the Alto and Baja Subarea Advisory Committees. Rules and regulations regarding organization, meetings and other activities shall be at the discretion of the individual

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Subarea Advisory Committees, except that all meetings of the committees shall be open to the public.

32. Compensation. The Subarea Advisory Committee members shall serve without compensation.

33. Powers and Functions. The Subarea Advisory Committee for each Subarea shall act in an advisory capacity only and shall have the duty to study, review and make recommendations on all discretionary determinations made or to be made hereunder by Watermaster which may affect that Subarea.

E. TRANSFERABILITY.

34. Assignment, Transfer, etc. of Rights. In order to further the purposes of this Judgment and Physical Solution, any Base Annual Production Right, or any portion thereof, may be sold, assigned, transferred, licensed or leased pursuant to the rules and procedures set forth in Exhibit "F".

F. MISCELLANEOUS PROVISIONS.

35. Water Quality. Nothing in this Judgment shall be interpreted as relieving any Party of its responsibilities to comply with state or federal laws for the protection of water quality or the provisions of any permits, standards, requirements, or orders promulgated thereunder.

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

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

on the date of the order, decision or action.

b. Notice of Motion. Any Party, may, by a regularly noticed motion, petition the Court for review of Watermaster's action or decision pursuant to this Judgment. The motion shall be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to Watermaster together with the service fee established by Watermaster sufficient to cover the cost to photocopy and mail the motion to each Party. Watermaster shall prepare copies and mail a copy of the motion to each Party or its designee according to the official service list which shall be maintained by Watermaster according to Paragraph 37. A Party's obligation to serve notice of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless ordered by the Court, any such petition shall not operate to stay the effect of any Watermaster action or decision which is challenged.

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

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

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e. Decision. The decision of the Court in such proceeding shall be an appealable Supplemental Order in this case. When the same is final, it shall be binding upon Watermaster and the Parties.

f. Payment of Assessments. Payment of Assessments levied by Watermaster hereunder shall be made pursuant to the time schedule in Exhibit "D"; notwithstanding any motion for review of Watermaster actions, decisions, rules or procedures, including review of Watermaster Assessments.

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

38. Service of Documents. Delivery to or service upon any Party by Watermaster, by any other Party, or by the Court, of any document required to be served upon or delivered to a Party under or pursuant to the Judgment shall be deemed made if made by Deposit thereof (or by copy thereof) in the mail, first class, postage prepaid, addressed to the designee of the Party and at the address shown in the latest designation filed by that Party.

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

40. Intervention After Judgment. Any person who is not a Party or successor to a Party and who proposes to Produce water from the Basin Area may seek to become a Party to this Judgment through a Stipulation for Intervention entered into with Watermaster. Watermaster may execute said Stipulation on behalf of the other Parties herein but such Stipulation shall not preclude a Party from opposing such Intervention at the time of the Court hearing thereon. Said Stipulation for Intervention must thereupon be filed with the Court, which will consider an order confirming said intervention following thirty (30) days' notice to the Parties. Thereafter, if approved by the Court, such intervenor shall be a Party bound by this Judgment and entitled to the rights and privileges accorded under the Physical Solution herein.

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41. Recordation of Notice. MWA shall within sixty (60) days following entry of this Judgment record in the Office of the County Recorder of the County of San Bernardino a notice substantially complying with the notice content requirements set forth in Section 2529 of the California Water Code.

42. Judgment Binding on Successors, etc. Subject to specific provisions hereinbefore contained, this Judgment and all provisions thereof are applicable to and binding upon and inure to the benefit of not only the Parties to this action, but as well to their respective heirs, executors, administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in fact of any such Persons.

43. Costs. No Party stipulating to this Judgment shall recover any costs or attorneys fees in this proceeding from another stipulating Party.

44. Entry of Judgment. The Clerk shall enter this Judgment.

Dated: JAN 1 0 1996

E. MICHAEL KAISER

E. Michael Kaiser, Judge
Superior Court of the State
of California for the
County of Riverside

EXHIBIT A

MAP OF MOJAVE BASIN AREA

[INDEX MAP AND DETAIL SHEET CONSISTING OF 42 1" = 4,000' SCALE MAPS COVERING THE BASIN AREA; THE MAP IS ON DISPLAY AT THE OFFICE OF THE MOJAVE WATER AGENCY, 22450 HEADQUARTERS, APPLE VALLEY, CA 92307 AND ON FILE WITH THE COURT]

# EXHIBIT B

## PRODUCTION TABLES

CONTENTS

TABLE B-1: TABLE SHOWING BASE ANNUAL PRODUCTION AND BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN EACH SUBAREA AND FREE PRODUCTION ALLOWANCES FOR EACH SUBAREA FOR THE FIRST FIVE YEARS AFTER ENTRY OF THE INTERLOCUTORY JUDGMENT

TABLE B-2: TABLE SHOWING TOTAL VERIFIED PRODUCTION, BASE ANNUAL PRODUCTION AND RECIRCULATED WATER PRODUCTION FOR AQUACULTURE AND FOR RECREATIONAL LAKES

~~12/10/93~~
~~01/20/93~~
~~03/03/93~~
~~04/10/93~~
~~04/28/93~~
09/25/95

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ESTE SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ESTE SUBAREA<br>PRODUCER | BASE ANNUAL PRODUCTION [1]<br>(ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2]<br>(PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET)<br>FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| ABSHIRE, DAVID V | 24 | 0.1093 | 24 | 22 | 21 | 20 | 19 |
| ANDERSON, ROSS C & BETTY J | 34 | 0.1548 | 34 | 32 | 30 | 28 | 27 |
| BAR H MUTUAL WATER COMPANY | 53 | 0.2414 | 53 | 50 | 47 | 45 | 42 |
| BELL, CHUCK | 494 | 2.2497 | 494 | 469 | 444 | 419 | 395 |
| BURNS, BOBBY J & EVELYN J | 1,300 | 5.9204 | 1,300 | 1,235 | 1,170 | 1,105 | 1,040 |
| CASA COLINA FOUNDATION | 90 | 0.4099 | 90 | 85 | 81 | 76 | 72 |
| CENTER WATER CO | 40 | 0.1822 | 40 | 38 | 36 | 34 | 32 |
| CLUB VIEW PARTNERS | 1,276 | 5.8111 | 1,276 | 1,212 | 1,148 | 1,084 | 1,020 |
| CROSS, LAWRENCE E | 23 | 0.1047 | 23 | 21 | 20 | 19 | 18 |
| CRYSTAL HILLS WATER COMPANY | 194 | 0.8835 | 194 | 184 | 174 | 164 | 155 |
| DAHLQUIST, GEORGE R | 594 | 2.7052 | 594 | 564 | 534 | 504 | 475 |
| DELPERDANG, ROBERT H | 56 | 0.2550 | 56 | 53 | 50 | 47 | 44 |
| DESERT DAWN MUTUAL WATER COMPANY | 15 | 0.0683 | 15 | 14 | 13 | 12 | 12 |
| GAETA, TRINIDAD | 512 | 2.3317 | 512 | 486 | 460 | 435 | 409 |
| GAYJIKIAN, SAMUEL & HAZEL | 102 | 0.4645 | 102 | 96 | 91 | 86 | 81 |
| GRACETOWN INVESTMENT CO - JETCO PROP FUND | 752 | 3.4247 | 752 | 714 | 676 | 639 | 601 |
| GUBLER, HANS | 30 | 0.1366 | 30 | 28 | 27 | 25 | 24 |
| HAL-DOR LTD | 23 | 0.1047 | 23 | 21 | 20 | 19 | 18 |
| HANDLEY, DON R & MARY ANN | 73 | 0.3325 | 73 | 69 | 65 | 62 | 58 |
| HART, MERRILL W | 473 | 2.1541 | 473 | 449 | 425 | 402 | 378 |
| HERT, SCOTT | 276 | 1.2569 | 276 | 262 | 248 | 234 | 220 |
| HI-GRADE MATERIALS | 442 | 2.0129 | 442 | 419 | 397 | 376 | 353 |
| HITCHIN LUCERNE, INC | 16 | 0.0729 | 16 | 15 | 14 | 13 | 12 |
| JAMS RANCH | 28 | 0.1275 | 28 | 26 | 25 | 23 | 22 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ESTE SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ESTE SUBAREA<br>PRODUCER | BASE ANNUAL PRODUCTION [1]<br>(ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2]<br>(PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET)<br>FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| JUBILEE MUTUAL WATER COMPANY | 142 | 0.6467 | 142 | 134 | 127 | 120 | 113 |
| JUNIPER RIVIERA COUNTY WATER DISTRICT | 37 | 0.1685 | 37 | 35 | 33 | 31 | 29 |
| LEE, DOO HWAN | 78 | 0.3552 | 78 | 74 | 70 | 66 | 62 |
| LOPEZ, BALTAZAR | 385 | 1.7533 | 385 | 365 | 346 | 327 | 308 |
| LUA, ANTONIO | 348 | 1.5848 | 348 | 330 | 313 | 295 | 278 |
| LUCERNE VALLEY MUTUAL WATER COMPANY | 54 | 0.2459 | 54 | 51 | 48 | 45 | 43 |
| LUCERNE VALLEY PARTNERS | 1,213 | 5.5242 | 1,213 | 1,152 | 1,091 | 1,031 | 970 |
| LUCERNE VISTA WATER CO | 21 | 0.0956 | 21 | 19 | 18 | 17 | 16 |
| MITSUBISHI CEMENT CORPORATION | 1,299 | 5.9158 | 1,299 | 1,234 | 1,169 | 1,104 | 1,039 |
| MONACO INVESTMENT COMPANY | 70 | 0.3188 | 70 | 66 | 63 | 59 | 56 |
| MOSS, LAWRENCE W & HELEN J | 43 | 0.1958 | 43 | 40 | 38 | 36 | 34 |
| PARK, CHANHO | 597 | 2.7188 | 597 | 567 | 537 | 507 | 477 |
| PARK, JEONG, IL & HEA JA | 96 | 0.4372 | 96 | 91 | 86 | 81 | 76 |
| PEREZ, EVA | 247 | 1.1249 | 247 | 234 | 222 | 209 | 197 |
| PETTIGREW, DAN | 1,422 | 6.4760 | 1,422 | 1,350 | 1,279 | 1,208 | 1,137 |
| PETTIGREW, HOWARD L | 1,500 | 6.8312 | 1,500 | 1,425 | 1,350 | 1,275 | 1,200 |
| PLUESS-STAUFER CALIFORNIA INC | 23 | 0.1047 | 23 | 21 | 20 | 19 | 18 |
| REED, MIKE | 58 | 0.2641 | 58 | 55 | 52 | 49 | 46 |
| ROGERS, ROY | 1,449 | 6.5990 | 1,449 | 1,376 | 1,304 | 1,231 | 1,159 |
| SAN BERNARDINO CO SERVICE AREA 29 | 21 | 0.0956 | 21 | 19 | 18 | 17 | 16 |
| SEALS, LAWRENCE | 113 | 0.5146 | 113 | 107 | 101 | 96 | 90 |
| SON'S RANCH | 140 | 0.6376 | 140 | 133 | 126 | 119 | 112 |
| SOUTHERN CALIFORNIA WATER COMPANY | 178 | 0.8106 | 178 | 169 | 160 | 151 | 142 |
| SPECIALTY MINERALS, INC | 42 | 0.1913 | 42 | 39 | 37 | 35 | 33 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ESTE SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ESTE SUBAREA<br>PRODUCER | BASE ANNUAL [1] PRODUCTION (ACRE-FEET) | BASE ANNUAL [2] PRODUCTION RIGHT (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
| SPILLMAN, JAMES R & NANCY J | 23 | 0.1047 | 23 | 21 | 20 | 19 | 18 |
| STEWART WATER COMPANY | 54 | 0.2459 | 54 | 51 | 48 | 45 | 43 |
| STRINGER, W EDWARD | 573 | 2.6095 | 573 | 544 | 515 | 487 | 458 |
| THE CUSHENBURY TRUST, C/O SPECIALTY MINERALS, INC | 10 | 0.0455 | 10 | 9 | 9 | 8 | 8 |
| TURNER, LOYD & CAROL | 77 | 0.3507 | 77 | 73 | 69 | 65 | 61 |
| VISOSKY, JOSEPH F JR | 1,120 | 5.1006 | 1,120 | 1,064 | 1,008 | 952 | 896 |
| WEISER, SIDNEY & RAQUEL | 90 | 0.4099 | 90 | 85 | 81 | 76 | 72 |
| WILLOW WELLS MUTUAL WATER COMPANY | 30 | 0.1366 | 30 | 28 | 27 | 25 | 24 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ESTE SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ESTE SUBAREA PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| MINIMAL PRODUCER POOL | 2,000 | 9.1083 | 2,000 | 1,900 | 1,800 | 1,700 | 1,600 |
| UNIDENTIFIED/UNVERIFIED PRODUCER POOL | 1,485 | 6.7629 | | | | | |
| ESTE SUBAREA TOTALS = | 21,958 | 100 | | | | | |

1 Base Annual Production is the reported maximum year production for each producer for the five year period 1986-1990. These values reflect the maximum production determined by one or more of the following: Southern California Edison records, site inspection, land use estimates from 1987 and 1989 aerial photography and responses to special interrogatories. All values are subject to change if additional information is made available, or if any value reported herein is found to be in error.

2 Base Annual Production Right expressed as a percentage of the Total Base Annual Production.

3 Values based on production ramp down of five percent (5%) per year. Free Production Allowance for the fifth year is equal to eighty percent (80%) of the Base Annual Production.

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN OBSTB SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| OBSTB SUBAREA / PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| AEROCHEM, INC | 660 | 5.3645 | 660 | 627 | 594 | 561 | 528 |
| BROWN, DOUG & SUE | 46 | 0.3739 | 46 | 43 | 41 | 39 | 36 |
| CHAMISAL MUTUAL | 96 | 0.7803 | 96 | 91 | 86 | 81 | 76 |
| DAVIS, PAUL | 19 | 0.1544 | 19 | 18 | 17 | 16 | 15 |
| DOSSEY, D A | 14 | 0.1138 | 14 | 13 | 12 | 11 | 11 |
| MEADOWBROOK DAIRY | 2,335 | 18.9791 | 2,335 | 2,218 | 2,101 | 1,984 | 1,868 |
| RESSEGUE, JOHN & BILL | 259 | 2.1052 | 259 | 246 | 233 | 220 | 207 |
| SAN BERNARDINO CO SERVICE AREA 70G | 110 | 0.8941 | 110 | 104 | 99 | 93 | 88 |
| SAN BERNARDINO CO SERVICE AREA 70L | 1,306 | 10.6153 | 1,306 | 1,240 | 1,175 | 1,110 | 1,044 |
| THORESON, ROBERT F & A KATHLEEN | 40 | 0.3251 | 40 | 38 | 36 | 34 | 32 |
| TROEGER, RICHARD H | 112 | 0.9103 | 112 | 106 | 100 | 95 | 89 |
| VAN DAM BROTHERS | 1,860 | 15.1183 | 1,860 | 1,767 | 1,674 | 1,581 | 1,488 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN OESTE SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| OESTE SUBAREA<br>PRODUCER | BASE ANNUAL PRODUCTION [1]<br>(ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2]<br>(PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET)<br>FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| MINIMAL PRODUCER POOL | 1,500 | 12.1921 | 1,500 | 1,425 | 1,350 | 1,275 | 1,200 |
| UNIDENTIFIED/UNVERIFIED PRODUCER POOL | 3,946 | 32.0735 | | | | | |
| OESTE SUBAREA TOTALS = | 12,303 | 100 | | | | | |

1 Base Annual Production is the reported maximum year production for each producer for the five year period 1986-1990. These values reflect the maximum production determined by one or more of the following: Southern California Edison records, site inspection, land use estimates from 1987 and 1989 aerial photography and responses to special interrogatories. All values are subject to change if additional information is made available, or if any value reported herein is found to be in error.

2 Base Annual Production Right expressed as a percentage of the Total Base Annual Production.

3 Values based on production ramp down of five percent (5%) per year. Free Production Allowance for the fifth year is equal to eighty percent (80%) of the Base Annual Production.

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA | BASE ANNUAL [1] PRODUCTION | BASE ANNUAL [2] PRODUCTION RIGHT | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| PRODUCER | (ACRE-FEET) | (PERCENT) | FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
| ABBOND, EDWARD & GRACE | 28 | 0.0229 | 28 | 26 | 25 | 23 | 22 |
| ABBOTT, LEONARD C | 284 | 0.2321 | 284 | 269 | 255 | 241 | 227 |
| ADELANTO, CITY OF | 1,573 | 1.2855 | 1,573 | 1,494 | 1,415 | 1,337 | 1,258 |
| ADELANTO, CITY OF - GEORGE A F B | 3,433 | 2.8055 | 3,433 | 3,261 | 3,089 | 2,918 | 2,746 |
| AGCON, INC | 384 | 0.3138 | 384 | 364 | 345 | 326 | 307 |
| APPLE VALLEY COUNTRY CLUB | 709 | 0.5794 | 709 | 673 | 638 | 602 | 567 |
| APPLE VALLEY DEVELOPMENT | 724 | 0.5917 | 724 | 687 | 651 | 615 | 579 |
| APPLE VALLEY FOOTHILL CO WATER DISTRICT | 167 | 0.1365 | 167 | 158 | 150 | 141 | 133 |
| APPLE VALLEY HEIGHTS COUNTY WATER DISTRICT | 125 | 0.1022 | 125 | 118 | 112 | 106 | 100 |
| APPLE VALLEY RANCHOS WATER COMPANY | 13,022 | 10.6419 | 13,022 | 12,370 | 11,719 | 11,068 | 10,417 |
| APPLE VALLEY RECREATION & PARKS | 45 | 0.0368 | 45 | 42 | 40 | 38 | 36 |
| APPLE VALLEY VIEW MUTUAL WATER CO | 36 | 0.0294 | 36 | 34 | 32 | 30 | 28 |
| APPLE VALLEY, TOWN OF | 298 | 0.2435 | 298 | 283 | 268 | 253 | 238 |
| ARC LAS FLORES | 6,331 | 5.1739 | 6,331 | 6,014 | 5,697 | 5,381 | 5,064 |
| BACA, ENRIQUE | 74 | 0.0605 | 74 | 70 | 66 | 62 | 59 |
| BALDY MESA WATER DISTRICT | 1,495 | 1.2218 | 1,495 | 1,420 | 1,345 | 1,270 | 1,196 |
| BASS, NEWTON T | 514 | 0.4201 | 514 | 488 | 462 | 436 | 411 |
| BASTIANON, REMO | 77 | 0.0629 | 77 | 73 | 69 | 65 | 61 |
| BASURA, STEVE | 25 | 0.0204 | 25 | 23 | 22 | 21 | 20 |
| BEINSCHROTH, A J | 90 | 0.0736 | 90 | 85 | 81 | 76 | 72 |
| BOYCE, KENNETH & WILLA | 102 | 0.0834 | 102 | 96 | 91 | 86 | 81 |
| BROWN, BOBBY G & VALERIA R | 42 | 0.0343 | 42 | 39 | 37 | 35 | 33 |
| BURNS, ULYSSES & ANNIE L | 164 | 0.1340 | 164 | 155 | 147 | 139 | 131 |
| CARDOZO, MANUEL & MARIA | 909 | 0.7429 | 909 | 863 | 818 | 772 | 727 |

~~10/10/93~~
~~01/20/93~~
~~03/03/93~~
~~04/18/93~~
~~04/28/93~~
09/25/95

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| CDFG - MOJAVE NARROWS REGIONAL PARK | 2,107 | 1.7219 | 2,107 | 2,001 | 1,896 | 1,790 | 1,685 |
| CDFG - MOJAVE RIVER FISH HATCHERY | 20 | 0.0163 | 20 | 19 | 18 | 17 | 16 |
| CLARK, KENNETH R | 223 | 0.1822 | 223 | 211 | 200 | 189 | 178 |
| CLEAR VIEW FARMS | 501 | 0.4094 | 501 | 475 | 450 | 425 | 400 |
| COPELAND, ET AL (C/O DON W. LITTLE) | 175 | 0.1430 | 175 | 166 | 157 | 148 | 140 |
| CRAMER, MARGARET MUIR | 280 | 0.2288 | 280 | 266 | 252 | 238 | 224 |
| CUNNINGHAM, WILLIAM | 29 | 0.0237 | 29 | 27 | 26 | 24 | 23 |
| DEXTER, CLAIR F | 175 | 0.1430 | 175 | 166 | 157 | 148 | 140 |
| DEXTER, J P | 515 | 0.4209 | 515 | 489 | 463 | 437 | 412 |
| DIBERNARDO, JOHN | 203 | 0.1659 | 203 | 192 | 182 | 172 | 162 |
| DOLCH, ROBERT & JUDY | 426 | 0.3481 | 426 | 404 | 383 | 362 | 340 |
| DOMBROWSKI, MICHAEL W & SUSAN M | 19 | 0.0155 | 19 | 18 | 17 | 16 | 15 |
| DOWSE, PHILIP | 20 | 0.0163 | 20 | 19 | 18 | 17 | 16 |
| EVENSON, EDWIN H & JOYCELAINE | 70 | 0.0572 | 70 | 66 | 63 | 59 | 56 |
| FISHER, DOLORES DR | 48 | 0.0392 | 48 | 45 | 43 | 40 | 38 |
| FISHER, JEROME | 633 | 0.5173 | 633 | 601 | 569 | 538 | 506 |
| FITZWATER, R E | 291 | 0.2378 | 291 | 276 | 261 | 247 | 232 |
| GARCIA, SONIA L | 288 | 0.2354 | 288 | 273 | 259 | 244 | 230 |
| GOMEZ, CIRIL - LIVING TRUST | 330 | 0.2697 | 330 | 313 | 297 | 280 | 264 |
| GREEN ACRES ESTATES | 25 | 0.0204 | 25 | 23 | 22 | 21 | 20 |
| GULBRANSON, MERLIN | 163 | 0.1332 | 163 | 154 | 146 | 138 | 130 |
| HELENDALE SCHOOL DISTRICT | 18 | 0.0147 | 18 | 17 | 16 | 15 | 14 |
| HESPERIA GOLF AND COUNTRY CLUB | 678 | 0.5541 | 678 | 644 | 610 | 576 | 542 |
| HESPERIA WATER DISTRICT | 12,213 | 9.9808 | 12,213 | 11,602 | 10,991 | 10,381 | 9,770 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA | BASE ANNUAL PRODUCTION [1] | BASE ANNUAL PRODUCTION RIGHT [2] | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| PRODUCER | (ACRE-FEET) | (PERCENT) | FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
| HI-GRADE MATERIALS | 149 | 0.1218 | 149 | 141 | 134 | 126 | 119 |
| HODGE, STANLEY W | 67 | 0.0548 | 67 | 63 | 60 | 56 | 53 |
| HOLWAY, ROBERT | 88 | 0.0719 | 88 | 83 | 79 | 74 | 70 |
| HRUBIK, THOMAS A | 3,862 | 3.1561 | 3,862 | 3,668 | 3,475 | 3,282 | 3,089 |
| INDUSTRIAL ASPHALT | 109 | 0.0891 | 109 | 103 | 98 | 92 | 87 |
| JESS RANCH WATER COMPANY | 7,480 | 6.1129 | 7,480 | 7,106 | 6,732 | 6,358 | 5,984 |
| JOHNSON, LARRY & CARLEAN | 82 | 0.0670 | 82 | 77 | 73 | 69 | 65 |
| JOHNSON, RONALD | 31 | 0.0253 | 31 | 29 | 27 | 26 | 24 |
| JOHNSTON, HARRIET AND LARRY W | 127 | 0.1038 | 127 | 120 | 114 | 107 | 101 |
| KEMPER CAMPBELL RANCH | 473 | 0.3865 | 473 | 449 | 425 | 402 | 378 |
| LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT | 658 | 0.5377 | 658 | 625 | 592 | 559 | 526 |
| LAWSON, ERNEST & BARBARA | 15 | 0.0123 | 15 | 14 | 13 | 12 | 12 |
| LENHERT, RONALD & TONI | 37 | 0.0302 | 37 | 35 | 33 | 31 | 29 |
| LEWIS HOMES OF CALIFORNIA | 1,693 | 1.3836 | 1,693 | 1,608 | 1,523 | 1,439 | 1,354 |
| LONGMAN, JACK | 115 | 0.0940 | 115 | 109 | 103 | 97 | 92 |
| LOUNSBURY, J PETER & CAROLYN | 208 | 0.1700 | 208 | 197 | 187 | 176 | 166 |
| LOW, ROBERT | 399 | 0.3261 | 399 | 379 | 359 | 339 | 319 |
| LUCKEY, MANLEY J | 800 | 0.6538 | 800 | 760 | 720 | 680 | 640 |
| LUTH, KEN | 27 | 0.0221 | 27 | 25 | 24 | 22 | 21 |
| MARIANA RANCHOS COUNTY WATER DISTRICT | 245 | 0.2002 | 245 | 232 | 220 | 208 | 196 |
| MCCALL, REX | 44 | 0.0360 | 44 | 41 | 39 | 37 | 35 |
| MCINNIS, WILLIAM S | 30 | 0.0245 | 30 | 28 | 27 | 25 | 24 |
| MITCHELL, ROBIN & JUDITH | 36 | 0.0294 | 36 | 34 | 32 | 30 | 28 |
| MURPHY, BERNARD H | 25 | 0.0204 | 25 | 23 | 22 | 21 | 20 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA<br>PRODUCER | BASE ANNUAL [1] PRODUCTION (ACRE-FEET) | BASE ANNUAL [2] PRODUCTION RIGHT (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
|---|---|---|---|---|---|---|---|
| MURPHY, BERNARD TRUST | 162 | 0.1324 | 162 | 153 | 145 | 137 | 129 |
| MURPHY, KENNETH | 42 | 0.0343 | 42 | 39 | 37 | 35 | 33 |
| MUTUAL FUNDING CORP | 101 | 0.0825 | 101 | 95 | 90 | 85 | 80 |
| NAVAJO MUTUAL WATER CO | 88 | 0.0719 | 88 | 83 | 79 | 74 | 70 |
| NUNN, DONALD & PEARL | 66 | 0.0539 | 66 | 62 | 59 | 56 | 52 |
| O'BRYANT, ROBERT C & BARBARA | 107 | 0.0874 | 107 | 101 | 96 | 90 | 85 |
| ORMSBY, HARRY G | 386 | 0.3154 | 386 | 366 | 347 | 328 | 308 |
| PALISADES RANCH | 824 | 0.6734 | 824 | 782 | 741 | 700 | 659 |
| PARKER, DAVID E | 37 | 0.0302 | 37 | 35 | 33 | 31 | 29 |
| PEARL, ALICE | 147 | 0.1201 | 147 | 139 | 132 | 124 | 117 |
| PEARSON, DERYL B | 22 | 0.0180 | 22 | 20 | 19 | 18 | 17 |
| PERRY, THOMAS A | 35 | 0.0286 | 35 | 33 | 31 | 29 | 28 |
| PETTIS TRUST | 126 | 0.1030 | 126 | 119 | 113 | 107 | 100 |
| PHENIX PROPERTIES LTD | 652 | 0.5328 | 652 | 619 | 586 | 554 | 521 |
| PITTMAN, LEROY W | 148 | 0.1209 | 148 | 140 | 133 | 125 | 118 |
| POLICH, LEE & DONNA | 65 | 0.0531 | 65 | 61 | 58 | 55 | 52 |
| RANCHERITOS MUTUAL WATER CO | 169 | 0.1381 | 169 | 160 | 152 | 143 | 135 |
| RIVERSIDE CEMENT CO - ORO GRANDE PLANT | 3,452 | 2.8211 | 3,452 | 3,279 | 3,106 | 2,934 | 2,761 |
| ROGERS, ROY (ORO GRANDE RANCH) | 115 | 0.0940 | 115 | 109 | 103 | 97 | 92 |
| RUDMAN, ROBERT T | 300 | 0.2452 | 300 | 285 | 270 | 255 | 240 |
| RUE RANCH | 30 | 0.0245 | 30 | 28 | 27 | 25 | 24 |
| SAN BERNARDINO CO SERVICE AREA 42 | 465 | 0.3800 | 465 | 441 | 418 | 395 | 372 |
| SAN BERNARDINO CO SERVICE AREA 64 | 3,822 | 3.1234 | 3,822 | 3,630 | 3,439 | 3,248 | 3,057 |
| SAN BERNARDINO CO SERVICE AREA 70C | 2,346 | 1.9172 | 2,346 | 2,228 | 2,111 | 1,994 | 1,876 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA<br>PRODUCER | BASE ANNUAL PRODUCTION [1]<br>(ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2]<br>(PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET)<br>FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| SAN BERNARDINO CO SERVICE AREA 70J | 1,005 | 0.8213 | 1,005 | 954 | 904 | 854 | 804 |
| SAN BERNARDINO CO SERVICE AREA 70L | 355 | 0.2901 | 355 | 337 | 319 | 301 | 284 |
| SAN FILIPPO, JOSEPH & SHELLEY | 35 | 0.0286 | 35 | 33 | 31 | 29 | 28 |
| SILVER LAKES ASSOCIATION | 3,987 | 3.2583 | 3,987 | 3,787 | 3,588 | 3,388 | 3,189 |
| SOUTHDOWN, INC | 1,519 | 1.2414 | 1,519 | 1,443 | 1,367 | 1,291 | 1,215 |
| SOUTHERN CALIFORNIA WATER COMPANY | 940 | 0.7682 | 940 | 893 | 846 | 799 | 752 |
| SPRING VALLEY LAKE ASSOCIATION | 3,056 | 2.4974 | 3,056 | 2,903 | 2,750 | 2,597 | 2,444 |
| SPRING VALLEY LAKE COUNTRY CLUB | 977 | 0.7984 | 977 | 928 | 879 | 830 | 781 |
| STORM, RANDALL | 62 | 0.0507 | 62 | 58 | 55 | 52 | 49 |
| SUDMEIER, GLENN W | 121 | 0.0989 | 121 | 114 | 108 | 102 | 96 |
| SUMMIT VALLEY RANCH | 452 | 0.3694 | 452 | 429 | 406 | 384 | 361 |
| TATRO, RICHARD K & SANDRA A | 280 | 0.2288 | 280 | 266 | 252 | 238 | 224 |
| TATUM, JAMES B | 829 | 0.6775 | 829 | 787 | 746 | 704 | 663 |
| TAYLOR, ALLEN C / HAYMAKER RANCH | 456 | 0.3727 | 456 | 433 | 410 | 387 | 364 |
| THOMAS, S DALE | 440 | 0.3596 | 440 | 418 | 396 | 374 | 352 |
| THOMAS, WALTER | 36 | 0.0294 | 36 | 34 | 32 | 30 | 28 |
| THOMPSON, JAMES A | 418 | 0.3416 | 418 | 397 | 376 | 355 | 334 |
| THOMPSON, RODGER | 76 | 0.0621 | 76 | 72 | 68 | 64 | 60 |
| THRASHER, GARY | 373 | 0.3048 | 373 | 354 | 335 | 317 | 298 |
| THUNDERBIRD COUNTY WATER DISTRICT | 118 | 0.0964 | 118 | 112 | 106 | 100 | 94 |
| TURNER, ROBERT | 70 | 0.0572 | 70 | 66 | 63 | 59 | 56 |
| VAIL, JOSEPH B & PAULA E | 126 | 0.1030 | 126 | 119 | 113 | 107 | 100 |
| VAN BURGER, CARL | 710 | 0.5802 | 710 | 674 | 639 | 603 | 568 |
| VAN LEEUWEN FAMILY TRUST | 341 | 0.2787 | 341 | 323 | 306 | 289 | 272 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA | BASE ANNUAL [1] PRODUCTION | BASE ANNUAL [2] PRODUCTION RIGHT | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| PRODUCER | (ACRE-FEET) | (PERCENT) | FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
| VANNI, MIKE | 54 | 0.0441 | 54 | 51 | 48 | 45 | 43 |
| VICTOR VALLEY COMMUNITY COLLEGE DIST | 240 | 0.1961 | 240 | 228 | 216 | 204 | 192 |
| VICTOR VALLEY WATER DISTRICT | 13,354 | 10.9133 | 13,354 | 12,686 | 12,018 | 11,350 | 10,683 |
| VICTORVILLE, CITY OF | 12 | 0.0098 | 12 | 11 | 10 | 10 | 9 |
| VOGLER, ALBERT H | 132 | 0.1079 | 132 | 125 | 118 | 112 | 105 |
| WACKEEN, CAESAR | 1,635 | 1.3362 | 1,635 | 1,553 | 1,471 | 1,389 | 1,308 |
| WAKULA, JOHN | 291 | 0.2378 | 291 | 276 | 261 | 247 | 232 |
| WARD, KEN & BARBARA | 65 | 0.0531 | 65 | 61 | 58 | 55 | 52 |
| WEBER, DAVE | 80 | 0.0654 | 80 | 76 | 72 | 68 | 64 |
| WEST, CAROLYN & SMITH, RICHARD | 24 | 0.0196 | 24 | 22 | 21 | 20 | 19 |
| WEST, HOWARD & SUZY | 72 | 0.0588 | 72 | 68 | 64 | 61 | 57 |
| WHITTINGHAM, RICHARD V | 15 | 0.0123 | 15 | 14 | 13 | 12 | 12 |
| YEAGER, E L - CONSTRUCTION COMPANY INC | 34 | 0.0278 | 34 | 32 | 30 | 28 | 27 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN ALTO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| ALTO SUBAREA / PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| MINIMAL PRODUCER POOL | 4,000 | 3.2689 | 4,000 | 3,800 | 3,600 | 3,400 | 3,200 |
| UNIDENTIFIED/UNVERIFIED PRODUCER POOL | 4,967 | 4.0592 | | | | | |
| ALTO SUBAREA TOTALS = | 122,365 | 100 | | | | | |

1 Base Annual Production is the reported maximum year production for each producer for the five year period 1986-1990. These values reflect the maximum production determined by one or more of the following: Southern California Edison records, site inspection, land use estimates from 1987 and 1989 aerial photography and responses to special interrogatories. All values are subject to change if additional information is made available, or if any value reported herein is found to be in error.

2 Base Annual Production Right expressed as a percentage of the Total Base Annual Production.

3 Values based on production ramp down of five percent (5%) per year. Free Production Allowance for the fifth year is equal to eighty percent (80%) of the Base Annual Production.

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN CENTRO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| CENTRO SUBAREA / PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| AGCON, INC | 0 | 0.0000 | 0 | 0 | 0 | 0 | 0 |
| AGUAYO, JEANETTE L | 212 | 0.3742 | 212 | 201 | 190 | 180 | 169 |
| ATCHISON, TOPEKA, SANTA FE RAILWAY CO | 120 | 0.2118 | 120 | 114 | 108 | 102 | 96 |
| AVDEEF, THOMAS | 34 | 0.0600 | 34 | 32 | 30 | 28 | 27 |
| AZTEC FARM DEVELOPMENT COMPANY | 220 | 0.3883 | 220 | 209 | 198 | 187 | 176 |
| BARNES, FAY - EXECUTOR OF ESTATE OF WAYNE BARNES | 243 | 0.4289 | 243 | 230 | 218 | 206 | 194 |
| BROMMER, MARVIN | 361 | 0.6372 | 361 | 342 | 324 | 306 | 288 |
| BURNS, RITA J & PAMELA E | 16 | 0.0282 | 16 | 15 | 14 | 13 | 12 |
| CHAFA, LARRY R | 96 | 0.1694 | 96 | 91 | 86 | 81 | 76 |
| CHOI, YONG IL & JOUNG AE | 38 | 0.0671 | 38 | 36 | 34 | 32 | 30 |
| CHRISTISON, JOEL | 75 | 0.1324 | 75 | 71 | 67 | 63 | 60 |
| COOK, KWON W | 169 | 0.2983 | 169 | 160 | 152 | 143 | 135 |
| DE VRIES, NEIL | 3,800 | 6.7070 | 3,800 | 3,610 | 3,420 | 3,230 | 3,040 |
| DESERT COMMUNITY BANK | 156 | 0.2753 | 156 | 148 | 140 | 132 | 124 |
| DURAN, FRANK T | 50 | 0.0883 | 50 | 47 | 45 | 42 | 40 |
| GAINES, JACK | 117 | 0.2065 | 117 | 111 | 105 | 99 | 93 |
| GESIRIECH, WAYNE | 121 | 0.2136 | 121 | 114 | 108 | 102 | 96 |
| GORMAN, VIRGIL | 138 | 0.2436 | 138 | 131 | 124 | 117 | 110 |
| GRIEDER, RAYMOND H & DORISANNE | 30 | 0.0530 | 30 | 28 | 27 | 25 | 24 |
| GRILL, NICHOLAS P & MILLIE D | 21 | 0.0371 | 21 | 19 | 18 | 17 | 16 |
| GROEN, CORNELIS | 1,043 | 1.8409 | 1,043 | 990 | 938 | 886 | 834 |
| HANIFY, DBA - WHITE BEAR RANCH | 152 | 0.2683 | 152 | 144 | 136 | 129 | 121 |
| HARMSEN, JAMES & RUTH ANN | 1,522 | 2.6863 | 1,522 | 1,445 | 1,369 | 1,293 | 1,217 |
| HARPER LAKE COMPANY | 1,433 | 2.5293 | 1,433 | 1,361 | 1,289 | 1,218 | 1,146 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN CENTRO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| CENTRO SUBAREA / PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT (PERCENT) [2] | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| HI DESERT MUTUAL WATER CO | 34 | 0.0600 | 34 | 32 | 30 | 28 | 27 |
| HILEMAN, KATHERINE | 19 | 0.0335 | 19 | 18 | 17 | 16 | 15 |
| HILL, MELVIN | 2,335 | 4.1213 | 2,335 | 2,218 | 2,101 | 1,984 | 1,868 |
| HOY, MIKE | 632 | 1.1155 | 632 | 600 | 568 | 537 | 505 |
| JORDAN, RAYMOND | 460 | 0.8119 | 460 | 437 | 414 | 391 | 368 |
| JUSTICE, CHRIS | 421 | 0.7431 | 421 | 399 | 378 | 357 | 336 |
| KING, GENEVIEVE E | 69 | 0.1218 | 69 | 65 | 62 | 58 | 55 |
| LEE, SEPOONG ETAL & WOO POONG | 77 | 0.1359 | 77 | 73 | 69 | 65 | 61 |
| LEYERLY, GENEVA | 65 | 0.1147 | 65 | 61 | 58 | 55 | 52 |
| LEYERLY, RICHARD | 862 | 1.5214 | 862 | 818 | 775 | 732 | 689 |
| LUDINGTON, JAMES E & JO ANN | 58 | 0.1024 | 58 | 55 | 52 | 49 | 46 |
| LYON, LOUIS & ERIKA | 130 | 0.2295 | 130 | 123 | 117 | 110 | 104 |
| MARTIN, LENDELL | 14 | 0.0247 | 14 | 13 | 12 | 11 | 11 |
| MCCOLLUM, CHARLES L | 347 | 0.6125 | 347 | 329 | 312 | 294 | 277 |
| MEAD, G C | 90 | 0.1589 | 90 | 85 | 81 | 76 | 72 |
| MEYERS, LONNIE | 27 | 0.0477 | 27 | 25 | 24 | 22 | 21 |
| MITCHELL, CHARLES A | 201 | 0.3548 | 201 | 190 | 180 | 170 | 160 |
| MOFFITT, THOMAS R & EDITH I | 62 | 0.1094 | 62 | 58 | 55 | 52 | 49 |
| MOST, MILTON W | 9,660 | 17.0500 | 9,660 | 9,177 | 8,694 | 8,211 | 7,728 |
| NELSON, MILDRED L | 52 | 0.0918 | 52 | 49 | 46 | 44 | 41 |
| NEWBERRY SPRINGS COMPANY, INC | 2,489 | 4.3931 | 2,489 | 2,364 | 2,240 | 2,115 | 1,991 |
| OHAI, REYNOLDS & DOROTHY | 137 | 0.2418 | 137 | 130 | 123 | 116 | 109 |
| OROPEZA, JOSE M | 190 | 0.3354 | 190 | 180 | 171 | 161 | 152 |
| OSTERKAMP, GEROLD | 260 | 0.4589 | 260 | 247 | 234 | 221 | 208 |

~~10/10/92~~
~~01/20/93~~
~~03/03/93~~
~~04/18/93~~
~~04/28/93~~
09/26/95

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN CENTRO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| CENTRO SUBAREA / PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| OWL ROCK PRODUCTS COMPANY | 466 | 0.8225 | 466 | 442 | 419 | 396 | 372 |
| PG & E | 1,657 | 2.9246 | 1,657 | 1,574 | 1,491 | 1,408 | 1,325 |
| REDDY, BOMMI V & KARUNA V | 24 | 0.0424 | 24 | 22 | 21 | 20 | 19 |
| ROWLAND, JAMES & HELEN | 22 | 0.0388 | 22 | 20 | 19 | 18 | 17 |
| RUISCH, DALE W | 650 | 1.1473 | 650 | 617 | 585 | 552 | 520 |
| SHIRKEY, ALAN G & MARY E | 35 | 0.0618 | 35 | 33 | 31 | 29 | 28 |
| SMITH, ROBERT A | 43 | 0.0759 | 43 | 40 | 38 | 36 | 34 |
| SOPPELAND, WAYNE | 783 | 1.3820 | 783 | 743 | 704 | 665 | 626 |
| SOUTHERN CALIFORNIA WATER COMPANY | 11,309 | 19.9605 | 11,309 | 10,743 | 10,178 | 9,612 | 9,047 |
| SPINK, WALTHALL | 44 | 0.0777 | 44 | 41 | 39 | 37 | 35 |
| ST CHARLES, DONALD B | 609 | 1.0749 | 609 | 578 | 548 | 517 | 487 |
| SUN 'N SKY COUNTRY CLUB | 337 | 0.5948 | 337 | 320 | 303 | 286 | 269 |
| TALLAKSON, WILLIAM V | 17 | 0.0300 | 17 | 16 | 15 | 14 | 13 |
| TILLEMA, HAROLD | 874 | 1.5426 | 874 | 830 | 786 | 742 | 699 |
| VAN DAM, ELDERT & SUSAN | 722 | 1.2743 | 722 | 685 | 649 | 613 | 577 |
| VAN LEEUWEN, JOHN | 1,922 | 3.3923 | 1,922 | 1,825 | 1,729 | 1,633 | 1,537 |
| VAN VLIET, HENDRIKA | 820 | 1.4473 | 820 | 779 | 738 | 697 | 656 |
| VANHOY, LUTHER C | 23 | 0.0406 | 23 | 21 | 20 | 19 | 18 |
| VERNOLA, PAT | 3,116 | 5.4998 | 3,116 | 2,960 | 2,804 | 2,648 | 2,492 |
| VISSER, ANNIE | 91 | 0.1606 | 91 | 86 | 81 | 77 | 72 |
| YANG, YOUNG MO | 371 | 0.6548 | 371 | 352 | 333 | 315 | 296 |
| YKEMA HARMSEN DAIRY | 1,000 | 1.7650 | 1,000 | 950 | 900 | 850 | 800 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN CENTRO SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| CENTRO SUBAREA / PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| MINIMAL PRODUCER POOL | 2,000 | 3.5300 | 2,000 | 1,900 | 1,800 | 1,700 | 1,600 |
| UNIDENTIFIED/UNVERIFIED PRODUCER POOL | 864 | 1.5250 | | | | | |
| CENTRO SUBAREA TOTALS = | 56,657 | 100 | | | | | |

1 Base Annual Production is the reported maximum year production for each producer for the five year period 1986-1990. These values reflect the maximum production determined by one or more of the following: Southern California Edison records, site inspection, land use estimates from 1987 and 1989 aerial photography and responses to special interrogatories. All values are subject to change if additional information is made available, or if any value reported herein is found to be in error.

2 Base Annual Production Right expressed as a percentage of the Total Base Annual Production.

3 Values based on production ramp down of five percent (5%) per year. Free Production Allowance for the fifth year is equal to eighty percent (80%) of the Base Annual Production.

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA<br>PRODUCER | BASE ANNUAL [1] PRODUCTION (ACRE-FEET) | BASE ANNUAL [2] PRODUCTION RIGHT (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| | | | FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
| AKE, CHARLES J & MARJORIE M | 23 | 0.0333 | 23 | 21 | 20 | 19 | 18 |
| ANGERER, ROBERT J & PEGGY | 24 | 0.0347 | 24 | 22 | 21 | 20 | 19 |
| ANTELOPE VALLEY DAIRY | 5,430 | 7.8597 | 5,430 | 5,158 | 4,887 | 4,615 | 4,344 |
| ARGUELLES, ALFREDO | 1,047 | 1.5155 | 1,047 | 994 | 942 | 889 | 837 |
| ATCHISON, TOPEKA, SANTA FE RAILWAY CO | 80 | 0.1158 | 80 | 76 | 72 | 68 | 64 |
| BAGLEY, ROY | 20 | 0.0289 | 20 | 19 | 18 | 17 | 16 |
| BALDERRAMA, ALFRED & LINDA | 250 | 0.3619 | 250 | 237 | 225 | 212 | 200 |
| BALL, DAVID P | 81 | 0.1172 | 81 | 76 | 72 | 68 | 64 |
| BARAK, RICHARD | 132 | 0.1911 | 132 | 125 | 118 | 112 | 105 |
| BARBER, JAMES B | 167 | 0.2417 | 167 | 158 | 150 | 141 | 133 |
| BARSTOW CALICO K O A | 24 | 0.0347 | 24 | 22 | 21 | 20 | 19 |
| BAUR, KARL & RITA | 26 | 0.0376 | 26 | 24 | 23 | 22 | 20 |
| BEDINGFIELD, LYNDELL & CHARLENE | 56 | 0.0811 | 56 | 53 | 50 | 47 | 44 |
| BENTON, PHILIP G | 35 | 0.0507 | 35 | 33 | 31 | 29 | 28 |
| BORGOGNO, STEVEN & LILLIAN B | 1,844 | 2.6691 | 1,844 | 1,751 | 1,659 | 1,567 | 1,475 |
| BOWMAN, EDWIN L | 31 | 0.0449 | 31 | 29 | 27 | 26 | 24 |
| BROWN, RONALD A | 1,080 | 1.5632 | 1,080 | 1,026 | 972 | 918 | 864 |
| BROWY, ORVILLE & LOUISE | 33 | 0.0478 | 33 | 31 | 29 | 28 | 26 |
| BRUINS, NICHOLAS | 29 | 0.0420 | 29 | 27 | 26 | 24 | 23 |
| CALICO LAKES HOMEOWNERS ASSOCIATION | 1,031 | 1.4923 | 1,031 | 979 | 927 | 876 | 824 |
| CALIF DEPT OF TRANSPORTATION | 71 | 0.1028 | 71 | 67 | 63 | 60 | 56 |
| CAMPBELL, M A & DIANNE | 22 | 0.0318 | 22 | 20 | 19 | 18 | 17 |
| CARTER, JOHN THOMAS | 746 | 1.0798 | 746 | 708 | 671 | 634 | 596 |
| CDFG - CAMP CADY | 14 | 0.0203 | 14 | 13 | 12 | 11 | 11 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA | BASE ANNUAL [1] PRODUCTION | BASE ANNUAL [2] PRODUCTION RIGHT | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| PRODUCER | (ACRE-FEET) | (PERCENT) | FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
| CHANG, TIMOTHY & JANE | 18 | 0.0261 | 18 | 17 | 16 | 15 | 14 |
| CHASTAIN, W C | 100 | 0.1447 | 100 | 95 | 90 | 85 | 80 |
| CHEYENNE LAKE, INC | 122 | 0.1766 | 122 | 115 | 109 | 103 | 97 |
| CHIAO MEI DEVELOPMENT | 451 | 0.6528 | 451 | 428 | 405 | 383 | 360 |
| CHO BROTHERS RANCH | 758 | 1.0972 | 758 | 720 | 682 | 644 | 606 |
| CHUANG, MARSHAL | 70 | 0.1013 | 70 | 66 | 63 | 59 | 56 |
| CONNER, WILLIAM H | 25 | 0.0362 | 25 | 23 | 22 | 21 | 20 |
| COOL WATER RANCH | 76 | 0.1100 | 76 | 72 | 68 | 64 | 60 |
| CRYSTAL LAKES PROPERTY OWNERS ASSOCIATION | 447 | 0.6470 | 447 | 424 | 402 | 379 | 357 |
| DAGGETT COMMUNITY SERVICES DISTRICT | 235 | 0.3402 | 235 | 223 | 211 | 199 | 188 |
| DALJO CORPORATION | 31 | 0.0449 | 31 | 29 | 27 | 26 | 24 |
| DAVIS, RONALD & DONNA | 53 | 0.0767 | 53 | 50 | 47 | 45 | 42 |
| DE JONG, ALAN L | 1,648 | 2.3854 | 1,648 | 1,565 | 1,483 | 1,400 | 1,318 |
| DENNISON, QUENTIN D | 29 | 0.0420 | 29 | 27 | 26 | 24 | 23 |
| DESERT LAKES CORPORATION - (LAKE DOLORES) | 483 | 0.6991 | 483 | 458 | 434 | 410 | 386 |
| DOCIMO, DONALD P & PATRICIA J | 23 | 0.0333 | 23 | 21 | 20 | 19 | 18 |
| DONALDSON, JERRY & BEVERLY | 90 | 0.1303 | 90 | 85 | 81 | 76 | 72 |
| ELLISON, SUSAN | 15 | 0.0217 | 15 | 14 | 13 | 12 | 12 |
| EVKHANIAN, JAMES H | 110 | 0.1592 | 110 | 104 | 99 | 93 | 88 |
| FAWCETT, EDWARD C | 20 | 0.0289 | 20 | 19 | 18 | 17 | 16 |
| FELIX, ALAN E & CAROL L | 36 | 0.0521 | 36 | 34 | 32 | 30 | 28 |
| FERRO, DENNIS & NORMA | 32 | 0.0463 | 32 | 30 | 28 | 27 | 25 |
| FRIEND, JOSEPH & DEBORAH | 60 | 0.0868 | 60 | 57 | 54 | 51 | 48 |
| FUNDAMENTAL CHRISTIAN ENDEAVOR | 285 | 0.4125 | 285 | 270 | 256 | 242 | 228 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA<br>PRODUCER | BASE ANNUAL PRODUCTION [1]<br>(ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2]<br>(PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET)<br>FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| GARCIA, DANIEL | 23 | 0.0333 | 23 | 21 | 20 | 19 | 18 |
| GOLD, HAROLD | 249 | 0.3604 | 249 | 236 | 224 | 211 | 199 |
| GRAVES, CHESTER B | 32 | 0.0463 | 32 | 30 | 28 | 27 | 25 |
| HAIGH, WHILLDYN & MARGARET | 32 | 0.0463 | 32 | 30 | 28 | 27 | 25 |
| HALL, LARRY | 23 | 0.0333 | 23 | 21 | 20 | 19 | 18 |
| HARALIK, BESS & ROBERT | 27 | 0.0391 | 27 | 25 | 24 | 22 | 21 |
| HARDESTY, LESLIE E & BECKY J | 47 | 0.0680 | 47 | 44 | 42 | 39 | 37 |
| HARESON, NICHOLAS & MARY | 30 | 0.0434 | 30 | 28 | 27 | 25 | 24 |
| HARTER FARMS | 1,083 | 1.5676 | 1,083 | 1,028 | 974 | 920 | 866 |
| HARTER, JOE & SUE | 738 | 1.0682 | 738 | 701 | 664 | 627 | 590 |
| HARTLEY, LONNIE | 19 | 0.0275 | 19 | 18 | 17 | 16 | 15 |
| HARVEY, FRANK | 38 | 0.0550 | 38 | 36 | 34 | 32 | 30 |
| HENDLEY, RICK & BARBARA | 48 | 0.0695 | 48 | 45 | 43 | 40 | 38 |
| HIETT, PATRICIA J | 16 | 0.0232 | 16 | 15 | 14 | 13 | 12 |
| HILARIDES, FRANK | 1,210 | 1.7514 | 1,210 | 1,149 | 1,089 | 1,028 | 968 |
| HOLLISTER, ROBERT H & RUTH M | 44 | 0.0637 | 44 | 41 | 39 | 37 | 35 |
| HONG, PAUL B & MAY | 95 | 0.1375 | 95 | 90 | 85 | 80 | 76 |
| HORTON'S CHILDREN'S TRUST | 106 | 0.1534 | 106 | 100 | 95 | 90 | 84 |
| HORTON, JOHN MD | 183 | 0.2649 | 183 | 173 | 164 | 155 | 146 |
| HOSKING, JOHN W & JEAN | 94 | 0.1361 | 94 | 89 | 84 | 79 | 75 |
| HUBBARD, ESTER & MIZUNO, ARLEAN | 28 | 0.0405 | 28 | 26 | 25 | 23 | 22 |
| HUNT, RALPH M & LILLIAN F | 31 | 0.0449 | 31 | 29 | 27 | 26 | 24 |
| HUTCHISON, WILLIAM O | 901 | 1.3042 | 901 | 855 | 810 | 765 | 720 |
| HYATT, JAMES & BRENDA | 210 | 0.3040 | 210 | 199 | 189 | 178 | 168 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA | BASE ANNUAL PRODUCTION [1] | BASE ANNUAL PRODUCTION RIGHT [2] | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| PRODUCER | (ACRE-FEET) | (PERCENT) | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| IRVIN, BERTRAND W | 29 | 0.0420 | 29 | 27 | 26 | 24 | 23 |
| J V A AIR INC | 54 | 0.0782 | 54 | 51 | 48 | 45 | 43 |
| JACKSON, RAY | 20 | 0.0289 | 20 | 19 | 18 | 17 | 16 |
| JOHNSON, JAMES R | 247 | 0.3575 | 247 | 234 | 222 | 209 | 197 |
| JUSTICE, CHRIS | 6 | 0.0087 | 6 | 5 | 5 | 5 | 4 |
| KAPLAN, ABRAHAM M | 76 | 0.1100 | 76 | 72 | 68 | 64 | 60 |
| KASNER, ROBERT | 1,001 | 1.4489 | 1,001 | 950 | 900 | 850 | 800 |
| KATCHER, AUGUST M & MARCELINE | 23 | 0.0333 | 23 | 21 | 20 | 19 | 18 |
| KEMP, ROBERT & ROSE | 32 | 0.0463 | 32 | 30 | 28 | 27 | 25 |
| KIEL, MARY | 34 | 0.0492 | 34 | 32 | 30 | 28 | 27 |
| KIM, JOON HO | 764 | 1.1059 | 764 | 725 | 687 | 649 | 611 |
| KOSHAREK, JOHN & JOANNE | 54 | 0.0782 | 54 | 51 | 48 | 45 | 43 |
| LAKE JODIE PROPERTY OWNERS ASSOCIATION | 254 | 0.3677 | 254 | 241 | 228 | 215 | 203 |
| LAKE WAIKIKI | 98 | 0.1419 | 98 | 93 | 88 | 83 | 78 |
| LAKE WAINANI OWNERS ASSOCIATION | 202 | 0.2924 | 202 | 191 | 181 | 171 | 161 |
| LANGLEY, MICHAEL R | 20 | 0.0289 | 20 | 19 | 18 | 17 | 16 |
| LAWRENCE, WILLIAM W | 45 | 0.0651 | 45 | 42 | 40 | 38 | 36 |
| LEE, MOON & OKBEA | 49 | 0.0709 | 49 | 46 | 44 | 41 | 39 |
| LEE, VIN JANG T | 630 | 0.9119 | 630 | 598 | 567 | 535 | 504 |
| LESHIN, CONNIE & SOL | 1,416 | 2.0496 | 1,416 | 1,345 | 1,274 | 1,203 | 1,132 |
| LESHIN, SOL | 1,997 | 2.8906 | 1,997 | 1,897 | 1,797 | 1,697 | 1,597 |
| LEVINE, DR LESLIE | 1,637 | 2.3695 | 1,637 | 1,555 | 1,473 | 1,391 | 1,309 |
| LONG, BALLARD | 35 | 0.0507 | 35 | 33 | 31 | 29 | 28 |
| M BIRD CONSTRUCTION | 41 | 0.0593 | 41 | 38 | 36 | 34 | 32 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA PRODUCER | BASE ANNUAL PRODUCTION [1] (ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2] (PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET) FIRST YEAR | SECOND [3] YEAR | THIRD [3] YEAR | FOURTH [3] YEAR | FIFTH [3] YEAR |
|---|---|---|---|---|---|---|---|
| MAHJOUBI, AFSAR S | 63 | 0.0912 | 63 | 59 | 56 | 53 | 50 |
| MALIN, LILY | 54 | 0.0782 | 54 | 51 | 48 | 45 | 43 |
| MALONEY, JANICE | 36 | 0.0521 | 36 | 34 | 32 | 30 | 28 |
| MARCROFT, JAMES A & JOAN | 38 | 0.0550 | 38 | 36 | 34 | 32 | 30 |
| MARSHALL, CHARLES | 20 | 0.0289 | 20 | 19 | 18 | 17 | 16 |
| MAYBERRY, DONALD J | 41 | 0.0593 | 41 | 38 | 36 | 34 | 32 |
| MILBRAT, IRVING | 73 | 0.1057 | 73 | 69 | 65 | 62 | 58 |
| MITCHELL, CHARLOTTE | 115 | 0.1665 | 115 | 109 | 103 | 97 | 92 |
| MITCHELL, JAMES L & CHERYL A | 155 | 0.2244 | 155 | 147 | 139 | 131 | 124 |
| MOORE, WAYNE G & JULIA H | 103 | 0.1491 | 103 | 97 | 92 | 87 | 82 |
| MORRIS, KARL | 304 | 0.4400 | 304 | 288 | 273 | 258 | 243 |
| MULLIGAN, ROBERT & INEZ | 35 | 0.0507 | 35 | 33 | 31 | 29 | 28 |
| NEWBERRY COMMUNITY SERVICE DIST | 23 | 0.0333 | 23 | 21 | 20 | 19 | 18 |
| NU VIEW DEVELOPMENT, INC | 2,899 | 4.1962 | 2,899 | 2,754 | 2,609 | 2,464 | 2,319 |
| O P D L INC | 109 | 0.1578 | 109 | 103 | 98 | 92 | 87 |
| O'KEEFE, SARAH-LEE & JOKE H | 50 | 0.0724 | 50 | 47 | 45 | 42 | 40 |
| P & H ENGINEERING & DEV CORP | 667 | 0.9654 | 667 | 633 | 600 | 566 | 533 |
| PARKER, GEORGE R | 144 | 0.2084 | 144 | 136 | 129 | 122 | 115 |
| PATHFINDER INVESTORS | 472 | 0.6832 | 472 | 448 | 424 | 401 | 377 |
| PAYAN, PAUL | 32 | 0.0463 | 32 | 30 | 28 | 27 | 25 |
| PERKO, BERT K | 132 | 0.1911 | 132 | 125 | 118 | 112 | 105 |
| PITTS, JOE | 30 | 0.0434 | 30 | 28 | 27 | 25 | 24 |
| POHL, ANDREAS & CATHLYN | 17 | 0.0246 | 17 | 16 | 15 | 14 | 13 |
| POLAND, JOHN R & SANDRA M | 92 | 0.1332 | 92 | 87 | 82 | 78 | 73 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA<br>PRODUCER | BASE ANNUAL PRODUCTION [1]<br>(ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2]<br>(PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET)<br>FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| PRICE, ALAN E | 37 | 0.0536 | 37 | 35 | 33 | 31 | 29 |
| PRICE, DONALD | 42 | 0.0608 | 42 | 39 | 37 | 35 | 33 |
| PUCKHABER, WILLIAM F TRUST | 63 | 0.0912 | 63 | 59 | 56 | 53 | 50 |
| PURCIO, THOMAS F & PATRICIA A | 80 | 0.1158 | 80 | 76 | 72 | 68 | 64 |
| RANDOLPH, JOAN E | 24 | 0.0347 | 24 | 22 | 21 | 20 | 19 |
| REEVES, RICHARD | 230 | 0.3329 | 230 | 218 | 207 | 195 | 184 |
| RICE, DANIEL & MARY | 121 | 0.1751 | 121 | 114 | 108 | 102 | 96 |
| RICE, HENRY C & DIANA | 24 | 0.0347 | 24 | 22 | 21 | 20 | 19 |
| RIEGER, WALTER M | 62 | 0.0897 | 62 | 58 | 55 | 52 | 49 |
| RIKUO CORPORATION | 1,517 | 2.1958 | 1,517 | 1,441 | 1,365 | 1,289 | 1,213 |
| ROSSI, JAMES L & NAOMI I | 614 | 0.8887 | 614 | 583 | 552 | 521 | 491 |
| ROTEX CONSTRUCTION COMPANY | 2,529 | 3.6606 | 2,529 | 2,402 | 2,276 | 2,149 | 2,023 |
| SAN BERNARDINO COUNTY BARSTOW - DAGGETT AIRPORT | 168 | 0.2432 | 168 | 159 | 151 | 142 | 134 |
| SANTUCCI, ANTONIO & WILSA | 30 | 0.0434 | 30 | 28 | 27 | 25 | 24 |
| SCOGGINS, JERRY | 105 | 0.1520 | 105 | 99 | 94 | 89 | 84 |
| SHEPPARD, THOMAS & GLORIA | 217 | 0.3141 | 217 | 206 | 195 | 184 | 173 |
| SHORT, CHARLES & MARGARET | 54 | 0.0782 | 54 | 51 | 48 | 45 | 43 |
| SHORT, JEFF | 30 | 0.0434 | 30 | 28 | 27 | 25 | 24 |
| SILVER VALLEY RANCH, INC | 109 | 0.1578 | 109 | 103 | 98 | 92 | 87 |
| SMITH, WILLIAM E | 19 | 0.0275 | 19 | 18 | 17 | 16 | 15 |
| SNYDER, KRYL K & ROUTH, RICHARD J | 64 | 0.0926 | 64 | 60 | 57 | 54 | 51 |
| SOUTHERN CALIFORNIA EDISON CO - AGRICULTURE | 5,858 | 8.4792 | 5,858 | 5,565 | 5,272 | 4,979 | 4,686 |
| SOUTHERN CALIFORNIA EDISON CO - INDUSTRIAL | 4,565 | 6.6076 | 4,565 | 4,336 | 4,108 | 3,880 | 3,652 |
| SOUTHERN CALIFORNIA GAS COMPANY | 98 | 0.1419 | 98 | 93 | 88 | 83 | 78 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA | BASE ANNUAL PRODUCTION [1] | BASE ANNUAL PRODUCTION RIGHT [2] | FREE PRODUCTION ALLOWANCES (ACRE-FEET) | | | | |
|---|---|---|---|---|---|---|---|
| PRODUCER | (ACRE-FEET) | (PERCENT) | FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
| ST ANTONY COPTIC ORTHODOX MONASTERY | 130 | 0.1882 | 130 | 123 | 117 | 110 | 104 |
| STEWART, STANLEY & PATRICIA | 27 | 0.0391 | 27 | 25 | 24 | 22 | 21 |
| SUGA, TAKEAKI | 154 | 0.2229 | 154 | 146 | 138 | 130 | 123 |
| SUNDOWN LAKES, INC | 168 | 0.2432 | 168 | 159 | 151 | 142 | 134 |
| SWARTZ, ROBERT & IRENE | 50 | 0.0724 | 50 | 47 | 45 | 42 | 40 |
| TAPIE, RAYMOND & MURIEL | 18 | 0.0261 | 18 | 17 | 16 | 15 | 14 |
| TAYLOR, TOM | 503 | 0.7281 | 503 | 477 | 452 | 427 | 402 |
| THAYER, SHARON | 58 | 0.0840 | 58 | 55 | 52 | 49 | 46 |
| THE 160 NEWBERRY RANCH CALIFORNIA, LTD | 1,033 | 1.4952 | 1,033 | 981 | 929 | 878 | 826 |
| TRIPLE H PARTNERSHIP | 993 | 1.4373 | 993 | 943 | 893 | 844 | 794 |
| UNION PACIFIC RAILROAD COMPANY | 249 | 0.3604 | 249 | 236 | 224 | 211 | 199 |
| VAN BASTELAAR, ALPHONSE | 78 | 0.1129 | 78 | 74 | 70 | 66 | 62 |
| VAN DIEST, CORNELIUS | 934 | 1.3519 | 934 | 887 | 840 | 793 | 747 |
| VAN LEEUWEN, JOHN | 1,084 | 1.5690 | 1,084 | 1,029 | 975 | 921 | 867 |
| VANDER DUSSEN, AGNES | 1,792 | 2.5938 | 1,792 | 1,702 | 1,612 | 1,523 | 1,433 |
| VAUGHT, ROBERT E & KAREN M | 43 | 0.0622 | 43 | 40 | 38 | 36 | 34 |
| VERNOLA, PAT | 1,310 | 1.8962 | 1,310 | 1,244 | 1,179 | 1,113 | 1,048 |
| WARD, ERNEST & LAURA | 38 | 0.0550 | 38 | 36 | 34 | 32 | 30 |
| WARD, RONNY H | 130 | 0.1882 | 130 | 123 | 117 | 110 | 104 |
| WEBER, F R & JUNELL | 96 | 0.1390 | 96 | 91 | 86 | 81 | 76 |
| WEBSTER, THOMAS M & PATRICIA J | 24 | 0.0347 | 24 | 22 | 21 | 20 | 19 |
| WEIDKNECHT, ARTHUR J & PEGGY A | 79 | 0.1143 | 79 | 75 | 71 | 67 | 63 |
| WESTERN HORIZON ASSOCIATES INC | 1,188 | 1.7196 | 1,188 | 1,128 | 1,069 | 1,009 | 950 |
| WESTERN ROCK PRODUCTS | 31 | 0.0449 | 31 | 29 | 27 | 26 | 24 |

EXHIBIT B

TABLE B-1

TABLE SHOWING BASE ANNUAL PRODUCTION AND
BASE ANNUAL PRODUCTION RIGHT OF EACH PRODUCER WITHIN BAJA SUBAREA
TOGETHER WITH FREE PRODUCTION ALLOWANCES
FOR FIRST FIVE YEARS OF THE JUDGMENT

| BAJA SUBAREA<br>PRODUCER | BASE ANNUAL PRODUCTION [1]<br>(ACRE-FEET) | BASE ANNUAL PRODUCTION RIGHT [2]<br>(PERCENT) | FREE PRODUCTION ALLOWANCES (ACRE-FEET)<br>FIRST YEAR | SECOND YEAR [3] | THIRD YEAR [3] | FOURTH YEAR [3] | FIFTH YEAR [3] |
|---|---|---|---|---|---|---|---|
| WET SET, INC | 129 | 0.1867 | 129 | 122 | 116 | 109 | 103 |
| WITTE, E DANIEL | 27 | 0.0391 | 27 | 25 | 24 | 22 | 21 |
| WLSR INC | 133 | 0.1925 | 133 | 126 | 119 | 113 | 106 |
| WORSBY, REVAE | 29 | 0.0420 | 29 | 27 | 26 | 24 | 23 |
| YARD, BETTY | 26 | 0.0376 | 26 | 24 | 23 | 22 | 20 |
| YERMO WATER COMPANY | 453 | 0.6557 | 453 | 430 | 407 | 385 | 362 |
| YOUNG, KEITH O - (DESERT TURF) | 312 | 0.4516 | 312 | 296 | 280 | 265 | 249 |
| MINIMAL PRODUCER POOL | 3,500 | 5.0661 | 3,500 | 3,325 | 3,150 | 2,975 | 2,800 |
| UNIDENTIFIED/UNVERIFIED PRODUCER POOL | 320 | 0.4632 | | | | | |
| BAJA SUBAREA TOTALS = | 69,087 | 100 | | | | | |

1 Base Annual Production is the reported maximum year production for each producer for the five year period 1986-1990. These values reflect the maximum production determined by one or more of the following: Southern California Edison records, site inspection, land use estimates from 1987 and 1989 aerial photography and responses to special interrogatories. All values are subject to change if additional information is made available, or if any value reported herein is found to be in error.

2 Base Annual Production Right expressed as a percentage of the Total Base Annual Production.

3 Values based on production ramp down of five percent (5%) per year. Free Production Allowance for the fifth year is equal to eighty percent (80%) of the Base Annual Production.

EXHIBIT B
TABLE B-2
TABLE SHOWING TOTAL WATER PRODUCTION
FOR AQUACULTURE AND RECREATIONAL LAKE PURPOSES
ALTO SUBAREA

| PRODUCER | TOTAL WATER [1] PRODUCTION | BASE ANNUAL [2] PRODUCTION | RECIRCULATED [3] WATER |
|---|---|---|---|
| | (ACRE-FEET) | | |
| CDFG - MOJAVE RIVER FISH HATCHERY | 10,678 | 20 | 10,658 |
| JESS RANCH WATER COMPANY | 18,625 | 7,480 | 11,145 |
| ALTO SUBAREA TOTALS = | 29,303 | 7,500 | 21,803 |

Total Water Production is the reported maximum year production for each producer for the five year period 1986-1990. These values reflect the maximum production determined by one or more of the following: Southern California Edison records; James C. Hanson site inspection; land use estimates from 1989 aerial photography; responses to special interrogatories. All values are subject to change if additional information is made available, or if any value reported herein is found to be in error.

2 Base Annual Production as shown on Table B-1.

3 Amount shown is the difference between the Total Water Production and the Base Annual Production.

EXHIBIT B
TABLE B-2
TABLE SHOWING TOTAL WATER PRODUCTION
FOR AQUACULTURE AND RECREATIONAL LAKE PURPOSES
BAJA SUBAREA

| PRODUCER | TOTAL WATER PRODUCTION [1] | BASE ANNUAL PRODUCTION [2] | RECIRCULATED WATER [3] |
|---|---|---|---|
| | (ACRE-FEET) | | |
| BROWY, ORVILLE & LOUISE | 210 | 33 | 177 |
| CALICO LAKES HOMEOWNERS ASSOCIATION | 2,513 | 1,031 | 1,482 |
| CDFG - CAMP CADY | 102 | 14 | 88 |
| CHEYENNE LAKE, INC | 638 | 122 | 516 |
| CRYSTAL LAKES PROPERTY OWNERS ASSOCIATION | 6,575 | 447 | 6,128 |
| DESERT LAKES CORPORATION - (LAKE DOLORES) | 928 | 483 | 445 |
| FUNDAMENTAL CHRISTIAN ENDEAVOR | 440 | 285 | 155 |
| HORTON'S CHILDREN'S TRUST | 1,291 | 106 | 1,185 |
| HORTON, JOHN MD | 672 | 183 | 489 |
| KIEL, MARY | 188 | 34 | 154 |
| LAKE JODIE PROPERTY OWNERS ASSOCIATION | 2,805 | 254 | 2,551 |
| LAKE WAIKIKI | 400 | 98 | 302 |
| LAKE WAINANI OWNERS ASSOCIATION | 1,420 | 202 | 1,218 |
| LEE, MOON & OKBEA | 171 | 49 | 122 |
| O F D L INC | 434 | 109 | 325 |
| RICE, DANIEL & MARY | 614 | 121 | 493 |
| SCOGGINS, JERRY | 922 | 105 | 817 |
| SILVER VALLEY RANCH, INC | 455 | 109 | 346 |
| SMITH, WILLIAM E | 153 | 19 | 134 |
| SUNDOWN LAKES, INC | 1,109 | 168 | 941 |
| TAPIE, RAYMOND & MURIEL | 108 | 18 | 90 |
| THAYER, SHARON | 159 | 58 | 101 |
| WET SET, INC | 441 | 129 | 312 |
| WLSR INC | 678 | 133 | 545 |

EXHIBIT B
TABLE B-2
TABLE SHOWING TOTAL WATER PRODUCTION
FOR AQUACULTURE AND RECREATIONAL LAKE PURPOSES
BAJA SUBAREA

| PRODUCER | TOTAL WATER PRODUCTION [1] | BASE ANNUAL PRODUCTION [2] | RECIRCULATED WATER [3] |
|---|---|---|---|
| | (ACRE-FEET) | | |
| BAJA SUBAREA TOTALS = | 23,426 | 4,310 | 19,116 |

1 Total Water Production is the reported maximum year production for each producer for the five year period 1986-1990. These values reflect the maximum production determined by one or more of the following: Southern California Edison records; James C. Hanson site inspection; land use estimates from 1989 aerial photography; responses to special interrogatories. All values are subject to change if additional information is made available, or if any value reported herein is found to be in error.

2 Base Annual Production as shown on Table B-1.

3 Amount shown is the difference between the Total Water Production and the Base Annual Production.

# EXHIBIT C

## ENGINEERING APPENDIX

CONTENTS

A. ADJUSTMENT OF FREE PRODUCTION ALLOWANCES

B. DETERMINATION OF SURFACE FLOW COMPONENTS

TABLE C-1: MOJAVE BASIN AREA ADJUDICATION SUBAREA HYDROLOGICAL INVENTORY BASED ON LONG-TERM AVERAGE NATURAL WATER SUPPLY AND OUTFLOW AND CURRENT YEAR IMPORTS AND CONSUMPTIVE USE

EXHIBIT C

ENGINEERING APPENDIX

The purpose of this Engineering Appendix is to establish the basis for measurements, calculations and determinations required in the operation of the Physical Solution.

A. Adjustment of Free Production Allowances. In the preparation of the report required by Paragraph 24 (o) of this Judgment, the Watermaster shall take into account all available pertinent hydrologic data and estimates, including at least the factors, or changes in the factors, shown in the attached Table C-1, "MOJAVE BASIN AREA ADJUDICATION SUBAREA HYDROLOGICAL INVENTORY BASED ON LONG-TERM AVERAGE NATURAL WATER SUPPLY AND OUTFLOW AND CURRENT YEAR IMPORTS AND CONSUMPTIVE USE," and changes in storage as determined by well levels, the factors listed in Paragraph 2(a) of Exhibit "H", and other pertinent data. The numbers for each of the factors for each Subarea shown in Table C-1 are Sample Numbers only, and are not intended to be used in determining actual water supply, Consumptive Use and outflow, or Free Production Allowance of the Subareas.

B. Determination of Surface Flow Components. The procedures used to determine the historical surface flow components of the Mojave River at various locations are summarized below.

1. Determination of Surface Flow Components at Lower Narrows. Since the records available for the discharge of the Mojave River at Lower Narrows only provide data on the total amount of surface flow and since Storm Flow occurs during and following periods of rainfall, it was necessary to determine what portion of

total measured surface flow at Lower Narrows was Storm Flow and what portion was Base Flow.

The Parties in reaching the physical solution provided for in the Judgment, used certain procedures to separate the Storm Flow and Base Flow components of the total measured surface flow at Lower Narrows. Hydrographs of the mean daily discharge at Lower Narrows were plotted for the Year under consideration together with corresponding rainfall data obtained from the National Oceanic and Atmospheric Administration (NOAA) for Lake Arrowhead. Hydrographs were also plotted for the combined flow of West Fork Mojave River and Deep Creek which together with the Lake Arrowhead precipitation data served as a guide for interpreting those periods during which Storm Flow was likely to have occurred at Lower Narrows.

Other factors considered included:

* Occurrences of Storm Flow at Barstow and Afton Canyon,
* Precipitation at Victorville and Barstow,
* Consideration of the time of Year and temperature, &
* Shape of hydrographs for Years having similar Base Flow characteristics.

Based on interpretation of all of the foregoing information, the flows occurring on those days during which Storm Flow most likely occurred were "scalped" by projecting an estimated Base Flow Curve through the Storm Flow Period. The Base Flow component of the total monthly flow was then determined as follows:

a. For those periods during which there was obviously no Storm Flow, the entire recorded mean daily flows were assumed to be Base Flow.

b. For the remaining Storm Flow periods, the Base Flow component was taken as the area under the Base Flow Curve, except that for those days within the Storm Flow period when the actual mean daily discharge is less than the amount indicated by the Base Flow Scalping Curves, then the actual recorded amount is used.

2. Determination of Surface Flow Components at Waterman Fault. The total amount of surface flow passing the Waterman Fault (under current riverbed conditions) is considered to be Storm Flow and can be estimated from the Storm Flow passing the USGS gauging station Mojave River at Barstow. The following table was developed to provide a method for estimating flow at Waterman Fault:

| Storm Flow At Barstow Gage[1] (Acre-Feet) | Estimated Surface Flow at Waterman Fault (Acre-Feet) |
|---|---|
| 2,000 | 0 |
| 10,000 | 6,200 |
| 20,000 | 14,300 |
| 30,000 | 22,600 |
| 40,000 | 31,400 |
| 50,000 | 40,500 |
| 60,000 | 49,200 |
| 70,000 | 58,400 |
| 80,000 | 67,800 |
| 90,000 | 76,800 |
| 100.000 | 85,400 |

[1]From Recorded Flow at USGS Gaging Station Mojave River at Barstow. Relationship is based on single storm events. More than one storm event separated by more than five day of zero flow will be considered as separate storms.

3. Determination of Surface Flow Components at Afton. Records available for the discharge of the Mojave River at Afton, California, provide data on the total mount of surface flow and since storm runoff occurs during and immediately following a major storm event in the watershed area tributary to the Baja Basin below Barstow or in the event of large Storm Flows at Barstow which reach Afton, it was necessary to determine what portion of the total measured surface flow at Afton is Storm Flow and what portion of Base Flow.

The Parties, in reaching the physical solution provided for in the Judgment, used certain procedures to separate the Storm Flow and Base Flow components of the total measured surface flow at Afton. Hydrographs of the mean daily discharge at Afton were plotted for the water Year under consideration. In the absence of Storm Flow, the Base Flow curve at Afton was generally a relatively constant amount. Storm Flows were evidenced by sharp spikes or abrupt departures from the antecedent Base Flow and a fairly rapid return to pre-storm Base Flow Condition. The hydrograph of flows at Barstow served as a guide for identifying those periods during which Storm Flow was likely to have occurred at Afton.

Based on interpretation of all of the foregoing information, the flows occurring on those days during which Storm Flow most likely occurred were "scalped" by projecting an estimated Base Flow Curve through the Storm Flow Period. The Base Flow component of the total monthly flow was then determined as follows:

a. For those periods during which there is obviously no Storm Flow, the entire recorded mean daily flows were assumed to be Base Flow.

b. For the remaining Storm Flow periods, the Base Flow component was taken as the area under the Base Flow Curve except that for those days within the Storm Flow period when the actual mean daily discharge was less than the amount indicated by the Base Flow Scalping Curves, then the actual recorded amount was used.

4. Engineers' Work Papers. These procedures are reflected in the Work Papers of the Engineers, copies of which are filed with the Watermaster.

TABLE C-1
Mojave Basin Area Adjudication
Subarea Hydrological Inventory Based On
Long-Term Average Natural Water Supply and Outflow
and Current Year Imports and Consumptive Use
(All Amounts in Acre-Feet)

| | Este | Oeste | Alto | Centro | Baja | Basin Totals |
|---|---|---|---|---|---|---|
| **WATER SUPPLY** | | | | | | |
| Surface Water Inflow | | | | | | |
| Gaged | 0 | 0 | 65,000 | 0 | 0 | 65,000 |
| Ungaged | 1,700 | 1,500 | 3,000 | 37,300 [1] | 14,300 [2] | 6,500 [3] |
| Subsurface Inflow | 0 | 0 | 1,000 | 2,000 | 1,200 | 0 [4] |
| Deep Percolation of Precipitation | 0 | 0 | 3,500 | 0 | 100 | 3,600 |
| Imports | | | | | | |
| Lake Arrowhead CSD | 0 | 0 | 1,500 | 0 | 0 | 1,500 |
| Big Bear ARWWA | 2,000 | 0 | 0 | 0 | 0 | 2,000 |
| TOTAL | 3,700 | 1,500 | 74,000 | 39,300 | 15,600 | 78,600 |
| **CONSUMPTIVE USE AND OUTFLOW** | | | | | | |
| Surface Water Outflow | | | | | | |
| Gaged | 0 | 0 | 0 | 0 | 8,200 | 8,200 |
| Ungaged | 0 | 0 | 37,300 [1] | 14,000 [5] | 0 | 0 |
| Subsurface Outflow | 200 | 800 | 2,000 | 1,200 | 0 | 0 |
| Consumptive Use | | | | | | |
| Agriculture | 6,800 | 2,900 | 16,300 | 20,300 | 30,200 | 76,500 |
| Urban | 1,900 | 1,200 | 36,300 | 9,500 | 9,700 | 58,600 |
| Phreatophytes | 0 | 0 | 5,100 | 900 | 1,500 | 7,500 [6] |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 8,900 | 4,900 | 97,000 | 45,900 | 49,600 | 150,800 |
| Surplus / (Deficit) | (5,200) | (3,400) | (23,000) | (6,600) | (34,000) | (72,200) |
| Total Estimated Production (Current Year) [7] | 15,700 | 7,600 | 98,900 | 46,500 | 54,300 | 223,000 |
| **PRODUCTION SAFE YIELD (Current Year)** [7] | 10,500 | 4,200 | 75,900 | 39,900 | 20,300 | 150,800 |

SAMPLE CALCULATIONS

[1] Estimated from reported flows at USGS gaging station, Mojave River at Victorville Narrows.

[2] Includes 14,000 acre-feet of Mojave River surface flow across the Waterman Fault estimated from reported flows at USGS gaging station, Mojave River at Barstow, and 300 acre-feet of local surface inflow from Kane Wash.

[3] Represents the sum of Este (1,700 af), Oeste (1,500 af), Alto (3,000 af) and Baja (300 af from Kane Wash).

[4] Inter subarea subsurface flows do not accrue to the total basin water supply.

[5] Estimated from reported flows at USGS gaging station, Mojave River at Barstow.

[6] Estimated by Bookman-Edmonston.

[7] For purposes of this Table, the current year is 1990.

EXHIBIT D

TIME SCHEDULES

EXHIBIT D

TIME SCHEDULES

1. Prior Year Report. Annually not later than February 1 Watermaster shall provide to each Party a report covering the prior Year and setting forth at least the following:

a. Each Producer's Replacement Water Assessment, including any surcharges, based on rates applicable during the prior Year.

b. Each Producer's Makeup Water Assessment, based on rates applicable during the prior water Year.

2. MWA Supplemental Water Rates. Annually, not later than December 1, MWA shall set the rates per acre foot to be charged for Supplemental Water for the following Year, and shall project the rates for the following two Years.

3. Budget and Assessment Rates. Annually, not later than February 1, Watermaster shall provide to all Parties its proposal for its Administrative Budget, Administrative Assessment Rates, Replacement Water Rates, and Makeup Water Rates for the next ensuing Year and its rate projections for the next two (2) years. No later than March 1 of each Year, the Watermaster shall hold a public hearing to receive comments from Parties as to its proposal. Not later than April 1 of each Year, Watermaster shall adopt its final Budget and assessment rates for the next ensuing Year, and shall notify all Parties of its final Budget and Assessments rates within fifteen (15) days of adoption.

4. Free Production Allowance Adjustment. In any Year that Watermaster prepares a report pursuant to Paragraph 24 (o) of this Judgment that includes a recommendation for an adjustment of a Free

Production Allowance, Watermaster shall notify all Parties as to its recommendation not later than February 1, shall hold a public hearing thereon not later than March 1, and shall submit any such recommendation, which may be revised pursuant to the public hearing, to the Court not later than April 1.

5. Payment of Administrative Assessments and Biological Resource Assessments. Each Producer shall submit quarterly along with the Production report required by Paragraph 24 (p) an Administrative Assessment payment in an amount equal to the current Year Administrative Assessment Rate multiplied times the acre-feet of water Produced during the quarter and a Biological Resource Assessment payment in an amount equal to the current Year Biological Resource Assessment Rate multiplied times the acre-feet of water Produced during the quarter.

6. Payment of Replacement Water Assessments and Makeup Water Assessments. Replacement Water Assessments and Makeup Water Assessments for the prior Year shall be due and payable on July 1.

7. Delinquency of Assessments. Any assessment payable pursuant to this Judgment shall be deemed delinquent: i) if paid in Person, if not paid within five (5) days of the date due; ii) if paid by electronic funds transfer, if not paid within three (3) banking days of the date due; or iii) if paid by any other means, if not paid within ten (10) days of the date due. "Payment" shall occur when good and sufficient funds have been received by the Watermaster. Any assessment shall also be deemed delinquent in the event that any attempted payment is by funds that are not good and sufficient.

EXHIBIT E

LIST OF PRODUCERS AND THEIR DESIGNEES

EXHIBIT E

| PRODUCER | DESIGNEE |
|---|---|
| ABBOND, EDWARD & GRACE | Same |
| ABBOTT, LEONARD C | Therese E. Parker, Esq. |
| ABSHIRE, DAVID V | Same |
| ADELANTO, CITY OF | Michael B. Jackson, Esq. |
| ADELANTO, CITY OF/GEORGE AFB | |
| AEROCHEM, INC | James Heiser, Esq. |
| AGCON, INC | Robert E. Hove |
| AGCON, INC. | Robert E. Hove |
| AGUAYO, JEANETTE L. | Same |
| AKE, CHARLES J & MARJORIE M | Same |
| ANDERSON, ROSS C & BETTY J | Same |
| ANGERER, ROBERT J & PEGGY | Same |
| ANTELOPE VALLEY DAIRY | Dick Van Dam |
| APPLE VALLEY COUNTRY CLUB | Terry Caldwell, Esq. |
| APPLE VALLEY DEVELOPMENT | Same |
| APPLE VALLEY FOOTHILL CO WATER | Doreen Ryssel |
| APPLE VALLEY HEIGHTS CO. WATER | Elizabeth Hanna, Esq. |
| APPLE VALLEY RANCHOS WATER | Fredric Fudacz, Esq. |
| APPLE VALLEY REC. & PARKS | Elizabeth Hanna, Esq. |
| APPLE VALLEY VIEW MUTUAL WATER CO. | Joseph Saltmeris, Esq. |
| APPLE VALLEY, TOWN OF | Sandra Dunn, Esq. |
| ARC LAS FLORES | William De Wolfe, Esq. |
| ARGUELLES, ALFREDO | Therese Parker, Esq. |
| ATCHISON, TOPEKA, SANTA FE | Curtis Ballantyne, Esq. |
| ATCHISON, TOPEKA, SANTA FE | Curtis Ballantyne, Esq. |
| AVDEEF, THOMAS & LUCILLE | Same |
| AZTEC FARM DEVELOPMENT CO | Al Jackson |
| BACA, ENRIQUE | Same |
| BAGLEY, ROY | Same |
| BALDERRAMA, ALFRED & LINDA | Same |
| BALDY MESA WATER DISTRICT | William Smillie |

| PRODUCER | DESIGNEE |
| --- | --- |
| BALL, DAVID P | Same |
| BAR H MUTUAL WATER COMPANY | Paul Nelson, President |
| BARAK, RICHARD | Therese Parker, Esq. |
| BARBER, JAMES B | Same |
| BARNES, FAY | Kirtland Mahlum, Esq. |
| BARSTOW CALICO K O A | Robert L. Moore |
| BASS, NEWTON T | Barbara Davisson, Business Manager |
| BASTIANON, REMO | Same |
| BASURA, STEVE | Same |
| BAUR, KARL & RITA | Same |
| BEDINGFIELD, LYNDELL&CHARLENE | Same |
| BEINSCHROTH, A J | Same |
| BELL, CHUCK | Therese Parker, Esq. |
| BENTON, PHILIP G | Same |
| BORGOGNO, STEVEN & LILLIAN | Same |
| BOWMAN, EDWIN L | Same |
| BOYCE, KENNETH & WILLA | Same |
| BROMMER, MARVIN | Same |
| BROWN, BOBBY G & VALERIA R | Same |
| BROWN, DOUG & SUE | Same |
| BROWN, RONALD A | Same |
| BROWY, ORVILLE & LOUISE | Same |
| BRUINS, NICHOLAS | Same |
| BURNS, BOBBY J & EVELYN J | Therese Parker, Esq. |
| BURNS, RITA J & PAMELA E | Same |
| BURNS, ANNIE L | Same |
| CALICO LAKES HOMEOWNERS | Billy Wyckoff |
| CALIF DEPT OF TRANSPORTATION | Alexander De Vorkin, Esq. |
| CAMPBELL, M A & DIANNE | Same |
| CARDOZO, MANUEL & MARIA | Robert Dougherty, Esq. |
| CARTER, JOHN THOMAS | Therese Parker, Esq. |
| CASA COLINA FOUNDATION | Charles E. Schwartz |
| CDFG - CAMP CADY | Marilyn Levin, Esq. |

| PRODUCER | DESIGNEE |
|---|---|
| CDFG - MOJAVE NARROWS REG. | Marilyn Levin, Esq. |
| CDFG - MOJAVE RIVER FISH | Marilyn Levin, Esq. |
| CENTER WATER CO | Morgan Daniels |
| CHAFA, LARRY R | Same |
| CHAMISAL MUTUAL | Earl D. McCool |
| CHANG, TIMOTHY & JANE | Same |
| CHASTAIN, W C | Same |
| CHEYENNE LAKE, INC | Michael Hayes |
| CHIAO MEI DEVELOPMENT | Maple Sia |
| CHO BROTHERS RANCH | Chung Cho Gong |
| CHOI, YONG IL & JOUNG AE | Same |
| CHRISTISON, JOEL | Same |
| CHUANG, MARSHAL | Therese Parker, Esq. |
| CLARK, KENNETH R | Same |
| CLEAR VIEW FARMS | Terry Caldwell, Esq. |
| CLUB VIEW PARTNERS | Manoucher Sarbaz |
| CONNER, WILLIAM H | Same |
| COOK, KWON W | Same |
| COOL WATER RANCH | Paul Henderson, Esq. |
| COPELAND, ETAL | Don W. Little |
| CRAMER, MARGARET MUIR | Terry Caldwell, Esq. |
| CROSS, LAWRENCE E & SHARON I | Same |
| CRYSTAL HILLS WATER COMPANY | Same |
| CRYSTAL LAKES PROPERTY OWNERS | Russell Khouri |
| CUNNINGHAM, WILLIAM | Same |
| DAGGETT COMMUNITY SERVICES | Lawrence Alf, CSD Chairman |
| DAHLQUIST, GEORGE R | Therese Parker, Esq. |
| DALJO CORPORATION | George Rubsch |
| DAVIS, Paul | Same |
| DAVIS, RONALD & DONNA | Same |
| DEJONG, ALAN L | Therese Parker, Esq. |
| DELPERDANG, ROBERT H | Same |
| DENNISON, QUENTIN c/o Clegg, Frizell & Joke | Same |

| PRODUCER | DESIGNEE |
|---|---|
| DESERT DAWN MUTUAL WATER COMPANY | Same |
| DESERT LAKES CORPORATION - (LAKE DOLORES) | Terry Christianson |
| DESERT COMMUNITY BANK | Same |
| DEVRIES, NEIL | Robert Dougherty, Esq. |
| DEXTER, CLAIR F | Same |
| DEXTER, J P | Same |
| DIBERNARDO, JOHN | Same |
| DOCIMO, DONALD P & PATRICIA J | Terry Caldwell, Esq. |
| DOLCH, ROBERT & JUDY | Same |
| DOMBROWSKI, MICHAEL W & SUSAN M | Same |
| DONALDSON, JERRY & BEVERLY | Same |
| DOSSEY, D A | Same |
| DOWSE, PHILIP | Same |
| DURAN, FRANK T | Therese Parker, Esq. |
| ELLISON, SUSAN | Same |
| EVENSON, EDWIN H & JOYCELAINE | Same |
| EVKHANIAN, JAMES H & PHYLLIA | Same |
| FAWCETT, EDWARD C | Same |
| FELIX, ALAN E & CAROL L | Same |
| FERRO, DENNIS & NORMA | Same |
| FISHER, DR DOLORES | Same |
| FISHER, JEROME | Same |
| FITZWATER, R E | Robert Dougherty, Esq. |
| FRIEND, JOSEPH & DEBORAH | Same |
| FUNDAMENTAL CHRISTIAN ENDEAVOR | Betty Brock |
| GAETA, TRINIDAD C/O BLUE BEAD FARMS | Therese Parker, Esq. |
| GAINES, JACK & MARY | Same |
| GARCIA, DANIEL | Same |
| GARCIA, SONIA L | Same |
| GAYJIKIAN, SAMUEL & HAZEL | Same |
| GESIRIECH, WAYNE | Therese Parker, Esq. |
| GILBERT, HERBERT & BERNICE | Same |
| GOLD, HAROLD | Therese Parker, Esq. |

| PRODUCER | DESIGNEE |
|---|---|
| GOMEZ, CIRIL - LIVING TRUST | Therese Parker, Esq. |
| GORMAN, VIRGIL | Robert Dougherty, Esq. |
| GRACETOWN INVESTMENT CO - JETCO PROP FUND | Same |
| GRAVES, CHESTER B | Same |
| GREEN ACRES ESTATES | Susan Zutavern |
| GRIEDER, RAYMOND H & DORISANNE | Same |
| GRILL, NICHOLAS P & MILLIE D | Therese Parker, Esq. |
| GROEN, CORNELIUS | Robert Dougherty, Esq. |
| GUBLER, HANS | Same |
| GULBRANSON, MERLIN | Therese Parker, Esq. |
| HAIGH, WHILLDYN & MARGARET | Same |
| HAL-DOR LTD | Russ Jones, Owner |
| HALL, LARRY | Same |
| HANDLEY, DON R & MARY ANN | Same |
| HANIFY, DBA - WHITE BEAR RANCH | Same |
| HARALIK, BESS & ROBERT | Same |
| HARDESTY, LESLIE E & BECKY J | Same |
| HARESON, NICHOLAS & MARY | Same |
| HARPER LAKE CO;UC OPERATING/HARPER DRY LAKE | David J. Cooper, Esq. |
| HART, MERRILL W | Same |
| HARTER FARMS | Richard Slivikin, Esq. |
| HARTER, JOE & SUE | Richard Slivikin, Esq. |
| HARTLEY, LONNIE | Same |
| HARVEY, FRANK | Same |
| HELENDALE SCHOOL DISTRICT | Patricia Bristol |
| HENDLEY, RICK & BARBARA | Same |
| HERT, SCOTT | Therese Parker, Esq. |
| HESPERIA GOLF AND COUNTRY CLUB | Michael Davis, Esq. |
| HESPERIA WATER DISTRICT | James Markman, Esq. |
| HI DESERT MUTUAL WATER CO | Stanley Derryberry |
| HI-GRADE MATERIALS | Robert E. Hove |
| HI-GRADE MATERIALS CO. | Robert E. Hove |
| HIETT, HARRY L & PATRICIA J | Same |

| PRODUCER | DESIGNEE |
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| HILARIDES, FRANK | Same |
| HILEMAN, KATHERINE | Same |
| HILL, MELVIN | Therese Parker, Esq. |
| HITCHIN LUCERNE, INC | Same |
| HODGE, STANLEY W | Same |
| HOLLISTER, ROBERT H & RUTH M | Same |
| HOLWAY, ROBERT | Same |
| HONG, PAUL B & MAY | Same |
| HORTON'S CHILDREN'S TRUST | John W. Horton, M.D. |
| HORTON, JOHN MD | Same |
| HOSKING, JOHN W & JEAN | Same |
| HOY, MIKE | Therese Parker, Esq. |
| HRUBIK, THOMAS A | Dan McKinney, Esq. |
| HUBBARD, ESTER & MIZUNO, ARLEAN | Same |
| HUNT, RALPH M & LILLIAN F | Same |
| HUTCHISON, WILLIAM O | Same |
| HYATT, JAMES & BRENDA | Same |
| INDUSTRIAL ASPHALT | Martha Guy, Esq. |
| IRVIN, BERTRAND W | Same |
| JACKSON, RAY | Same |
| JAMS RANCH | Melvin Finklestein |
| JESS RANCH WATER COMPANY | Calvin House, Esq. |
| JOHNSON, JAMES R | Same |
| JOHNSON, LARRY & CARLEAN | Same |
| JOHNSON, RONALD | Same |
| JOHNSTON, HARRIET AND LARRY W | Same |
| JORDAN, RAYMOND | Same |
| JUBILEE MUTUAL WATER COMPANY | Ray Clark |
| JUNIPER RIVIERA COUNTY WATER DISTRICT | William Smillie |
| JUSTICE, CHRIS | Same |
| JUSTICE, CHRIS | Same |
| J V A AIR INC | Jim Anders |
| KAPLAN, ABRAHAM M | Same |

| PRODUCER | DESIGNEE |
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| KATCHER, AUGUST M & MARCELINE | Same |
| KEMP, ROBERT & ROSE | Same |
| KEMPER CAMPBELL RANCH | Steve Abbott |
| KIEL, MARY | Same |
| KIM, JOON HO | Same |
| KING, GENEVIEVE E | Same |
| KOSHAREK, JOHN & JOANN | Same |
| LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT | Steve Abbott, Esq. |
| LAKE JODIE PROPERTY OWNERS ASSOCIATION | Same |
| LAKE WAIKIKI | Virginia Cahill, Esq. |
| LAKE WAINANI OWNERS ASSOCIATION | Same |
| LANGLEY, MICHAEL R & SHARON | Same |
| LAWRENCE, WILLIAM W | Same |
| LAWSON, ERNEST & BARBARA | Same |
| LEE, DOO HWAN | Same |
| LEE, MOON & OKBEA | Same |
| LEE, SEPOONG ETAL & WOO POONG | Same |
| LEE PHD, VIN JANG T C/O ARCHIBEK, ERIC&SANDI | Same |
| LENHERT, RONALD & TONI | Same |
| LESHIN, CONNIE & SOL | Same |
| LESHIN, SOL | Same |
| LEVINE, DR LESLIE | Therese Parker, Esq. |
| LEWIS HOMES OF CALIFORNIA | Kenneth P. Corhan, Esq. |
| LEYERLY, GENEVA | Robert Dougherty, Esq. |
| LEYERLY, RICHARD | Robert Dougherty, Esq. |
| LINT, GORDON | Same |
| LONG, BALLARD | Same |
| LONGMAN, JACK | Same |
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| MAHJOUBI, AFSAR S | Same |
| MALIN, LILY | Same |
| MALONEY, JANICE | Same |
| MARCROFT, JAMES A & JOAN | Same |
| MARIANA RANCHOS COUNTY WATER DISTRICT | Gary Shelton |
| MARSHALL, CHARLES | Same |
| MARTIN, LENDELL | Same |
| MAYBERRY, DONALD J & SANDRA D | Same |
| M BIRD CONSTRUCTION | Same |
| MCCALL, REX | Same |
| MCCOLLUM, CHARLES L | Same |
| MCINNIS, WILLIAM S | Same |
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| MEYERS, LONNIE | Same |
| MILBRAT, IRVING & DIXIE | Same |
| MITCHELL, CHARLES A | Same |
| MITCHELL, CHARLOTTE | Same |
| MITCHELL, JAMES L & CHERYL A | Same |
| MITCHELL, ROBIN & JUDITH | Same |
| MITSUBISHI CEMENT CORPORATION | Michael Davis, Esq. |
| MOFFITT, THOMAS R & EDITH I | Same |
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| MOORE, WAYNE G & JULIA H | Same |
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| PRODUCER | DESIGNEE |
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| MURPHY, BERNARD TRUST | Same |
| MURPHY, KENNETH | Same |
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| NAVAJO MUTUAL WATER CO | James Hanson |
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| NEWBERRY SPRINGS COMPANY | Ed Dygert, Esq. |
| NUNN, DONALD & PEARL | Paul Henderson, Esq. |
| NU VIEW DEVELOPMENT, INC | Richard Slivkin, Esq. |
| O'BRYANT, ROBERT C & BARBARA | Same |
| O F D L INC | Virginia Cahill, Esq. |
| OHAI, REYNOLDS & DOROTHY | Same |
| O'KEEFE, SARAH-LEE & JOKE E | Same |
| ORMSBY, HARRY G | Same |
| OROPEZA, JOSE M | Same |
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| P & H ENGINEERING & DEV CORP | Same |
| PALISADES RANCH | Robert Dougherty, Esq. |
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| PARKER, DAVID E | Same |
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| PATHFINDER INVESTORS | Same |
| PAYAN, PAUL | Same |
| PEARL, ALICE | Same |
| BORUFF, PAUL & LINDA; PEARSON, DERYL B | Same |
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| PRODUCER | DESIGNEE |
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| PHENIX PROPERTIES LTD | Elizabeth Taylor, Manager |
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| POHL, ANDREAS & CATHLYN | Same |
| POLAND, JOHN R & SANDRA M | Same |
| POLICH, LEE & DONNA | Same |
| PRICE, ALAN E | Same |
| PRICE, DONALD & RUTH | Same |
| PUCKHABER TRUST, WILLIAM F | Same |
| PURCIO, THOMAS F & PATRICIA A | Same |
| RANCHERITOS MUTUAL WATER CO | Same |
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| REDDY, BOMMI V & KARUNA V | Same |
| REED, MIKE | Same |
| REEVES, RICHARD | Same |
| RESSEQUE, JOHN & BILL | Same |
| RICE, DANIEL & MARY | Same |
| RICE, HENRY C & DIANA | Same |
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| ROGERS, ROY (ORO GRANDE RANCH) | Terry Caldwell, Esq. |
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| SAN BERNARDINO CSA #42 | William Smillie |
| SAN BERNARDINO CSA #64 | William Smillie |
| SAN BERNARDINO CSA #70C | William Smillie |
| SAN BERNARDINO CSA #70G | William Smillie |
| SAN BERNARDINO CSA #70J | William Smillie |
| SAN BERNARDINO CSA #70L | William Smillie |
| SAN BERNARDINO CO. BARSTOW-DAGGETT AIRPORT | William Smillie |
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| SANTUCCI, ANTONIO & WILSA | Same |
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| SOPPELAND, WAYNE | Terry Caldwell, Esq. |
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| SOUTHERN CALIFORNIA EDISON CO - INDUSTRIAL | Douglas Ditonto, Esq. |
| SOUTHERN CALIFORNIA GAS COMPANY | Jane Goichman, Esq. |
| SOUTHERN CALIFORNIA WATER CO | Arthur Kidman, Esq. |
| SOUTHDOWN, INC. | Steve Abbott, Esq. |
| SOUTHERN CALIFORNIA WATER CO | Arthur Kidman, Esq. |
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| SUGA, TAKEAKI | Same |
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| SUNDOWN LAKES, INC | Thomas Hargraves |
| SUN & SKY COUNTRY CLUB | Everett Hughes |
| SWARTZ, ROBERT & IRENE | Same |
| TALLAKSON, WILLIAM V & ELIZABETH A | Same |
| TAPIE, RAYMOND & MURIEL | Same |
| TATUM, JAMES B | Same |
| TATRO, RICHARD K. & SANDRA A. | Same |
| TAYLOR, ALLEN C / HAYMAKER RANCH | Same |
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| THAYER, SHARON | Same |
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| TURNER, ROBERT | Same |
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| VAIL, JOSEPH B & PAULA E | Same |
| VAN BASTELAAR, ALPHONSE | Same |
| VAN DAM BROTHERS | Same |
| VAN DAM, ELDERT & SUSAN | Same |
| VAN DIEST, CORNELIUS | Therese Parker, Esq. |
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| VAN VLIET, HENDRIKA | Robert Dougherty, Esq. |
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| VANNI, MIKE | Tom O'Donnell |
| VAN BURGER, CARL c\o CVB INVESTMENT | Same |
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| VERNOLA, PAT | Robert Dougherty, Esq. |
| VICTOR VALLEY COMMUNITY COLLEGE DIST | W. W. Miller, Esq. |
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| VICTORVILLE, CITY OF | Thomas McGuire, Esq. |
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| WARD, RONNY H | Same |
| WEBER, DAVE | Same |
| WEBER, F R & JUNELL | Same |
| WEBSTER, THOMAS M & PATRICIA J | Same |

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| WEISER, SIDNEY & RAQUEL | Same |
| WEST, CAROLYN & SMITH, RICHARD | Same |
| WEST, HOWARD & SUZY | Same |
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| WESTERN ROCK PRODUCTS | Kathleen Daprato |
| WET SET, INC | Thomas Ferruzzo, Esq. |
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| WILLOW WELLS MUTUAL WATER COMPANY | Richard A. Joh |
| WITTE, E DANIEL & MARCIA | Same |
| WLSR INC | Steve Winfield |
| WOO, CHEN C/O ASTER DUCK CO | Same |
| WORSEY, JOSEPH A & REVAE | Same |
| YANG, YOUNG MO | Same |
| YARD, WILLIAM & BETTY | Same |
| YEAGER, E L - CONSTRUCTION COMPANY INC | Roger Luebs, Esq. |
| YERMO WATER COMPANY | Donald Walker |
| YKEMA HARMSEN DAIRY | Therese Parker. Esq. |
| YKEMA TRUST | Therese Parker, Esq. |
| YOUNG, KEITH O - (DESERT TURF) | Therese Parker, Esq. |

EXHIBIT F

TRANSFERS OF BASE ANNUAL PRODUCTION RIGHTS.

# EXHIBIT F

## TRANSFERS OF BASE ANNUAL PRODUCTION RIGHTS

1. Transferability. Any Base Annual Production Right, including any Carryover Right (Right) or any portion thereof may be sold, assigned, transferred, licensed or leased subject to the rules set forth in this Exhibit "F".

2. Consumptive Use Adjustments. A transferred Right shall be adjusted so as not to cause an increased Consumptive Use of water. For either inter Subarea or intra Subarea transfers, if the transferee's Consumptive Use of water Produced under the transferred Right would be at a higher rate than that of transferor, the transferred Right shall be reduced by Watermaster to a level that equalizes the Consumptive Use to that of transferor. Any such adjustments by Watermaster shall be made using the following Consumptive Use rates. If a transfer would cause the same or a decreased Consumptive Use, no adjustment shall be made.

| Type of Water Use | Consumptive Use Rate |
|---|---|
| Municipal | 50% |
| Irrigation | 50% |
| Industrial | case by case |
| Lakes or Aquaculture | surface acres x 7 ft. |

For mixed or sequential uses of water excluding direct reuse of municipal wastewater, the total acre-feet of Consumptive Use shall be the sum of Consumptive Uses for each use.

3. Notice to Watermaster. No transfer shall become operable until the Parties to the transfer have jointly notified Watermaster of the terms and conditions of the transfer, the price to be paid by the transferee, the name of the Responsible Party and the name of the Person who will pay any applicable Assessments. Intra-Subarea transfers shall not require Watermaster authorization after giving notice. No inter-Subarea transfer shall become operable until authorized by Watermaster after giving notice. Watermaster shall authorize such transfers in the order of the date of notice, provided that funds are available as set forth in Paragraph 4 of this Exhibit "F".

4. Inter Subarea Transfers of Rights. A Party's Right in a (Source) Subarea may be transferred (by lease only) to a Party in another (Use) Subarea provided that in any Year the resulting unconsumed water in the Source Subarea due to all such transfers shall not be greater than the Replacement Water requirement of the Source Subarea in the preceding Year. Watermaster shall replace the resulting Consumptive Use in the Use Subarea that is attributable to the transfer, utilizing Replacement Water Assessments from the Source Subarea.

5. Transfers to Meet Replacement Water or Makeup Water Obligations. Watermaster may use Assessment proceeds to purchase or lease Rights in a Subarea in order to obtain water to meet an Obligation. The water so obtained shall be equal to the Consumptive Use portion of the transferred and unproduced Rights. No such purchases of leases of Rights in the Harper Lake Basin may be used to satisfy Obligations in other parts of the Centro Subarea.

6. Inter Subarea Transfers of Water. Water Produced in one (source) Subarea and exported to another Subarea for use or disposal shall bear a Replacement Water Obligation equal to the sum of the Production in excess of the Producer's share of the Free Production Allowance in the source Subarea plus the amount of water exported that would normally have been returned to the source Subarea. Such exported water shall be credited to the appropriate Subarea Obligation unless it has been purchased or leased as Replacement Water pursuant to a transfer agreement.

7. Verde Ranch Producers. Together the Spring Valley Lake Country Club ("the Country Club"), the Spring Valley Lake Association ("the Association"), the California Department of Fish and Game (DFG) Mojave Narrows Regional Park ("the Park") the Kemper Campbell Ranch ("the Ranch") comprise a group herein called the Verde Ranch Producers. Each Verde Ranch Producer has the ability physically both to Produce Groundwater and to Produce water that originated as tailwater flowing from the DFG Mojave River Fish Hatchery. DFG Producer Groundwater to supply the Hatchery, and Hatchery tailwater can be discharged in part or entirely to the Mojave River or in part or entirely to a lined channel that conveys tailwater to points where the Verde Ranch Producers can Produce it. The present flow regimen is as follows: Hatchery Production flows through the Hatchery and is then discharged to the River and/or the lined channel. Water discharged to the lined channel flows to a Country Club lake. The Country Club Produces Groundwater that is discharged to the Country Club lake. The Country Club property is irrigated by pumping from the Country Club lake. Water overflowing from the Country Club lake flows through a lined channel and

through other Country Club lakes, and finally is discharged to Spring Valley Lake. The Association Produces Groundwater that is discharged to Spring Valley Lake. Water overflowing from Spring Valley Lake flows to lakes in the Park. The Park Produces Groundwater that is discharged to the lakes in the Park. The Park also Produces Groundwater that is used directly for irrigation of the Park. The Park is also irrigated by pumping from the lakes in the Park. Water overflowing from the lakes in the Park is discharged to the Mojave River. Some water from the lakes in the Park also flows to a lake on the Ranch. The Ranch also Produces Groundwater. The Ranch is irrigated from the lake on the Ranch. No water flows on the surface from the Ranch property to the Mojave River.

In order to continue the present arrangements among the Hatchery and the Verde Ranch Producers while assuring that they participate fairly in the Physical Solution the following rules shall apply:

a. Total Production by the Country Club will be calculated as the sum of Country Club Groundwater Production plus inflow of Hatchery tailwater minus outflow to Spring Valley Lake. The Country Club shall monitor and report to Watermaster the amounts of such Groundwater Production, inflow and outflow.

b. Total Production by the Association will be calculated as the sum of Association Groundwater Production plus inflow from the Country Club minus outflow to the Park. The Association shall monitor and report to Watermaster the amounts of such Groundwater Production, inflow and outflow.

c. Total Production by the Park will be calculated as the sum of Park Groundwater Production plus inflow from the Association minus outflow to the Ranch minus outflow to the Mojave River. The Park shall monitor and report to Watermaster as to such Groundwater Production, inflow and outflows.

d. Total Production by the Ranch will be calculated as the sum of Ranch Groundwater Production plus inflow from the Park. The Ranch shall monitor and report to Watermaster the amounts of such Groundwater Production and inflow.

e. Hatchery Production up to 10,678 acre-feet per Year will be permitted free of any Assessments against the Hatchery. The Hatchery shall monitor and report to Watermaster its Groundwater Production and the amounts of tailwater discharged to the River and to the artificial channel. In any Year the Hatchery may Produce more than 10,678 acre-feet free of any Assessments against the Hatchery, provided such Production in excess of 10,678 acre-feet is reported as Groundwater Production by one or more of the Verde Ranch Producers in the same Year pursuant to operating agreements by and between the Hatchery and such Producer(s) filed with the Watermaster. The operating agreement shall specify the responsibility for payment of assessments. In the operating agreement, the Verde Ranch Producers may elect to have assessments be based on the aggregate Production of the Verde Ranch Producers, and may freely transfer Base Annual Production Rights internally, provided that the aggregate consumptive use of the Verde Ranch Producers shall not be increased. In the absence of such operating agreements, or if the operating agreements do not otherwise allocate responsibility for payment of Assessments, the Hatchery

shall be liable for Administrative, Replacement Water and Biological Resource Assessments on the amount of water Produced by the Hatchery in excess of 10,678 acre-feet in any Year. In the event that Verde Ranch Producer who is allocated responsibility for payment of Assessments pursuant to an operating agreement is delinquent in making any such payment, the Hatchery shall not be liable therefor.

f. In any Year, if the total discharge to the River from the Hatchery and the Verde Ranch Producers exceeds the Groundwater Production by the Hatchery, such excess discharge shall be subject to Administrative, Replacement Water and, except for the Park, Biological Resource Assessments. Such Assessments shall be levied against individual Verde Ranch Producers in proportion to the extent that outflow from each Producer exceeds inflow to that Producer.

g. The Hatchery and the Verde Ranch Producers shall install all stage recorders, meters or other measuring devices necessary to determine inflows, outflows and Production that they are responsible for monitoring and reporting to Watermaster. Such stage recorders, meters or other measuring devices shall be installed, calibrated and operated in manner satisfactory to Watermaster.

h. Any change in the flow regimen described above will be subject to the same general rules set forth in this Paragraph 7. Any such change shall be reported to Watermaster in advance.

8. Harper Lake Basin. No Producer in the Harper Lake Basin may transfer any Base Annual Production Right or any portion thereof to Producers outside of Harper Lake Basin except by

physically conveying the water in compliance with the rules set forth in this Exhibit "F".

EXHIBIT G

SUBAREA OBLIGATIONS

EXHIBIT G

SUBAREA OBLIGATIONS

1. Subarea Obligations. Producers in the respective Subareas shall have the obligation to provide the following average Annual and minimum Annual Subsurface Flows and/or Base Flows per Year:

a. Este Subarea Producers--200 acre-feet per Year of Subsurface Flow to the Alto Subarea, except that in any Year the Subsurface Flow obligation shall be not be less than 160 acre-feet plus one-third of any cumulative debit plus any additional amount of water required to reduce the cumulative debit to 200 acre-feet.

b. Oeste Subarea Producers--800 acre-feet per Year of Subsurface Flow to the Alto Subarea, except that in any Year the Subsurface Flow obligation shall be not less than 640 acre-feet plus one-third of any cumulative debit plus any additional amount of water required to reduce the cumulative debit to 800 acre-feet.

c. Centro Subarea Producers--1200 acre-feet per Year of Subsurface Flow to the Baja Subarea, except that in any Year the Subsurface Flow Obligation shall be not less than 960 acre-feet plus one-third of any cumulative debit plus any additional amount of water required to reduce the cumulative debit to 1200 acre-feet.

d. Baja Subarea Producers--400 acre-feet per Year of Subsurface Flow toward Afton across the MWA eastern boundary, except that in any Year the Subsurface Flow Obligation shall not be less than 320 acre-feet plus one-third of any cumulative debit plus any additional amount of water required to reduce the cumulative debit to 400 acre-feet.

e. Alto Subarea Producers--an average Annual combined Subsurface Flow and Base Flow of 23,000 acre-feet per Year to the Transition Zone. For the purposes of Paragraph 6 of this Exhibit G, the Subsurface Flow component shall be deemed to be 2,000 acre-feet per Year. In any Year Alto Subarea Producers shall have an obligation to provide to the Transition Zone a minimum combined Subsurface Flow and Base Flow as follows:

i. If the accounting pursuant to Paragraph 5, below, reflects a net cumulative credit at the beginning of the Year, the combined minimum flow obligation shall be 18,400 acre-feet minus any net cumulative credit, but shall be not less than 15,000 acre-feet.

ii. If the accounting pursuant to Paragraph 5, below, does not reflect a net cumulative credit at the beginning of the Year, the combined minimum flow obligation shall be 18,400 acre-feet plus one-third of any net cumulative debit plus any additional amount of water required to reduce the net cumulative debit to 23,000 acre-feet.

2. <u>Obligation for Transition Zone Replacement Water</u>.

a. Until the Court approves Groundwater levels to be established and maintained pursuant to Subparagraph 2b of this Exhibit, Watermaster shall provide Replacement Water in the Transition Zone equal to Production in the Transition Zone that is in excess of the Transition Zone Producers' share of the Alto Subarea Free Production Allowance for that Year. All such Replacement Water shall be provided as soon as practicable during the next ensuing Year.

b. As soon as is practicable, the MWA shall establish key wells to be used to monitor Groundwater levels in the Transition Zone and, subject to approval by the Court, Watermaster shall establish minimum water levels to be maintained in the key wells.

c. After water level elevations have been established pursuant to Subparagraph 2b of this Exhibit, Watermaster shall provide Replacement Water in the Transition Zone as necessary to maintain the minimum water levels. Water purchased with Replacement Water Assessments paid by Producers in the Transition Zone in excess of the quantity of water needed to maintain said water levels shall be provided elsewhere in the Alto Subarea.

3. Other Water. "Other Water" that may be credited to a Subarea Obligation may include water conveyed and discharged across a boundary or Free Production Allowance water that is not Produced. Water other than Base Flow, Subsurface Flow or Storm Flow that is conveyed and discharged across a boundary between Subareas other than pursuant to a transfer agreement, shall be credited or debited, as appropriate, to the pertinent Subarea Obligation during the Year in which it is so conveyed and discharged. Any portion of the Subarea's Free Production Allowance that is allowed to remain unproduced in a Subarea pursuant to transfer agreements in order to satisfy a Subarea Obligation shall be credited to the pertinent Subarea Obligation in accordance with the terms of the transfer agreements.

4. Makeup Water. Assessments for Makeup Water shall be paid in accordance with the time schedule set forth in Exhibit D.

Makeup Water shall be credited to the Subarea Obligation at the end of the Year in which the Makeup Water Assessment is paid.

5. Accounting. Watermaster shall Annually not later than February 1 cause to be prepared a report of the status of each Subarea Obligation as of the end of the prior Year. The report shall set forth at least the following information for each Subarea Obligation:

a. The cumulative total of the average Annual Subarea Obligations since the Judgment was entered as of the beginning of the prior Year;

b. The cumulative total of all water credited to the Subarea Obligation since the Judgment was entered as of the beginning of the prior Year;

c. The net cumulative credit or debit [the difference between (a) and (b)] as of the beginning of the prior Year;

d. The amounts of water credited to the Subarea Obligation during the prior Year including, as appropriate, Base Flow, Subsurface Flow, Other Water and Makeup Water;

e. The cumulative total of the average Annual Subarea Obligations as of the end of the prior Year;

f. The cumulative total of all water credited to the Subarea Obligation as of the end of the prior Year;

g. The net cumulative credit or debit as of the end of the prior Year;

h. Any Makeup Water Obligation;

i. The Minimum Subarea Obligation for the current Year.

6. Subsurface Flow Assumptions. Some Subarea Obligations are expressed as average Annual or minimum Annual Subsurface Flow.

In all cases the Subsurface Flow obligations have been established initially at amounts equal to the estimated historical average Subsurface Flow across Subarea boundaries. Not later than two Years following entry of this Judgment MWA shall begin to install monitoring wells to be used to obtain data to enable improved estimates of Subsurface Flow at each Subarea boundary where there is a Subsurface Flow obligation and to develop methodology for future determinations of actual Subsurface Flow. Not later than ten years following entry of this Judgment Watermaster shall prepare a report setting forth the results of the monitoring program and the future methodology. Following opportunity for review of Watermaster's report by all Parties, Watermaster shall prepare a recommendation to the Court as to the likely accuracy of the estimated historical Subsurface Flows and any revision of Subarea Obligations that may be indicated. Pending Watermaster's report to the Court, Subsurface Flows shall be assumed to be equal to the Subsurface Flow obligations for purposed of accounting for compliance therewith.

7. Example Calculation. Table G-1 sets forth an example of Subarea Obligation accounting procedures using hypothetical flows.

TABLE C-1

HYPOTHETICAL EXAMPLE

ACCOUNTING FOR COMPLIANCE WITH SUBAREA OBLIGATIONS

OBLIGATION OF SUBAREA A TO SUBAREA B

AVERAGE ANNUAL: 23,000 AFA (21,000 AFA BASEFLOW + 2,000 AFA SUBSURFACE FLOW)

MINIMUM ANNUAL: 18,400 AFA + 1/3 OF ANY NET CUMULATIVE DEBIT; OR 18,400 AFA - ANY NET CUMULATIVE CREDIT, BUT NOT LESS THAN 15,000 AFA

| | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 | YEAR 6 | YEAR 7 | YEAR 8 | YEAR 9 | YEAR 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | AF | AF | AF | AF | AF | AF | AF | AF | AF | AF |
| STATUS AT BEGINNING OF YEAR | | | | | | | | | | |
| CUMULATIVE OBLIGATION | 0 | 23,000 | 46,000 | 69,000 | 92,000 | 115,000 | 138,000 | 161,000 | 184,000 | 207,000 |
| CUMULATIVE FLOW | 0 | 17,000 | 32,600 | 50,800 | 69,067 | 87,067 | 107,111 | 139,978 | 168,378 | 198,978 |
| NET CUMULATIVE CREDIT (DEBIT) | 0 | (6,000) | (13,400) | (18,200) | (22,933) | (27,933) | (30,889) | (21,022) | (15,622) | (8,022) |
| FLOW DURING THE YEAR (HYPOTHETICAL) | | | | | | | | | | |
| BASE FLOW | 8,000 | 5,000 | 4,000 | 4,000 | 2,000 | 2,000 | 15,000 | 18,000 | 20,000 | 23,000 |
| SUBSURFACE FLOW | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| OTHER WATER | 7,000 | 7,200 | 7,400 | 7,600 | 7000 | 8,000 | 8,200 | 8,400 | 8,600 | 8800 |
| MAKEUP WATER PURCHASED | 0 | 1,400 | 4,800 | 4,667 | 6,200 | 8,044 | 7,667 | 0 | 0 | 0 |
| TOTAL FLOW | 17,000 | 15,600 | 18,200 | 18,267 | 18,000 | 20,044 | 32,867 | 28,400 | 30,600 | 33,800 |
| MINIMUM OBLIGATION DURING THE YEAR | 18,400 | 20,400 | 22,867 | 24,467 | 26,044 | 27,711 | 28,696 | 25,407 | 23,607 | 21,074 |
| MAKEUP OBLIGATION INCURRED | 1,400 | 4,800 | 4,667 | 6,200 | 8,044 | 7,667 | 0 | 0 | 0 | 0 |
| STATUS AT END OF YEAR | | | | | | | | | | |
| CUMULATIVE OBLIGATION | 23,000 | 46,000 | 69,000 | 92,000 | 115,000 | 138,000 | 161,000 | 184,000 | 207,000 | 230,000 |
| CUMULATIVE FLOW | 17,000 | 32,600 | 50,800 | 69,067 | 87,067 | 107,111 | 139,978 | 168,378 | 198,978 | 232,778 |
| NET CUMULATIVE CREDIT (DEBIT) | (6,000) | (13,400) | (18,200) | (22,933) | (27,933) | (30,889) | (21,022) | (15,622) | (8,022) | 2,778 |
| FOLLOWING YEAR MINIMUM OBLIGATION | | | | | | | | | | |
| 18,400 + 1/3 OF NET CUM. DEBIT | 20,400 | 22,867 | 24,467 | 26,044 | 27,711 | 28,696 | 25,407 | 23,607 | 21,074 | 0 |
| ADDITIONAL TO REDUCE DEBIT TO 23,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18,400 - CUM. CREDIT, BUT NLT 15,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,622 |
| MINIMUM OBLIGATION | 20,400 | 22,867 | 24,467 | 26,044 | 27,711 | 28,696 | 25,407 | 23,607 | 21,074 | 15,622 |

EXHIBIT H

BIOLOGICAL RESOURCE MITIGATION

EXHIBIT H

BIOLOGICAL RESOURCE MITIGATION

1. Protection of and Description of Existing Riparian Habitat. In arriving at a Physical Solution, the Parties have taken into consideration the water needs of the public trust resources of the Mojave Basin Area, including but not limited to, those species listed in Table H-1 within each of the areas as shown on Figure H-1 and the riparian habitat areas shown on Figure H-1 and described generally as follows:

a. The area which extends, south to north, in the Alto Subarea, from the intersection of the north line of Section 36, Township 5 North, Range 4 West with the Mojave River channel to the United States Geological Survey gauging station at the Lower Narrows;

b. The Lower Narrows to the Helendale Fault (Transition Zone);

c. The Harvard/Eastern Baja Subarea reach of the Mojave River that extends west to east, from Harvard Road to the Iron Ranch/Iron Mountain area (0.5 miles east of the west line of Section 20, Township 10 North, Range 4 East).

2. Protection Pursuant to Physical Solution. The following aspects of the Physical Solution must be implemented to seek to achieve the water table standards set forth in Table H-2 which were proposed by DFG as being necessary to maintain and converse the riparian resources in the areas shown on Figure H-1, including the species listed in Table H-1:

a. Pursuant to Paragraph 24(o) of the Judgment, the Watermaster in recommending an adjustment in Free Production

Allowance, shall compare the Free Production Allowance with the estimated Production Safe Yield. In the event the Free Production Allowance exceeds the estimated Production Safe Yield by five percent or more, Watermaster shall recommend a reduction of the Free Production Allowance equal to a full five percent of the aggregate Subarea Base Annual Production. In considering whether to increase or decrease the Free Production Allowance in a Subarea, Watermaster shall, among other factors, take into consideration for the areas shown on Figure H-1 the Consumptive Use of water by riparian habitat, the protection of public trust resources, including the species listed in Table H-1 and the riparian habitat areas shown on Figure H-1, and whether an increase would be detrimental to the protection of public trust resources.

b. If, pursuant to Paragraph 27, Watermaster buys or leases Free Production Allowance in the Baja Subarea below the Calico-Newberry Fault to satisfy the need for Replacement Water, priority shall be given to purchases or leases that will result in reducing Production in or near the area described in Subparagraph 1(c) of this Exhibit.

c. Pursuant to Paragraph 2 of Exhibit "G", Watermaster shall purchase Replacement Water to maintain Groundwater levels in the Transition Zone.

3. <u>Additional Protection Pursuant to Trust Fund Established by Watermaster Using the Proceeds of Biological Resource Assessments</u>.

a. Watermaster shall establish a Biological Resources Trust Fund account for the benefit of the riparian habitat areas shown on Figure H-1 and the species listed on Table H-1. To

establish and maintain the Trust Fund Watermaster shall levy against each acre-foot of Production within the Basin Area, other than Production by the California Department of Fish and Game (DFG), a Biological Resource Assessment of fifty cents ($0.50) (1993 dollars) to be collected at the same time and in the same manner as the Administrative Assessment, except that no Biological Resources Assessment shall be levied whenever the Trust Fund account balance exceeds $1,000,000 (1993 dollars).

b. Watermaster shall make funds held in the Biological Resources Trust Fund available to DFG only in the event that Groundwater levels are not maintained as set forth in Table H-2. Watermaster shall take action to acknowledge any proposed expenditure from the Biological Resources Trust Fund by DFG. Such Watermaster action shall be subject to the review procedures set forth in Paragraph 36 of the Judgment, provided that any motion made pursuant thereto and any Court disapproval of such Watermaster action and proposed DFG expenditure may be based only: 1) on the ground that the Groundwater levels set forth in Table H-2 are being maintained; and/or 2) the ground that the proposed expenditure is not for any of the purposes set forth in Subparagraphs 3.b.(i), (ii), or (iii) below in this Exhibit. The Biological Resources Trust Fund may be used only for the following purposes and only in the three areas identified on Figure H-1:

i. not to exceed $100,000 for the preparation by DFG of a DFG habitat water supply management plan, which plan shall include the water needs of the species listed in Table H-1 and the riparian habitat areas shown on Figure H-1.

ii. the purchase or lease by DFG of Supplemental Water or the lease or purchase of DFG of Base Annual Production Rights to be used to meet riparian habitat water needs of the species listed in Table H-1 and the riparian habitat areas shown on Figure H-1.

iii. the construction, repair and replacement of wells or other facilities identified in the plan prepared pursuant to Subparagraph (i), above, and/or any other measures necessary to implement the plan.

DFG shall not prepare or make any expenditure from the trust fund for the payment of administrative overhead or staff of DFG.

4. DFG agrees that absent substantial changed circumstances, DFG shall not seek to modify the provisions of this Judgment in any way to add to or change the above-stated measures to protect the referenced species or habitat. Nothing stated in this Judgment or in this Exhibit "H" is intended nor shall be deemed to relieve any Party hereto from any obligation or obligations not specifically referenced in this Exhibit H. Nothing in this Judgment or in this Exhibit H is intended or shall be construed to be a waiver by the State or any of its departments or agencies, including DFG, of its rights and obligations under the common law, the public trust doctrine, the constitution, statutes and regulations to preserve, protect or enhance the natural resources of the State including rare, threatened or endangered species or species of concern.

# TABLE H-1

## LIST OF SPECIES

| SPECIES | ALTO | | | CENTRO | | BAJA | | |
|---|---|---|---|---|---|---|---|---|
| | Forks Dam to Upper Narrows | Upper Narrows to Lower Narrows | Lower Narrows to Helendale | Helendale to Hodge | Hodge to Barstow | Barstow to Harvard Road | Harvard Road to Mannix Wash | Afton Canyon |
| Purple Monkeyflower | 6 | | | | | | | |
| Mohave Monkeyflower | 6 | | 6 | 6 | 6 | 6 | | |
| Mohave Tarweed | 5 | | | | | | | |
| Desert Cymopterus | 6 | | | | | | | |
| Barstow Woolly Sunflower | | | | | 6 | 6 | | |
| | | | | | | | | |
| Victorville Shoulderband | 6 | 6 | | | | | | |
| | | | | | | | | |
| Mohave Tui Chub | | | | | | | 1, 3 | |
| | | | | | | | | |
| California Red-legged Frog | 6 | 6 | 6 | 6 | | | | |
| Southwestern Pond Turtle | 6 | | 6 | 6 | | 6 | 6 | 6 |
| Desert Tortoise | 2, 4 | | 2, 4 | 2, 4 | 2, 4 | 2, 4 | | |
| San Diego horned Lizard | 6 | | | | | | | |
| | | | | | | | | |
| Cooper's Hawk | 8 | 8 | | | | | | |
| Ferruginous Hawk | 8 | 8 | | | | | | |
| Swainson's Hawk | 4 | 4 | | | | | | |
| Bald Eagle | 1, 3 | 1,3 | | | | | | |
| Merlin | 6, 8 | 6, 8 | | | | | | |
| Prairie Falcon | 6, 8 | 6, 8 | 6, 8 | 6, 8 | 6, 8 | 6, 8 | | |
| Western Yellow-billed Cuckoo | 3, 7 | | | 3, 7 | 3, 7 | | | |
| Southwestern Willow Flycatcher | 8 | | | | | | | |
| Brown-crested Flycatcher | | 8 | | | | | | |
| Vermillion Flycatcher | 8 | | | | | 8 | 8 | 8 |
| Le Conte's Thrasher | 8 | | | | | | | |
| Least Bell's Vireo | 1, 3 | | | | | | | 1, 3 |

TABLE H-1

LIST OF SPECIES
(CONT'D)

| SPECIES | ALTO | | | CENTRO | | BAJA | | |
|---|---|---|---|---|---|---|---|---|
| | Forks Dam to Upper Narrows | Upper Narrows to Lower Narrows | Lower Narrows to Helendale | Helendale to Hodge | Hodge to Barstow | Barstow to Harvard Road | Harvard Road to Mannix Wash | Afton Canyon |
| Yellow Warbler | 9 | | | | | | | |
| Yellow-breasted Chat | 8 | 8 | | | 8 | 8 | | |
| Summer Tanager | 8 | 8 | | | | | | 8 |
| | | | | | | | | |
| Pale Big Earred Bat | 8 | | | | | | | |
| Mohave Ground Squirrel | 4, 6 | | 4, 6 | 4, 6 | | | | |
| Mohave Vole | | | 6 | 6 | | | | |
| Nelson's Bighorn Sheep | | | | | 10 | 10 | | 10 |
| TOTAL NUMBER OF SPECIES = 30 | | | | | | | | |
| TOTAL NUMBER OF SPECIES IN EACH AREA: | 25 | 11 | 7 | 8 | 7 | 8 | 3 | 5 |

1 = Federally Endangered
2 = Federally Threatened
3 = State Endangered
4 = State Threatened
5 = Federal Category: 1
6 = Federal Category: 2
7 = Federal Category: 3b
8 = State: Special Concern
9 = State: Sensitive
10 = State: Fully Protected

TABLE H-2

RIPARIAN HABITAT MONITORING WELL
WATER LEVEL CRITERIA

| ZONE | WELL NUMBER | MAXIMUM DEPTH BELOW GROUND |
|---|---|---|
| Victorville/Alto | H1-1 | Seven (7) Feet |
| Victorville/Alto | H1-2 | Seven (7) Feet |
| Lower Narrows/Transition | H2-1 | Ten (10) Feet |
| Harvard/Eastern Baja Riparian Forest Habitat | H3-1 | Seven (7) Feet |
| Harvard/Eastern Baja Surface Water Habitat | H3-2 | Plus One (1) Foot (1705 Ft msl)* |

* Surface Water Habitat water surface elevation of 1705 ft. msl is approximate pending ground elevation survey.

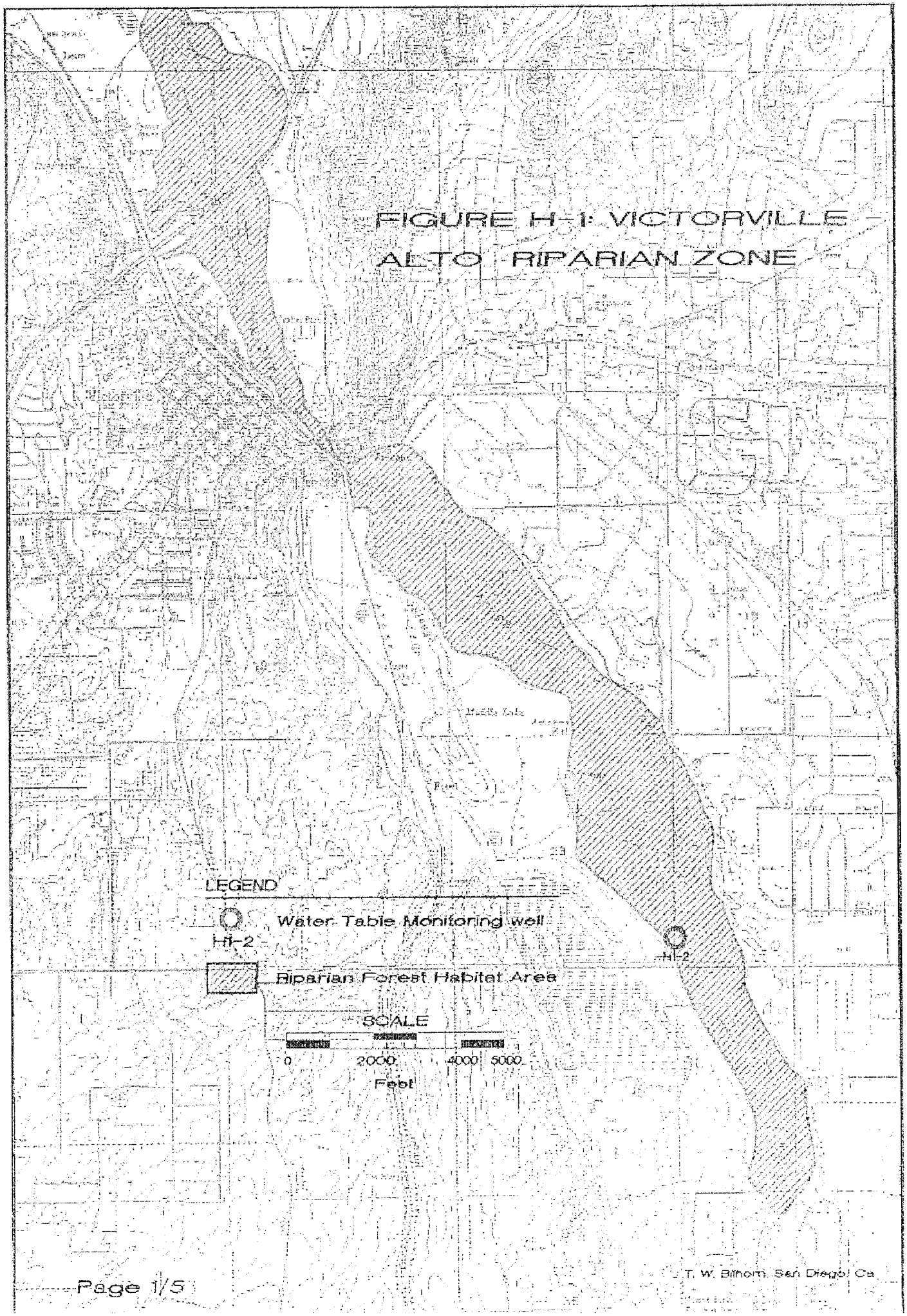
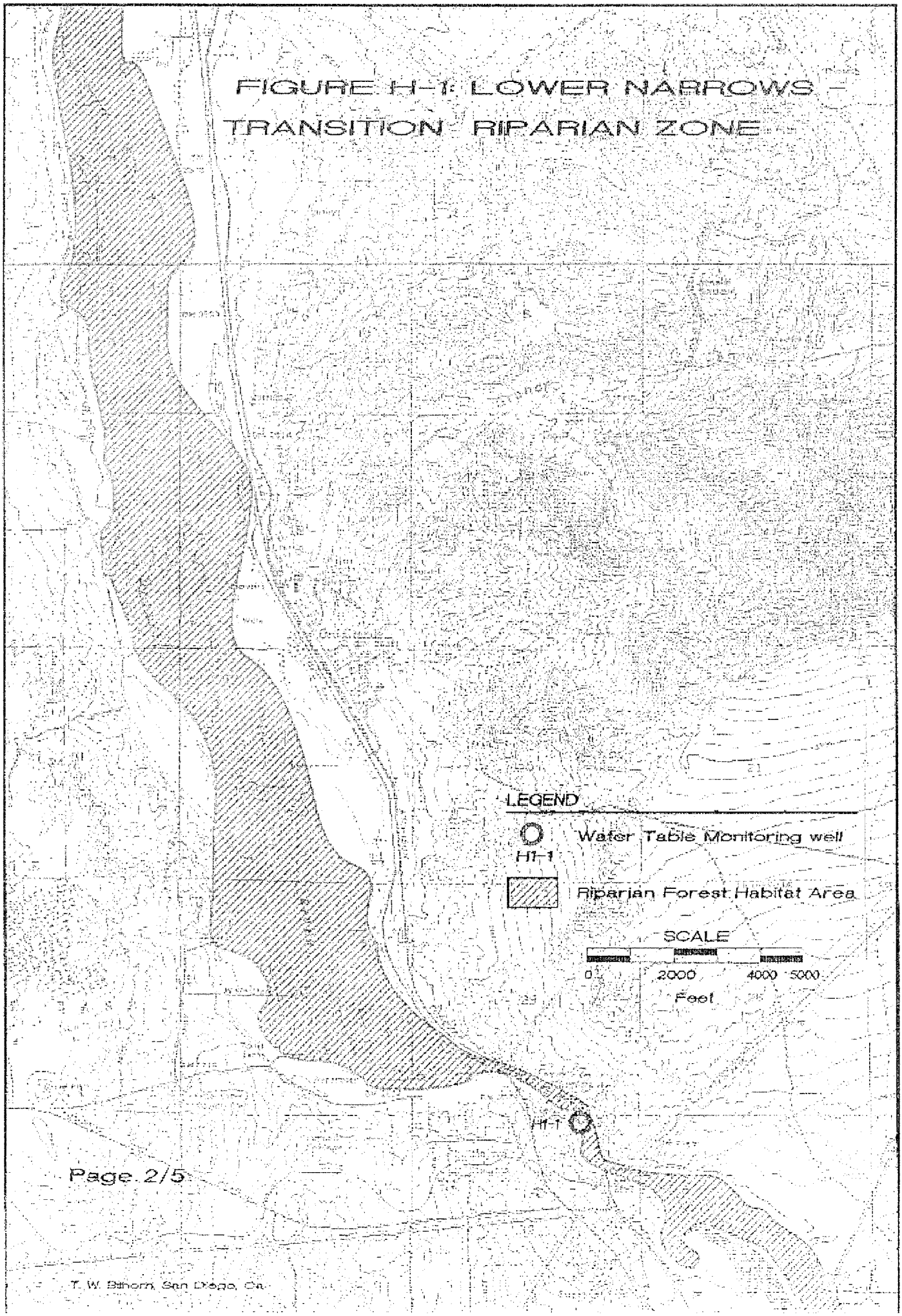


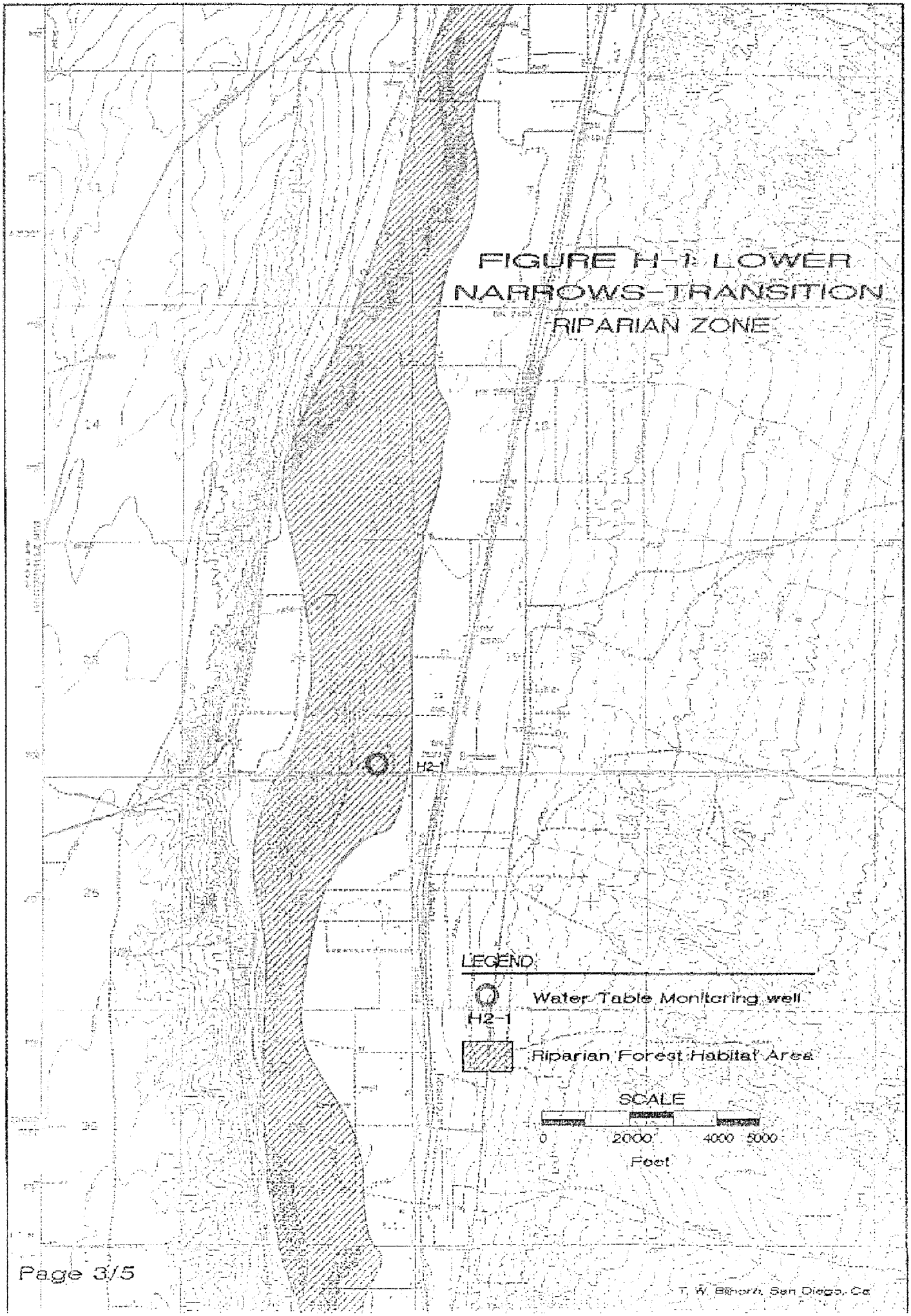
FIGURE H-1: VICTORVILLE - ALTO RIPARIAN ZONE
LEGEND
Water Table Monitoring well
HI-2
Riparian Forest Habitat Area
SCALE
0
2000
4000
5000
Feet
HI-2
T. W. Bilhorn, San Diego, Ca.

# FIGURE H-1: LOWER NARROWS – TRANSITION RIPARIAN ZONE






T. W. Bithorn, San Diego, Ca.






T. W. Bihorn, San Diego, Ca

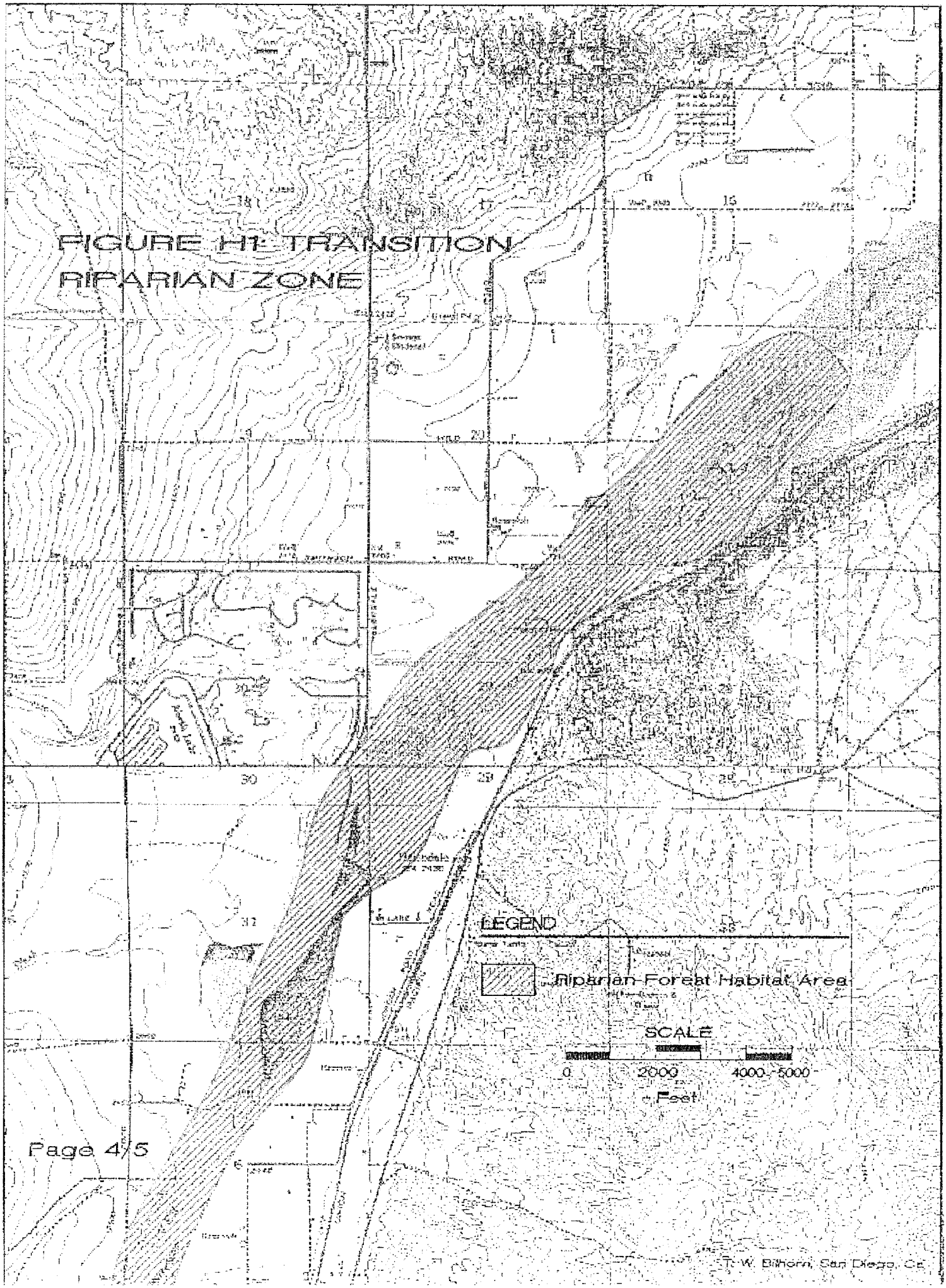


FIGURE H1: TRANSITION
RIPARIAN ZONE
LEGEND
Riparian Forest Habitat Area
SCALE
0
2000
4000 - 5000
Feet
T. W. Bilhorn, San Diego, Ca.

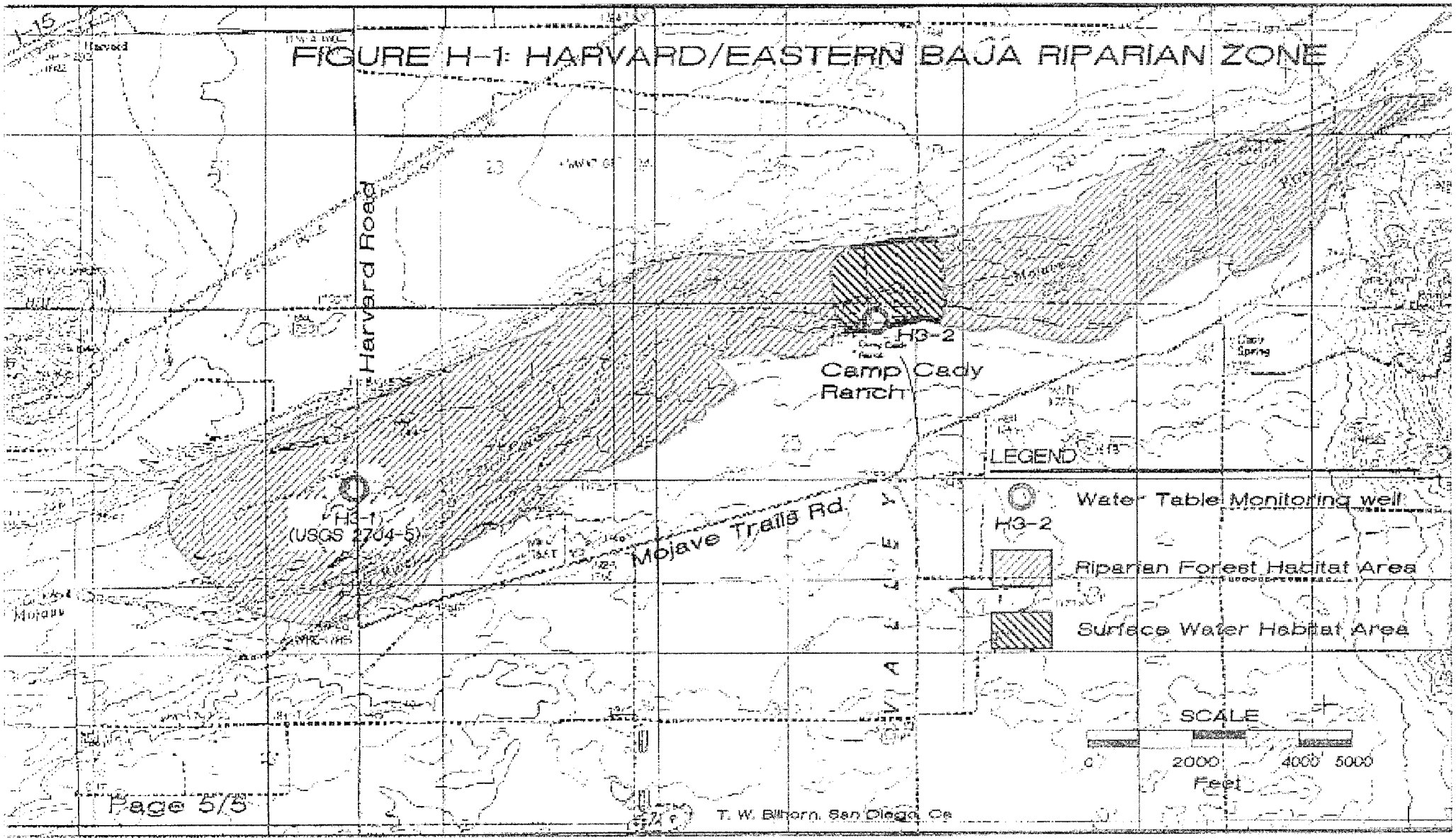
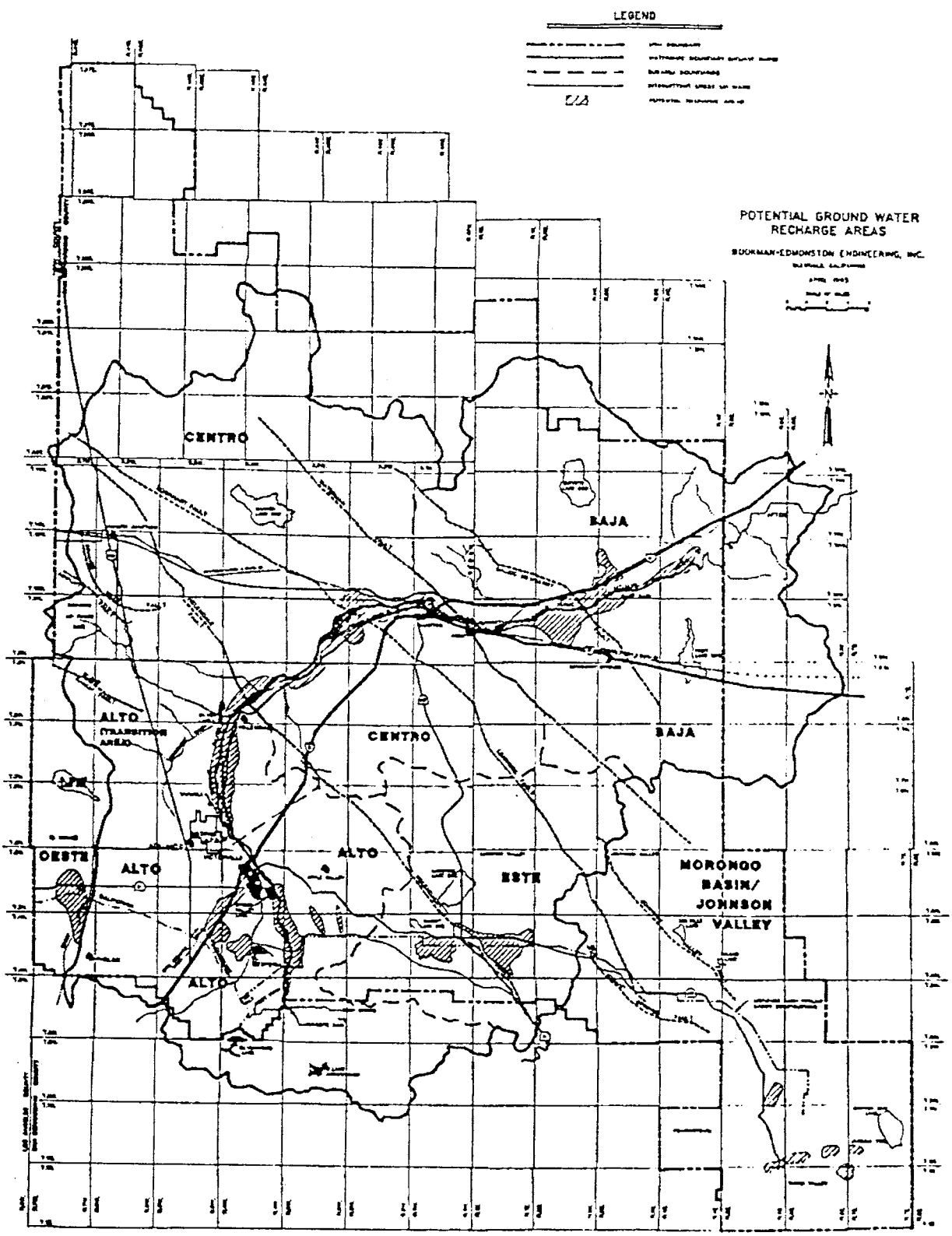


FIGURE H-1: HARVARD/EASTERN BAJA RIPARIAN ZONE
Harvard Road
Mojave Trails Rd.
Camp Cady Ranch
H3-2
H3-1
(USGS 2704-5)
LEGEND
Water Table Monitoring well
Riparian Forest Habitat Area
Surface Water Habitat Area
SCALE
0
2000
4000
5000
Feet
T. W. Bilhorn, San Diego, Ca
Page 5/5




# MOJAVE WATER AGENCY

REGIONAL WATER MANAGEMENT PLAN

# APPENDIX B

## TECHNICAL MEMO 3

# TECHNICAL MEMO 3

# ALTERNATIVES EVALUATION

## MOJAVE WATER AGENCY REGIONAL WATER MANAGEMENT PLAN UPDATE

## PHASE 2

## APRIL 24, 2003

## Introduction

The Phase 1 Report for the Regional Water Management Plan (RWMP) Update identified six key water management issues facing the Mojave Water Agency (MWA) service area. These issues are:

- Current demand exceeds supply; future demand will also exceed supply unless corrective actions are taken
- Naturally occurring water quality problems affect drinking water supplies
- Many of the groundwater basins are in overdraft
- All but two of the subareas have riparian ecosystem maintenance issues
- Wastewater infrastructure issues affect the two subareas with the largest water demands
- Many subareas within MWA are impacted by activities in other subareas

The RWMP Update Phase 1 Report also identified unique sets of each of these key issues contained within each subarea and provided an array of projects and management actions that could be used to mitigate one or more of these issues. In the Projects and Management Actions Technical Memorandum specific parameters for these projects and management actions were estimated.

The projects and management actions were grouped into alternatives that were then evaluated to determine how well they mitigated the key management issues identified above. This evaluation was performed using a simulation model developed in this phase using the Stella 7.0 software. Using the results of the evaluation, two recommended alternatives have been selected and the projects and management actions included in those alternatives that have the highest priority for implementation have been identified.

## The MWA Screening Model

The MWA Screening Model has been developed to simulate the changes to groundwater hydrology, Mojave River flows, and pumping and return flow patterns that would result from implementation of the projects and management actions identified in the Phase 1 Report. The model was developed using the Stella 7.0 software, a simulation modeling package that allows model parameters to be changed and new results obtained quickly and easily.

To model the water system, the Mojave River Basin floodplain and regional aquifers have been subdivided into 14 distinct but inter-connected aquifer units. The Lucerne Valley, Copper Mountain Valley, Means/Ames Valley, and Warren Valley aquifers are modeled independently.

The aquifer breakdown is shown in Figure 1. The model simulates groundwater storage and levels within each aquifer unit, groundwater flow between aquifer units, and leakance from the Mojave River into the aquifer units for the hydrologic period 1931-2001 using equations derived from the output of the USGS Modflow model of the Mojave River Basin (Stamos et al. 2001).

For each alternative, pumping and return flow quantities are determined for each sector within each subarea based on the amount of State Water Project (SWP) import and the Mojave Basin Area Judgment rules and are disaggregated among the subarea's aquifer units based on current pumping patterns and year 2020 population projections. The computed consumptive use is subtracted from the storage within each aquifer. MWA's SWP supplies are distributed to the alternative's SWP projects according to an algorithm that takes into account each project's demand and capacity and the capacities of the Mojave River and Morongo Pipelines.

The model is flexible enough to simulate a wide variety of proposed projects and management actions. For each new alternative, the input data can be modified and the model run in an hour or less, allowing for the easy evaluation of new alternatives.

## Alternatives Overview

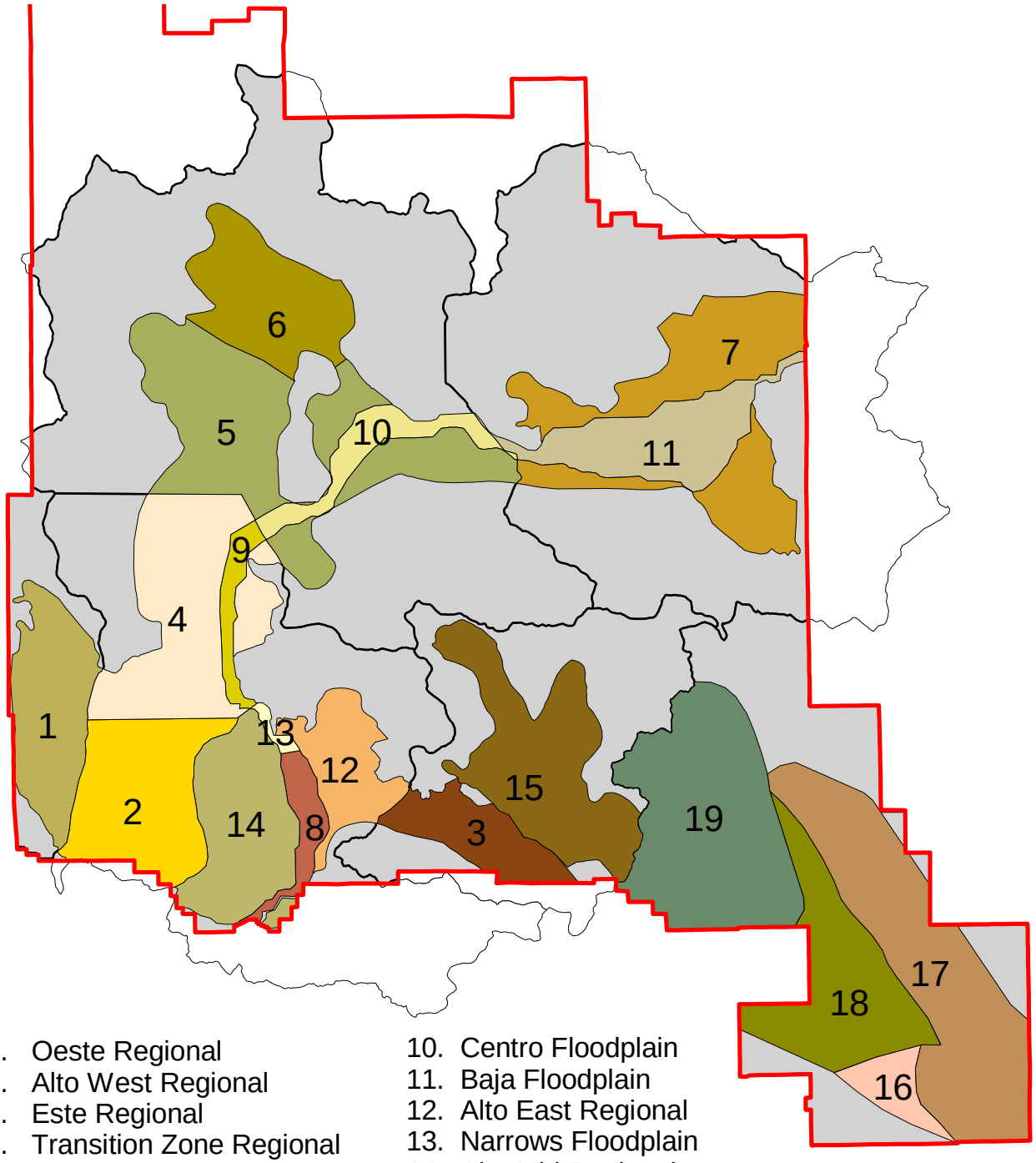
A total of 18 alternatives were evaluated in the course of this study. These include eight initial alternatives presented at the Technical Advisory Committee (TAC) meeting on February 19, 2003, eight revised alternatives presented at the TAC meeting on March 19, 2003, and two final alternatives developed based on the recommendations made at the March 19 TAC meeting. The initial alternatives are labeled 'A' and 'B', and the revised and final alternatives are labeled 'C' and 'D'. The alternatives are further described below.

The following assumptions were common to each of these alternatives:

- 2020 demand assumptions from the Phase 1 report
- Implementation of the Mojave Basin Area Judgment (1996)
- Delivery of SWP water to the Antelope Valley-East Kern Water Agency (AVEK), to the Warren Valley subbasin for use by the Hi-Desert Water District (HDWD), and to the Hodge and Lenwood recharge ponds to meet Alto makeup obligations to Centro under the Judgment

The following seven additional primary factors can be used to distinguish between the alternatives:

- Representation of the Transition Zone
- Level of Judgment Implementation
- Agricultural demand (Scenario 1 or Scenario 2 from the Phase 1 Report)
- Amount of municipal conservation
- Presence and size of a regional water treatment plant in Alto
- Amount of Victor Valley Water Reclamation Authority (VVWRA) discharge that is used for reclamation
- Amount of SWP discharge into the Mojave River at Rock Springs




1. Oeste Regional
2. Alto West Regional
3. Este Regional
4. Transition Zone Regional
5. Centro Regional
6. Harper Lake Regional
7. Baja Regional
8. Alto Floodplain
9. Transition Zone Floodplain
10. Centro Floodplain
11. Baja Floodplain
12. Alto East Regional
13. Narrows Floodplain
14. Alto Mid Regional
15. Lucerne Basin
16. Warren Valley Subbasin
17. Copper Mountain Valley Subbasin
18. Means/Ames Valley Subbasin
19. Johnson Valley Subbasin

Saracino·Kirby·Snow
A Schlumberger Company

# Screening Model Aquifer Units

Mojave Water Agency
Regional Water Management Plan Update
Phase 2: Alternatives Technical Memorandum

Figure 1

Date: April 2003

Prepared By: BCW

The ‘A’ and ‘C’ alternatives assume Agricultural Scenario 1 while the ‘B’ and ‘D’ Alternatives assume Agricultural Scenario 2. Alternatives A0, B0, C0, and D0 are year 2020 No Action alternatives, in which the only SWP imports are those that go to AVEK, HDWD, or to the Hodge and Lenwood recharge ponds for Alto Makeup to Centro.

## Initial Alternatives

The initial alternatives include A0, A1, A2, B0, B1, B2, B3, and B4. Table 1 shows the principal characteristics that define each alternative. All of these alternatives assume full implementation of the Judgment by 2020, with consumptive use set to equal natural supply plus imports.

Alternatives A0 and B0 are No Action alternatives, which do not utilize any projects or management actions other than those in current use. Alternatives A1 and B1 attempt to meet each subarea’s demands with SWP imports, including a large Rock Springs release. Alternatives A2 and B2 include a 56,000 AF/year capacity treatment plant in Alto. Alternatives B3 and B4 are similar to Alternative B1 except that they include 5% municipal conservation as well. All of the alternatives other than B4 assume that the first 9,700 acre-feet of VVWRA’s discharge is released to the Mojave River, with the remaining being allocated to reclamation to golf course and municipal users. In Alternative B4 it is assumed that all VVWRA discharge is released to the Mojave River.

Table 1 shows the demands met under each alternative. Alternative A0 meets only 45% and Alternative B0 meets only 51% of the total MWA demand. In each of these No Action Alternatives, the Alto Baja, and Oeste subareas have less than 40% of their demands met.

| Alternative: | A | | | B | | | | |
|---|---|---|---|---|---|---|---|---|
| | A0 | A1 | A2 | B0 | B1 | B2 | B3 | B4 |
| Common | AVEK, Hodge, Lenwood, Warren Valley | | | | | | | |
| Judgement Implementation | Full | | | Full | | | | |
| Ag demand scenario | Ag Scenario 1 | | | Ag Scenario 2 | | | | |
| Municipal Conservation | 0% | | | | | | 5% | |
| Regional WTP | | | 56K | | | 56K | | |
| Alto Reclamation | | 5.7K | 11.0K | | 9.3K | 11.0K | 9.3K | |
| Rock Springs release | | 40K | | | 40K | | 40K | 40K |
| | | | | | | | | |
| Demands Met (KAF/yr) | | | | | | | | |
| Total | 113 | 207 | 209 | 110 | 206 | 202 | 205 | 204 |
| Percent Total | 45% | 82% | 83% | 51% | 95% | 93% | 96% | 98% |
| Agricultural | 33 | 52 | 38 | 20 | 20 | 20 | 20 | 20 |
| Municipal | 68 | 129 | 154 | 70 | 153 | 162 | 152 | 152 |

**Table 1:** Initial Alternative Assumptions and Results

Because they are trying to meet full municipal and agricultural demands under Agricultural Scenario 1, Alternatives A1 and A2 show significant shortages. Alternative A1 meets only 82% of total MWA demand, while Alternative A2 meets only 83%. Thus, these results indicate that it is impossible to meet full 2020 demands under Agricultural Scenario 1 with no conservation

even while importing MWA's entire SWP supply. Conservation of almost 30 percent of municipal consumptive use would be required to avoid significant shortages under this scenario.

Alternatives B1, B2, B3, and B4 all meet at least 93% of total MWA demands. However, because SWP deliveries to the treatment plant in Alto are given priority, Alternative B2 has significant shortages in Baja, Oeste, and Este. Alternatives B3 and B4 have fewer shortages because they assume 5% municipal conservation.

The initial alternatives are formulated to balance supply and demand at the subarea level, but no attempt was made to select recharge projects that would balance each individual aquifer unit. As a result, although each subarea is in balance as a whole, many aquifer units show significant declines. In addition, the Transition Zone floodplain region shows unreasonable increases in elevation because no cap was placed on its available storage in the initial alternatives. This limitation in aquifer unit elevation has been resolved in the revised and final alternatives.

## Revised and Final Alternatives

In response to the comments received at the February 19 TAC meeting, eight new alternatives were developed and presented at the March 19 TAC meeting: C0, C3, D0, D2, D3, D5, D6, and D7. Table 2 shows the principal characteristics that define these alternatives. All of these alternatives except for C3 assume full implementation of the Judgment by 2020, with consumptive use set to equal natural supply plus imports. Alternative C3 assumes that the rampdown of agricultural producers will remain at 80% in 2020. In Alternative C3, agricultural production is permitted to continue even if it results in drawdowns in the groundwater aquifers.

| Alternative: | C | | D | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | C0 | C3 | D0 | D2 | D3 | D5 | D5r | D6 | D6r | D7 |
| Common | AVEK, Hodge, Lenwood, Warren Valley | | | | | | | | | |
| Judgement Implementation | Full | 80% Ag | Full | | | | | | | |
| Ag demand scenario | Ag Scenario 1 | | Ag Scenario 2 | | | | | | | |
| Municipal Conservation | 0% | | 0% | 5% | | 20%* | 10%* | 20%* | 10%* | 20%* |
| Regional WTP | | | | 46K | | 26K | 12K | | | |
| Alto Reclamation | | 6.3K | | 9.9K | 8.7K | 6.8K | 8.7K | 6.8K | 8.7K | 6.8K |
| Rock Springs release | | 10K | | | 10K | 10K | 10K | 10K | 10K | 40K |

*Municipal conservation in the Morongo Basin/Johnson Valley Area is 5% in these alternatives

| Demands Met (KAF/yr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 102 | 216 | 101 | 198 | 200 | 182 | 199 | 185 | 198 | 185 |
| Percent Total | 40% | 85% | 47% | 95% | 96% | 98% | 99% | 100% | 98% | 100% |
| Agricultural | 30 | 56 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Municipal | 59 | 138 | 63 | 153 | 148 | 131 | 146 | 131 | 145 | 131 |

**Table 2:** Revised and Final Alternative Assumptions and Results

The revised alternatives build off of the initial 'A' and 'B' alternatives. In these alternatives, the problem of unreasonably high elevation increases in the Transition Zone has been resolved by limiting the amount of recharge into the aquifer from the Mojave River such that the aquifer elevation could not exceed 2,510 feet. In addition, an attempt has been made in each alternative to select a combination of recharge projects for SWP water that would result in reasonable balance in each of the aquifers units.

Alternative D2 is a revised version of B2, with a 46,000 acre-foot/year regional water treatment plant in Alto and with 5 percent municipal conservation. Alternative D3 also has 5% municipal conservation but does not include a regional treatment plant. Alternatives D5, D6, and D7 include 20% municipal conservation in the Mojave River Basin. Alternative D5 includes a smaller 26,000 acre-foot/year regional treatment plant. Alternative D7 is the only new alternative with a large Rock Springs release.

After presentation of the results of these alternatives at the TAC meeting, it was decided to create two final alternatives that would be revisions of the D5 and D6 alternatives. D5r is similar to D5 except that it includes only 10% municipal conservation in the Mojave River Basin and the size of the Regional Treatment Plant has been reduced to 12,000 acre-feet/year capacity. D6r is similar to D6 except that the amount of municipal conservation is reduced to 10 percent. The principal characteristics that define Alternatives D5r and D6r are shown in Table 2.

Table 3 shows the projects and management actions that were modeled in each of the revised and final alternatives. The following sections briefly describe each alternative's performance under different performance measures.

## Demands Met

Table 2 shows the demands met under each revised and final alternative. Alternative C0 meets only 40% and Alternative D0 meets only 47% of the total MWA demand. In each of these No Action Alternatives, Alto, Baja, and Oeste have 50% or less of their demands met. The results of Alternative C3 demonstrate that it is not possible to meet 2020 demand levels while keeping agricultural free production allowance at 80% rampdown levels. In this alternative, only 85% of total MWA demands are met, and significant overdraft of the Baja subarea occurs.

Alternatives D2, D3, D5, D5r, D6, D6r, and D7 all meet at least 95% of total MWA demand. However, Alternative D2 has significant shortages in Baja and Oeste due to the lack of flexibility offered by the inclusion of a large treatment plant in Alto. With 20% municipal conservation, Alternatives D5, D6, and D7 are able to meet very close to 100% of total MWA demand. At the intermediate level of 10% municipal conservation, Alternatives D5r and D6r are each able to meet at least 98% of total MWA demand, with no significant shortage in any subarea.

All action alternatives meet significantly more demand than do the No Action Alternatives. Alternative C3 supplies the most total demand because it is not constrained to achieve balance in the groundwater aquifers. Alternatives D2 and D3 meet more total demand than the other 'D' alternatives because they include less municipal conservation, while Alternatives D5, D6, and D7 meet the least demand of all the non-No Action Alternatives because they include the greatest municipal conservation.

| Project/Management Action | Subarea | Alternative | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C0 | D0 | C3 | D2 | D3 | D5 | D5r | D6 | D6r | D7 |
| | | (volume is in average annual acre-feet) | | | | | | | | | |
| Additional Recharge Facilities South of Rock Springs Outlet | Alto | | | | 1,408 | 11,956 | 3,555 | | 7,280 | | |
| Alto wellhead treatment | Alto | | | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Antelope Valley Wash Recharge Ponds | Alto | | | 7,702 | 1,665 | 5,231 | 5,688 | 5,640 | 6,471 | 7,157 | 3,458 |
| Cedar Street Detention Basin Recharge | Alto | | | 7,702 | 1,665 | 4,857 | | 5,640 | 6,471 | 7,157 | |
| Hesperia Lakes Recharge | Alto | | | | | 2,242 | | 6,345 | | 7,885 | |
| Mojave River Pipeline Extension - Transition Zone | Alto | | | 5,602 | | | | | | | 2,527 |
| Oro Grande Wash Recharge Ponds | Alto | | | 11,203 | 3,805 | 11,956 | 5,688 | 8,601 | 12,133 | 12,015 | 6,762 |
| Recharge Ponds South of Apple Valley | Alto | | | 4,201 | | 4,110 | 711 | 2,820 | 4,044 | 3,755 | |
| Regional Surface Water Treatment Plant | Alto | | | | 40,670 | | 24,559 | 11,963 | | | |
| Silver Lakes In-Lieu Recharge | Alto | | | | | | | | 2,427 | 2,253 | 2,527 |
| Rock Springs Release | Alto | | | 7,348 | | 7,444 | 7,256 | 7,155 | 8,164 | 7,591 | 31,762 |
| Baja Stormflow Retention | Baja | | | 2,000 | | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| Daggett/Newberry Springs Recharge Ponds | Baja | | | 6,337 | | | | | | | |
| Kane Wash Recharge Ponds | Baja | | | | 2,671 | 3,449 | 2,510 | 2,604 | 2,855 | 2,800 | 2,984 |
| Alto Makeup (to Hodge and Lenwood) | Centro | 1,984 | 1,984 | 890 | 1,369 | 915 | 909 | 909 | 909 | 908 | |
| AVEK | Centro | 1,372 | 1,372 | 1,372 | 1,372 | 1,372 | 1,372 | 1,372 | 1,372 | 1,372 | 1,372 |
| Hinkley water supply | Centro | | | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Cushenbury Wash Stormflow retention | Este | | | 400 | | | | 400 | 400 | 400 | 400 |
| Lucerne Valley Recharge Ponds | Este | | | 1,190 | | | | | | | |
| Recharge Ponds West of Helendale Fault | Este | | | 342 | 450 | 708 | 496 | 343 | 241 | 369 | 252 |
| Hi-Desert WD: Warren Valley | MBJV | 1,557 | 1,557 | 1,557 | 1,450 | 1,450 | 1,450 | 1,450 | 1,450 | 1,450 | 1,450 |
| Joshua Basin District Recharge and Pipeline | MBJV | | | 445 | 393 | 393 | 393 | 393 | 393 | 393 | 393 |
| Means/Ames Recharge Ponds | MBJV | | | | | | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |
| Pioneertown water supply | MBJV | | | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Sheep Creek Recharge Ponds | Oeste | | | 2,485 | 1,459 | 2,293 | 1,881 | 2,109 | 2,140 | 2,260 | 2,236 |
| SUBTOTAL IMPORTS | | 4,913 | 4,913 | 60,777 | 58,377 | 60,374 | 59,467 | 60,744 | 59,750 | 60,762 | 59,122 |
| | | | | | | | | | | | |
| Urban Conservation | | 0 | 0 | 0 | 8,142 | 8,142 | 31,417 | 15,900 | 31,417 | 15,900 | 31,417 |
| VVWRA Reclamation | | 0 | 0 | 6,335 | 9,925 | 8,841 | 6,826 | 8,656 | 6,826 | 8,437 | 6,826 |

*This project does not represent a new water supply

**Table 3**: Projects and Management Actions Included in each Revised and Final Alternatives

## Groundwater Storage

Table 4 shows the average annual change in groundwater storage in each subarea under each alternative. The Centro subarea shows a surplus in all alternatives. In Alternative C3 there is a significant reduction in groundwater storage in Baja because there is not enough supply available to meet the agricultural production at 80% rampdown levels. Alternative D7 includes a large Rock Springs release, which is not effective in overcoming deficits in the Alto Regional aquifer and causes greater surpluses in Centro and Baja due to increased Mojave River flow downstream.

Alternatives D5 and D6 perform the best under this measure, with total net increases of 15,800 and 13,500 acre-feet/year, respectively and no deficits in any subarea. This occurs because the high 20% municipal conservation reduces the need for SWP supply to meet demand and allows a certain amount of SWP water to be imported for the purpose of replenishing the groundwater basins.

| | **Performance Measure S1** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Average Annual Change in Groundwater Storage (acre-feet per year) | | | | | | | |
| | Morongo | Este | Oeste | Alto | Centro | Baja | Total | Rank |
| No-Action Alternative C0 | 0 | 0 | 0 | 0 | 7,200 | 0 | 7,200 | **7** |
| No-Action Alternative D0 | 0 | 100 | 0 | 0 | 6,600 | 0 | 6,700 | **9** |
| C3 | 0 | 0 | 400 | 2,500 | 5,800 | (10,900) | (2,200) | **10** |
| D2 | 0 | 100 | 500 | 1,100 | 5,400 | (300) | 6,800 | **8** |
| D3 | 0 | 0 | 500 | 1,500 | 5,400 | 100 | 7,500 | **6** |
| D5 | 1,000 | 600 | 500 | 2,600 | 10,000 | 1,100 | 15,800 | **1** |
| D5r | 1,000 | 100 | 500 | 1,300 | 7,400 | 200 | 10,500 | **3** |
| D6 | 1,000 | 200 | 600 | 2,400 | 8,600 | 700 | 13,500 | **2** |
| D6r | 1,000 | 0 | 500 | 500 | 6,700 | 100 | 8,800 | **5** |
| D7 | 1,000 | (200) | 400 | (10,900) | 12,800 | 6,400 | 9,500 | **4** |

**Table 4**: Average Annual Change in Groundwater Storage

## Groundwater Levels

In all of the alternatives following the initial alternatives, an effort has been made to select recharge projects in locations that would achieve relative balance in all subareas in the aquifer. This has been achieved in all alternatives except for Alternatives C3, D2 and D7.

In Alternative C3, the floodplain and regional aquifers in Baja are significantly depleted because agricultural production is allowed to remain at levels that cannot be supported by the available supply. Figure 2 shows the groundwater levels in the Baja Regional aquifer under each

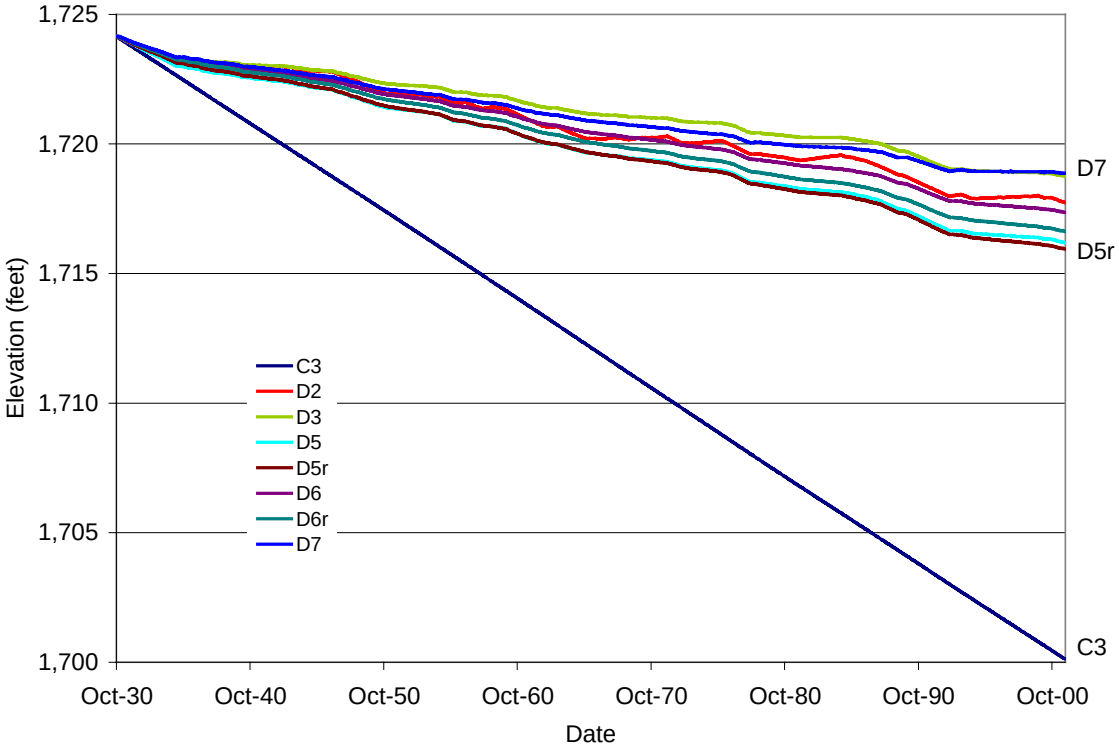



**Figure 2**: Time Series of Elevations in the Baja Regional Aquifer

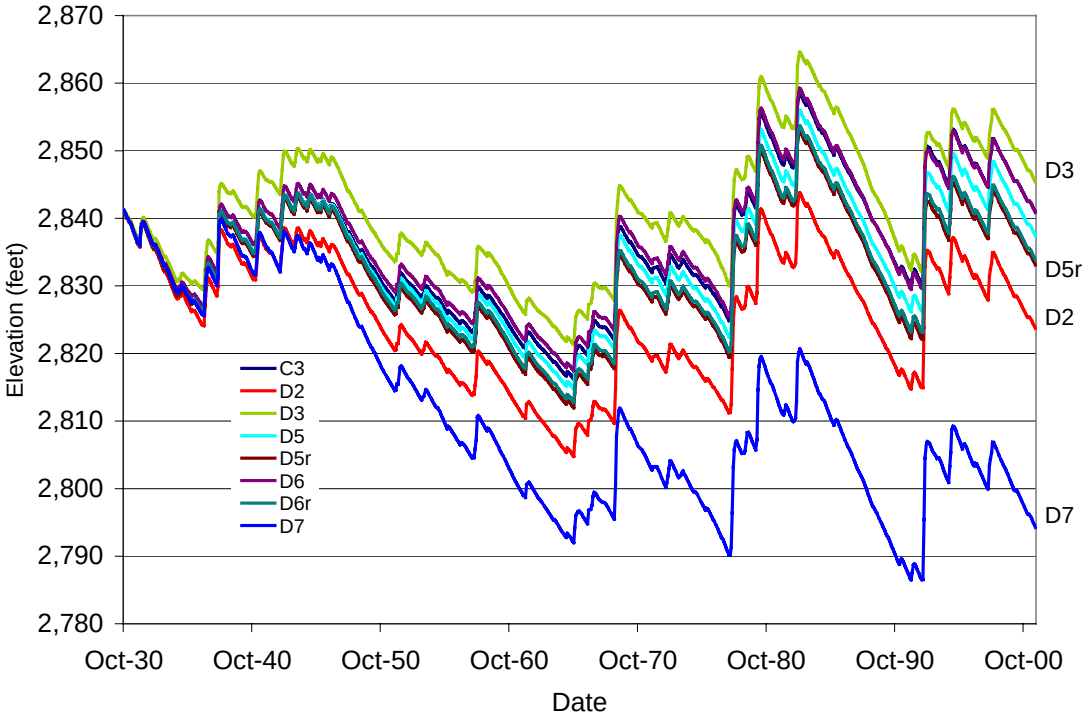



**Figure 3**: Time Series of Elevations in the Alto Floodplain Aquifer

alternative. In Alternative C3, the groundwater elevations drop 24 feet in this alternative, compared to 8 feet or less in each of the other alternatives.

In Alternative D2, there is not enough flexibility to balance all of the aquifers because such a large portion of the SWP supply is allocated to an Alto Treatment Plant. Figure 3 shows the groundwater levels in the Alto Floodplain Aquifer under each alternative. The groundwater levels in Alternative D2 drop 18 feet over the course of the model period compared to a decline of less than 8 feet for every alternative other than D7.

In Alternative D7, the Alto West Regional, Mid-Regional, East Regional, and Floodplain aquifers are significantly depleted. This occurs because of the heavy reliance in this alternative on a Rock Springs release into the Mojave River to meet Alto's supply needs. In Alternative D7, the Alto Floodplain aquifer drops 47 feet in elevation over the course of the modeled period.

## Subarea Interaction

Subarea interaction is measured by the amount of Mojave River flow and groundwater flow that passes from one subarea to another. Figure 4 shows the average annual Mojave River flows in each alternative. Alternative D7 has significantly higher river flows in all river reaches compared to the other alternatives because a large Rock Springs release has been included in the alternative. Several thousand acre-feet of additional outflow from the basin through Afton Canyon would occur annually due to this operation. All of the other alternatives have similar magnitude Mojave River flows on average.

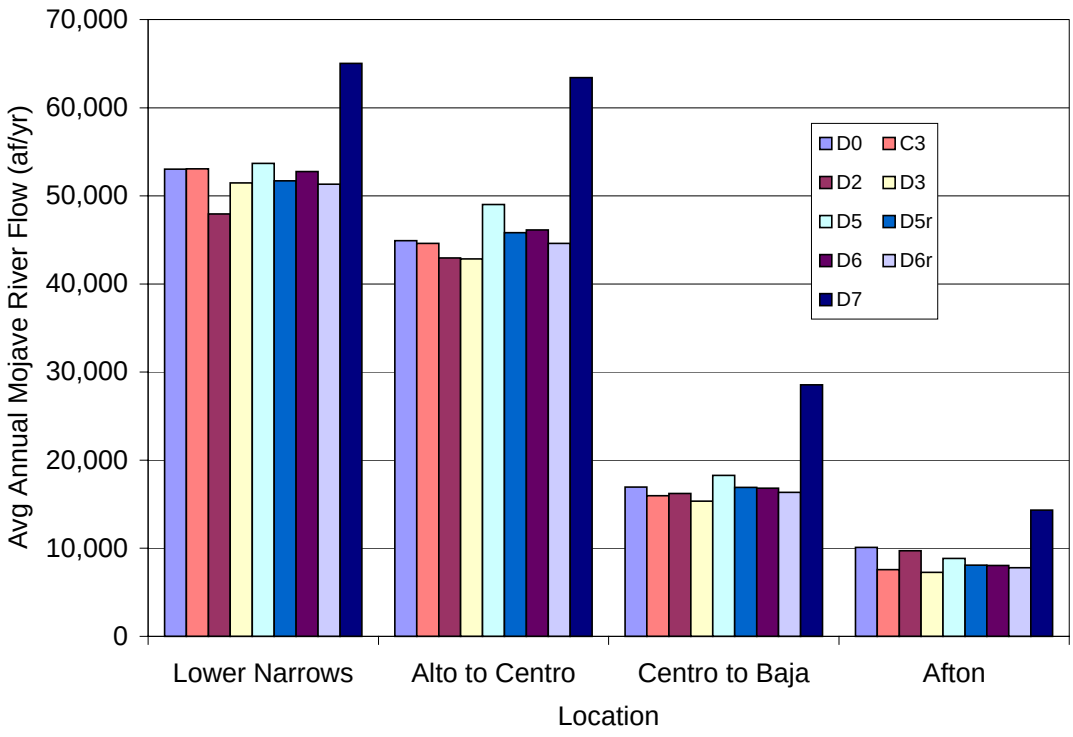


**Figure 4**: Average Annual Mojave River Flows

Figure 5 shows the average annual groundwater flows between subareas in each alternative. In Alternative D7 there is additional groundwater flow from Este and Oeste into Alto because the Alto regional aquifer has been depleted due to insufficient SWP recharge. Alternative C3 has the highest groundwater flows from Centro to Baja because Baja's aquifers are depleted. The other alternatives have similar magnitude groundwater flows.

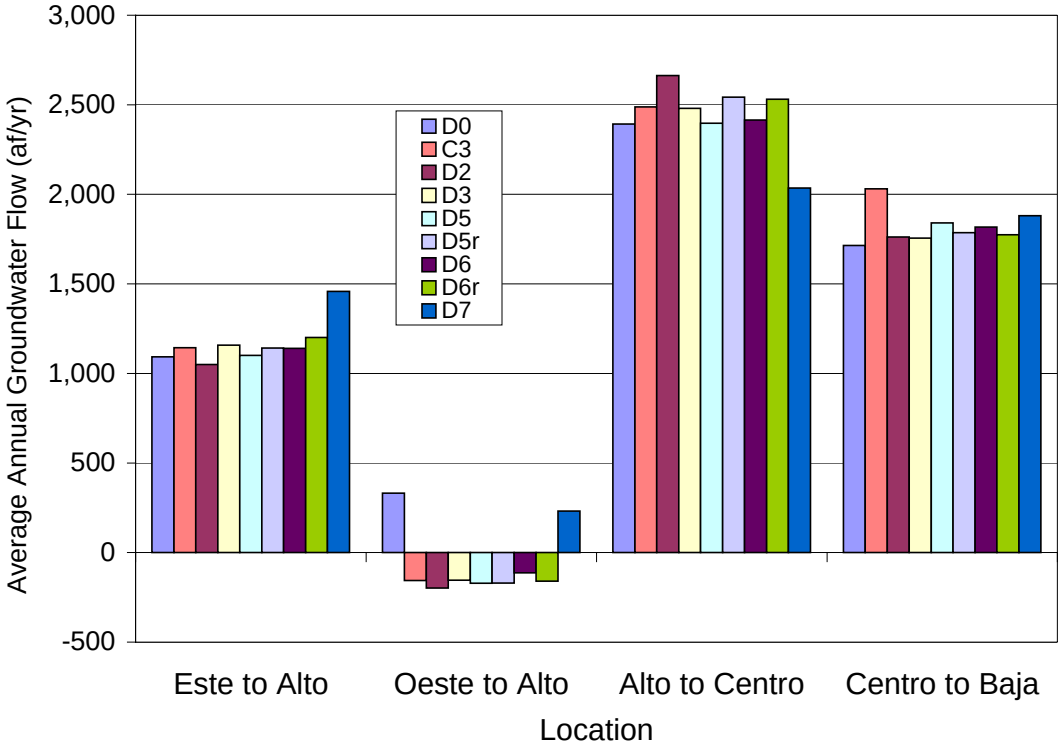



**Figure 5**: Average Annual Groundwater Flows

## Water Quality

All of the alternatives were evaluated to estimate the effects that the proposed imports of SWP water would have on the water quality of each subarea. For each constituent, the estimated quality of SWP water was compared to the quality of the existing water and to the constituent's drinking water standard to determine the degree of improvement or detriment caused by the introduction of SWP water. SWP water is of higher quality than drinking water standards for all constituents.

For most constituents and in most subareas, the quality of SWP water was superior to the existing water quality. However, constituent concentrations in the SWP water were slightly higher than the existing concentrations of boron, nitrates, and TDS in Alto and of boron and nitrates in Oeste.

## Alternative Cost

Table 5 shows the total estimated annualized capital and operating cost for each alternative. The alternatives that include an Alto Regional Treatment Plant (D2, D5, and D5r) have the highest costs.

| Alternative | Annualized Cost ($ millions/year) |
|---|---|
| C3 | $14.6 |
| D2 | $22.9 |
| D3 | $14.1 |
| D5 | $21.3 |
| D5r | $20.8 |
| D6 | $15.9 |
| D6r | $16.1 |
| D7 | $14.6 |

**Table 5**: Annualized Cost of Each Alternative

# Recommendations

Alternatives D5r and D6r have been identified as recommended alternatives to be evaluated in greater detail in Phase 3 of the RWMP Update. Each of these alternatives provide the following benefits:

- 99% of total MWA demand is met with no significant shortage in any subarea or demand sector
- Include an attainable level of 10% municipal conservation
- Provide water quality improvements over existing conditions
- All groundwater aquifer units are in balance
- Each alternative provides benefits to all subareas without negatively impacting other areas

## Common Features

A complete list of projects and management actions included in Alternatives D5r and D6r was shown in Table 3. These alternatives have many common features, including:

- 10% Municipal conservation in the Mojave River Basin, 5% in the Morongo Basin/Johnson Valley area
- Agricultural Scenario 2
- Reclamation of VVWRA discharge above 9,700 acre-feet/year
- Recharge of SWP water into the Alto Mid-Regional, East Regional, and Floodplain aquifers, and into the Baja Regional, Este Regional, Oeste Regional, Warren Valley, Copper Mountain Valley, and Means/Ames Valley aquifers
- Baja and Cushenberry Canyon stormflow retention or equivalent pond recharge projects
- Water supply augmentation for Hinkley and Pioneertown
- Alto wellhead treatment

The primary difference between the two alternatives is that Alternative D5r includes a 12,000 acre-foot/year capacity regional treatment plant in Alto. Alternative D6r includes in-lieu supply of SWP water to Silver Lakes (or the equivalent pond recharge projects) and larger sized recharge facilities in all Alto aquifers.

### Project and Management Action Priorities

An important goal of Phase 2 of the RWMP Update was to identify those projects and management actions that would have the highest priority for consideration in Phase 3. For this purpose, each project and management action included in Alternatives D5r or D6r has been categorized as having High, Moderate, or Low Priority. The designation of priority for each project or management action was determined using the following criteria:

- Whether it is an existing project or is already being pursued by MWA
- The level of current overdraft that the project attempts to mitigate
- Expected growth in the subarea where the project will be applied

Table 6 shows the recommended priority of each project and management action. The projects that have the highest priority include implementing 10% municipal conservation, VVWRA wastewater reclamation, Alto wellhead treatment, a new water supply for Pioneertown, and the recharge of SWP water into the Warren Valley and into the Floodplain, West Regional, and Mid-Regional aquifers in Alto. Municipal conservation is considered to have the highest priority because measures will need to be initiated immediately in order to achieve 10% conservation by 2020. Recharge of SWP water into the Alto Floodplain, West Regional, and Mid-Regional aquifers will require feasibility studies to determine the optimal locations for building the necessary recharge facilities. Many such projects have been proposed, including projects at Oro Grande Wash, Antelope Valley, and Cedar Street in the West and Mid-Regional aquifers, and an Upper Mojave Wellfield Distribution System utilizing Rock Springs or Hesperia Lakes or other additional recharge facilities South of Rock Springs in the Floodplain aquifer.

## References

Mojave Basin Area Judgment (1996) *Judgment After Trial, City of Barstow et al. Vs. City of Adelanto et al.* Superior Court Case No. 208568, Riverside County, CA.

Saracino-Kirby-Snow (2002) *Mojave Water Agency Regional Water Management Plan Update Phase 1 Report.* Saracino-Kirby Snow, Sacramento, CA.

Stamos, C.L., Martin, P., Nishikawa, T., and Cox, B.F. (2001) *Simulation of Ground-Water Flow in the Mojave River Basin, California*. Water-Resources Investigations Report 01-4002 Version 3, U.S. Geological Survey, Sacramento, CA

## Table 6: Recommended Priority for each Project or Management Action

| Project or Action | Aquifer | Existing or Being Pursued? | Amount of Current Overdraft in Aquifer? | Expected Subarea Growth? | New Projects (not in 1994 plan) | Designed or Complete EIR | Comments | Priority |
|---|---|---|---|---|---|---|---|---|
| 10% Municipal Conservation | All | No | High | High | | | 5% in Morongo/Johnson ;Needs to start immediately | High |
| Wastewater Reclamation | All of Alto | Yes | High | High | √ | | VVWRA is actively pursuing | High |
| Alto Regional Treatment Plant | All of Alto | No | High | High | √ | | High expected cost | Moderate |
| Alto Wellhead Treatment | All of Alto | Yes | N/A | N/A | √ | | Addresses localized water quality problems; arsenic standard implementation by 2006 | High |
| Recharge | Alto Floodplain | Yes | High | High | | √ | Rock Springs existing; feasibility studies needed | High |
| Recharge | Alto Mid-Regional | Yes | High | High | √ | | Feasibility studies needed | High |
| Recharge | Alto West-Regional | Yes | High | High | √ | | Feasibility studies needed; Oro Grande tests proceeding | High |
| Recharge | Alto East Regional | No | Moderate | High | √ | | Feasibility studies needed | Moderate |
| Recharge/ In-lieu Recharge | Transition Zone Floodplain | No | Low | High | √ | | Recharge not needed; assumes continued VVWRA recharge; limited drought buffer | Moderate |
| Recharge or Stormflow Retention | Baja Floodplain | No | High | Low | √ | | Feasibility studies needed | Moderate |
| Recharge | Baja Regional | Yes | High | Low | | √ | Feasibility studies needed | Moderate |
| Hinkley Water Supply | Centro Regional | No | N/A | N/A | √ | | Addresses water quality and quantity problems | Moderate |
| Recharge or Stormflow Retention | Este Regional | No | Moderate | Moderate | | | Feasibility uncertain; Judgment limitations for stormflow retention; listed County flood control project | Moderate |
| Recharge | Lucerne Valley | No | Low | Moderate | | √ | Feasibility studies needed; no current demand | Low |
| Recharge | Oeste Regional | No | Moderate | Moderate | | | Feasibility studies needed | Moderate |
| Recharge | Copper Mtn Valley | Yes | Moderate | Moderate | | | Feasibility studies in progress | Moderate |
| Pioneertown Water Supply | Means/Ames Valley | No | High | N/A | | | Addresses water quality and quantity problems; no potable water currently available | High |
| Recharge | Means/Ames Valley | No | Moderate | Moderate | | | Feasibility studies needed | Moderate |
| Recharge | Warren Valley | Yes | Low | Moderate | | | Existing facility, new facilities being investigated | High |

# APPENDIX C

## WATER DEMAND ESTIMATION

# WATER DEMAND ESTIMATION

## Population

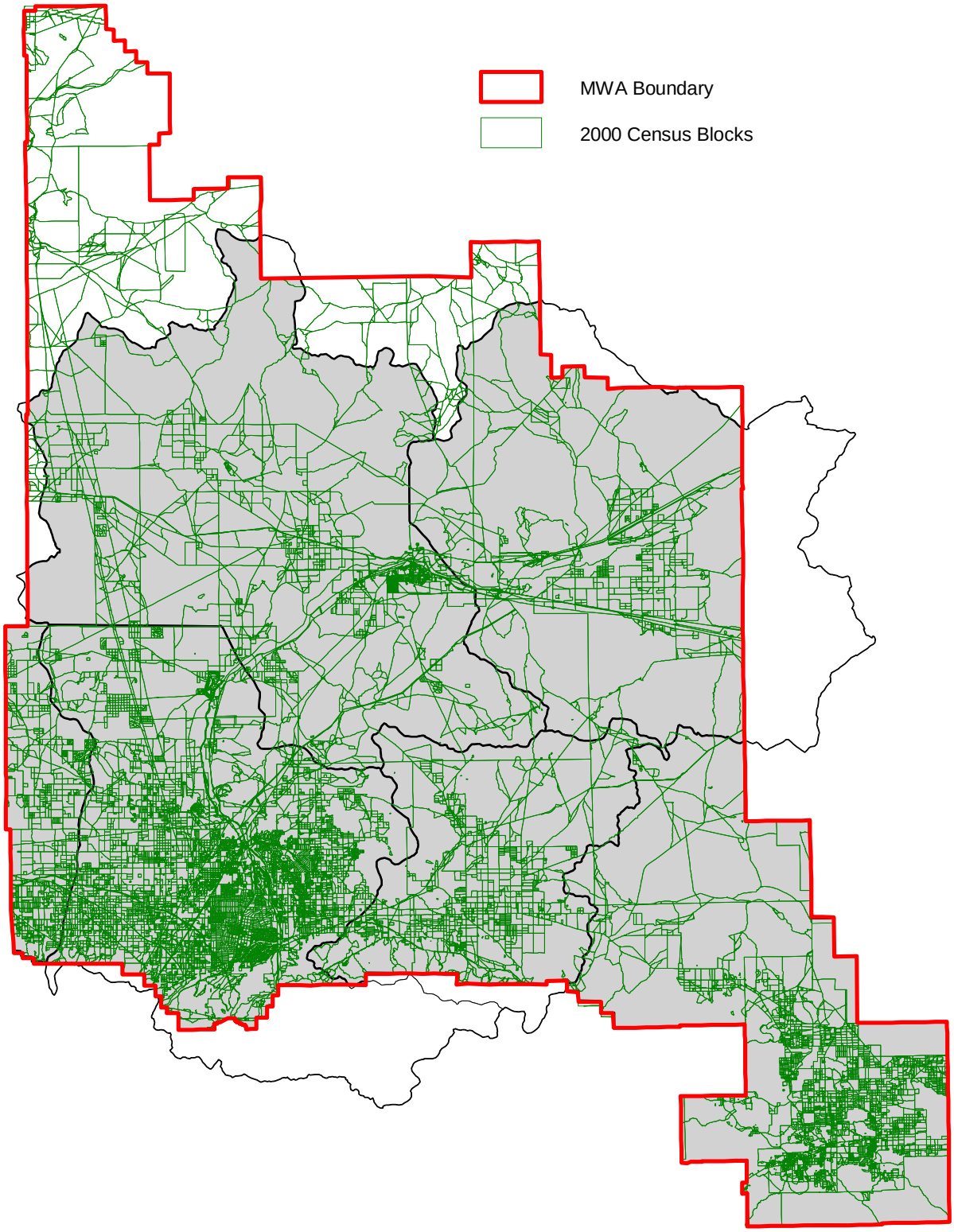
### Current

Year 2000 population data within the Mojave Water Agency (MWA) boundary was obtained from the Southern California Association of Governments (SCAG). This data was used to estimate population distribution over the five subareas in the Mojave Basin Area and the population served by each of the four subbasins in the Morongo Basin/Johnson Valley Area. The following data was obtained from SCAG:

1. Distribution of population by census block within the MWA boundary for 2000.
2. Geo-referenced spatial distribution of census blocks within the MWA boundary for 2000. The census blocks for 2000 can be seen in Figure C-1.

To estimate the 2000 population for each subarea in the Mojave Basin Area, the geo-referenced spatial data for each census block was overlain with geo-referenced spatial data for subarea and MWA boundaries. Every block that fell within one or more subareas and MWA boundaries was analyzed to determine the percentage of area it contained in each subarea. If a particular census block overlapped more than one subarea, the population was distributed in direct proportion to the area of each subarea within the block. The resulting population estimates can be seen in Table 5-1 in Chapter 5 of this Plan.

In the Morongo Basin/Johnson Valley Area, the population totals represent the population that is served by each groundwater subbasin, rather than the population that overlies the subbasin. For the Johnson Valley subbasin, this population was assumed to equal the population overlying the subbasin and was determined using the method described above for the Mojave Basin Area. The proportion of the remainder of the population served by each subbasin were determined for two regions within the remainder of the Morongo Basin/Johnson Valley Area – those




Schlumberger Water Services

# Year 2000 Census Blocks (from SCAG)

Mojave Water Agency
2004 Regional Water Management Plan

Figure: C-1

Date: February 2004

Prepared By: KTW

living within the High Desert Water District (HDWD) boundaries, and those living outside of HDWD. HDWD was determined separately because it has production wells in both the Warren Valley and Means/Ames Valley subbasins that jointly provide water to population overlying both subbasins. In the remainder of the Morongo Basin/Johnson Valley Area, it was assumed that water would be used in the same subbasin from which it was extracted.

The total population in the Morongo Basin/Johnson Valley Area and the population within HDWD were determined by the same method described above. Using the year 2000 municipal production data provided by MWA, the percent of production from each subbasin that served both the HDWD and non-HDWD areas was determined. These percents were then applied to the total population estimates for within and outside of HDWD to determine the total population served by each subbasin. Table C -1 shows the population served by each subbasin within and outside of HDWD and the resulting totals.

**Table C-1: Breakdown of Year 2000 Population in the Morongo Basin/Johnson Valley Area**

| | Within HDWD | Outside of HDWD | Total |
|---|---|---|---|
| Copper Mtn. Valley | 0 | 9,600 | 9,600 |
| Johnson Valley | 0 | 400 | 400 |
| Means/Ames Valley | 3,900 | 3,600 | 7,500 |
| Warren Valley | 14,700 | 0 | 14,700 |
| **Total** | **18,600** | **13,600** | **32,200** |

## Future

Projected population data for the years 2000-2020 was obtained from the Southern California Association of Governments (SCAG). The data provided by SCAG was based on 1990 population tract data because projections based on year 2000 data were not yet available. Figure C-1 shows the 1990 census tracts. Using this data, the percent growth for each 1990 census tract within each subarea in the Mojave Basin Area was determined for each five-year interval from 2000 to 2020. The data provided by SCAG was also used to estimate the population growth rates in the Morongo Basin/Johnson Valley Area for the Johnson Valley and the portion of the Means/Ames Valley outside of HDWD.

By overlaying the 1990 census tracts onto the 2000 census blocks, the total population in the year 2000 was determined for each 1990 census tract. Using these data and the growth rates determined for each tract, future projected populations were estimated for each tract. However, the growth rates were modified in certain cases in order to obtain more reasonable growth rates for the areas in question. These modifications are outlined below:

- All tract areas within Baja were assumed to grow at a constant rate of 1.0% per year. When a tract overlapped Baja and another subarea within MWA, the growth rate for the portion of the tract in the other subarea was increased so that the growth rate for the entire tract was equal to the SCAG projected rate.
- Census tract 9704, which covers the southwestern portion of Este and the southeastern portion of Alto, had a projected growth rate of 2.2% per year. The growth rate for the Este portion of this tract was adjusted to 1.1% per year. The growth rate within Alto was increased to 2.3% per year to make the growth rate of the entire tract equal to the SCAG projected rate.
- Census tract 10405, which covers the eastern portion of Este (about 8% of Este's 2000 population) and the northern portion of the Morongo Basin/Johnson Valley Area (including the Johnson Valley and the portion of the Means/Ames Valley outside of HDWD), had a projected growth rate of 3.5% per year. The growth rates in both Este and the Morongo Basin/Johnson Valley portions of this tract were reduced to 2.0% per year. It was assumed that the growth rate would be increased in the portion of the tract that falls outside of the MWA boundary so that the growth rate for the entire tract would equal the SCAG projected rate.
- Census tract 9104, which covers the northern portions of Alto and Oeste (and includes about 13% of Oeste's 2000 population), had a projected growth rate of 4.0 % per year. It was assumed that population in Oeste within this tract would not increase between 2000 and 2020. The growth rate within Alto was increased to 4.1% per year to make the growth rate for the entire tract equal to the SCAG projected rate.

Once the projected populations for each subarea within each tract had been determined and allocated to the appropriate subarea, the individual tract populations were summed together to determine the estimated total population for each subarea.

The results of this exercise are population projections for each subarea from 2000 to 2020 that are based on SCAG projected growth rates (based on 1990 census tract data and growth rate adjustments noted above) and on 2000 population figures estimated from the 2000 census blocks. Table 5-7 in Chapter 5 shows the projected future populations for each subarea in the Mojave Basin Area and for the Morongo Basin/Johnson Valley Area.

The population growth rates used for HDWD and the Copper Mountain Valley subbasin were determined using data provided by HDWD and by the Joshua Basin Water District (JBWD), respectively. HDWD projects a growth rate of 2.4% per year. This rate was applied to the population overlying the Warren Valley subbasin and to the portion of the Means/Ames Valley within HDWD overlying the Means/Ames Valley subbasin. JBWD projects a growth rate of 1.4% per year, which was used to project the future population to be served by the Copper Mountain Valley subbasin.

## Current Water Demand

### Mojave Basin Area

The following data was available for use in estimating consumptive use in each subarea within each sector from 1995 to 2001:

1. Consumptive use and production for each sector in each subarea in 1997 (Webb 2000).
2. Production by sector in each subarea from 1995-2001 contained for each year in the annual Engineer's Report on Water Supply (MWA 1996-2002). The data contained in these reports were tabulated according to the following sectors: agricultural, municipal, industrial, golf courses and parks, and recreational lakes. These data have been revised in certain cases as indicated below.

For the Regional Water Management Plan (RWMP) Update, water demand was separated into the same sectors referred to in the Engineer's Report. The above data was used to develop estimates of consumptive use for each sector in each subarea in the Mojave Basin Area using the following steps:

1. Determine the consumptive use rate in each sector within each subarea.

2. Estimate the production in each sector within each subarea.
3. Estimate consumptive use by sector for each subarea using the consumptive use rates calculated in Step 1 and the production estimates developed in Step 2.

Each of these steps is described in detail below.

Step 1: Determine Consumptive Use Rates

Webb (2000) contains the results of a detailed study of production and consumptive use in each subarea in the Mojave Basin Area in 1997. For the RWMP Update, the consumptive use and production estimates from Webb (2000) were used to estimate the proportion of each sector's production that was used consumptively. It was assumed that these rates remained constant between 1995 and 2001 and will remain constant through 2020. These consumptive use rates are shown for each subarea and for the Mojave Basin Area as a whole in Table C-2.

**Table C-2: Consumptive Use by Sector For Each Subarea**

| Sector | Alto | Baja | Centro | Este | Oeste | Total Mojave Basin Area |
|---|---|---|---|---|---|---|
| Agriculture | 62% | 63% | 62% | 60% | 57% | 62% |
| Industrial | 100% | 100% | 100% | 100% | 100% | 100% |
| Municipal | 50% | 50% | 50% | 50% | 50% | 50% |
| Golf Courses | 60% | N/A | 56% | N/A | N/A | 60% |
| Recreational | 100% | 100% | N/A | N/A | N/A | 100% |

Step 2: Estimate Production in Each Subarea

Production data provided in the Engineer's Report includes production estimates for each subarea from 1995 through 2001. The demand sectors reported include agriculture, municipal, industrial, golf courses and parks, and recreational lakes. For 1998-2001, these data have been used as is. From 1995-97, however, the municipal production estimates have been adjusted to account for new estimates of minimal user production contained in Webb (2000) that replace the estimates contained in the Mojave Basin Area Judgment (1996). In addition, the agricultural production in Oeste in 1995 and in Este in 1996 has been adjusted to correct errors made in the previous calculations.

Step 3: Estimate Consumptive Use in Each Subarea

The consumptive use for each sector within each subarea in the Mojave Basin Area was determined by multiplying the production in each sector determined in Step 2 by the consumptive use rates calculated in Step 1. In Alto and Oeste, these estimates were adjusted in order to account for the operation of County Service Area (CSA) 70L, in which approximately 80% of the production occurs in Oeste but which has approximately 50% population in each subarea. It was therefore assumed that 50% of the return flow in CSA 70L would occur in each subarea. This had the effect of increasing the municipal consumptive use rate to higher than 50% in Oeste and of lowering the rate to below 50% in Alto. The resulting consumptive use estimates are contained in Table 5-4 in Chapter 5.

## Morongo Basin/Johnson Valley Area

Production within each subbasin in the Morongo Basin/Johnson Valley Area for each sector from 1995-2000 was provided in a table by MWA. Because production data was not available for all wells for 2001, the analysis in the Morongo Basin/Johnson Valley Area only covered 1995-2000. No production data was provided for the Johnson Valley subbasin. All of the production in the Morongo Basin/Johnson Valley Area was for municipal uses except for two wells in the Warren Valley subbasin that supplied water for a golf course.

Consumptive use data was not available for the Morongo Basin/Johnson Valley Area. Therefore, the consumptive use rates were assumed to be the same as those shown for the total Mojave Basin Area in Table C-2.

For the RWMP Update, the water demand was separated into the same sectors as for the Mojave Basin Area. The above data was used to develop estimates of consumptive use for each sector in each subbasin in the Morongo Basin/Johnson Valley Area using the following steps:

1. Estimate the production in each sector within each subbasin.
2. Estimate consumptive use by sector for each subbasin using the consumptive use rates from Table C-2 and the production estimates developed in Step 1.

Each of these steps is described in detail below.

Step 1: Estimate Production in Each Subbasin

The table provided by MWA included production estimates by water district and by sector within each subbasin in the Morongo Basin/Johnson Valley Area. Because HDWD included both municipal production and population in both the Means/Ames Valley and the Warren Valley subbasins, the production for HDWD was tabulated separately for these two subbasins. All other production was assumed to be used in the same subbasin from which it was extracted.

Step 2: Estimate Consumptive Use in Each Subbasin

With the exception of production by HDWD, the return flow from all wells was assumed to return to the same subbasin from which it was extracted. Consumptive use outside of HDWD therefore was determined by applying the total Mojave Basin Area consumptive use rates for each sector from Table C-2 to the production for each sector in each subbasin.

Within HDWD, however, the percentage of the total municipal return flow that returned to the Means/Ames Valley or Warren Valley subbasins was not necessarily the same as the percentage that was extracted from each subbasin. Table C-1 shows the HDWD population that lived over each subbasin in 2000. In 2000, 81% of HDWD's population lived over the Warren Valley subbasin, with the remainder overlying the Means/Ames Valley subbasin. It was assumed that this ratio remained constant from 1995-2000 and therefore that throughout this period 81% of the HDWD production would return to the Warren Valley subbasin regardless of where it was extracted.

In 1995 and 1996 the Bighorn Desert View Intertie transferred water that was pumped outside of HDWD in the Means/Ames Valley subbasin to HDWD. This had the effect of reducing the non-HDWD return flow in the Means/Ames Valley and increasing the total HDWD return flow during these years. As an example, Table C-3 shows the calculations that were used to estimate municipal consumptive use in each subbasin in 1995. Table 5-5 in Chapter 5 shows the consumptive use estimates for each sector within each subbasin from 1995-2000.

**Table C-3: Morongo Basin/Johnson Valley Area Consumptive Use Calculations for 1995 (acre-feet/year)**

| | Municipal Production | BH Intertie Transfer (1) | Applied Production (2) | Return Flow (5) | Consumptive Use (6) |
|---|---|---|---|---|---|
| **HDWD** | | | | | |
| Copper Mtn. Valley | 0 | 0 | 0 | 0 | 0 |
| Means/Ames Valley | 670 | N/A | 540 | 270 | 400 |
| Warren Valley | 1,720 | N/A | 2,320 | 1,160 | 560 |
| **Total** | **2,390** | **470** | **2,860 (3)** | **1,430** | **960** |
| **Non-HDWD** | | | | | |
| Copper Mtn. Valley | 1,500 | 0 | 1,500 | 750 | 750 |
| Means/Ames Valley | 1,110 | -470 | 640 (4) | 320 | 790 |
| Warren Valley | 0 | 0 | 0 | 0 | 0 |
| **Total** | **2,610** | **-470** | **2,140** | **1,070** | **1,540** |
| **Total** | | | | | |
| Copper Mtn. Valley | 1,500 | 0 | 1,500 | 750 | 750 |
| Means/Ames Valley | 1,780 | N/A | 1,180 | 590 | 1,190 |
| Warren Valley | 1,720 | N/A | 2,320 | 1,160 | 560 |
| **Total** | **5,000** | **0** | **5,000** | **2,500** | **2,500** |

Notes:

(1) In HDWD, the inflow from the Bighorn Desert View Intertie was added to the HDWD total production because it was considered a system-wide input and not an input to any particular area within HDWD.

(2) Applied production is the amount of production used in areas that overly a particular subbasin.

(3) Total applied production in HDWD equals municipal production plus deliveries from the Means/Ames Valley via the Bighorn Desert View Intertie. 81% of the HDWD total applied production was assumed to be used in the Warren Valley subbasin and 19% was assumed to be used in the Means/Ames Valley subbasin.

(4) In the Means/Ames Valley subbasin, applied production equals municipal production minus deliveries to HDWD via the Bighorn Desert View Intertie.

(5) Return flow equals 50% of the total applied production.

(6) Consumptive use equals the municipal production minus the return flow.

## Year 2000 Consumptive Use

The year 2000 is the most recent year for which population data is available in each subarea and is therefore used as the base year for the purposes of projecting future consumptive use. The year 2000 consumptive use quantities for the Mojave Basin Area can be seen for each sector in Table 5-4 in Chapter 5. The year 2000

consumptive use quantities for the Morongo Basin/Johnson Valley Area can be seen for each sector in Table 5-5 in Chapter 5.

## Future Water Demand

Future consumptive use for each sector within each subarea in the Mojave Basin Area and each subbasin in the Morongo Basin/Johnson Valley Area was estimated using the year 2000 consumptive use amounts shown in Tables 5-4 and 5-5 of Chapter 5 as a starting point. Agricultural consumptive use was estimated by two different methods, representing low and high estimates of future consumptive use. These are explained below. For the other sectors, the following assumptions were used to estimate the future year demand projections for each sector:

- Industrial and recreational lakes water uses were assumed to remain constant at year 2000 levels. The one exception was industrial use in Alto, which was assumed to increase by 4,000 acre-feet to account for the expected operation of the new High Desert Power Project.
- Municipal water use was assumed to change in direct proportion to the population in each region. Using the year 2000 population amounts calculated from the census data and the municipal production quantities for year 2000, a per capita water use was estimated for each subarea in the Mojave Basin Area and each subbasin in the Morongo Basin/Johnson Valley Area. These per capita water use quantities were multiplied by the population estimates contained in Table 5-7 in Chapter 5 to estimate municipal production in each subarea in each year. In Alto and Oeste, the population was projected and the per capita use rate applied separately for the areas within and outside of CSA 70L. In the Means/Ames Valley subbasin, the population was projected and the per capita use rate applied separately for the areas within and outside of HDWD. The consumptive use amounts were then calculated by assuming a consumptive use rate of 50%. Per capita water use rates for each subarea are shown in Table C-4.
- Golf course consumptive use was assumed to change in direct proportion with the change in municipal consumptive use. It is assumed that the water use in these sectors would increase at the same rate as the increase in population.

**Table C-4**: **Per Capita Municipal Water Use (gallons/capita-day)**

| Mojave Basin Area | | | | | | Morongo Basin/Johnson Valley Area | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Alto** | **Baja** | **Centro** | **Este** | **Oeste** | **Total** | **Copper Mtn. Valley** | **Means/ Ames Valley** | **Warren Valley** | **Total** |
| 267 | 879 | 334 | 267 | 230 | 284 | 147 | 142 | 137 | 140 |

## Agricultural Consumptive Use Estimation

Future agricultural water use was estimated by the following two methods:

Agriculture Scenario 1: assumes that there is no reduction in agricultural water use from year 2000 levels in the future. The agricultural consumptive use in each future year would be the same as those shown for 2000 in Tables 5-4 and 5-5 in Chapter 5.

Agriculture Scenario 2: assumes that the rampdown stipulated in the Mojave Basin Area Judgment (1996) resumes in 2002 and that water demand in the non-agricultural sectors that cannot be met by the non-agricultural free production allowance are first supplied by voluntary transfers of free production allowance from agricultural production. (Note that the Morongo Basin/Johnson Valley Area contains no agricultural production and is outside the boundaries of the Mojave Basin Area adjudication, and is therefore not included in this analysis). The rampdown was simulated by the following method:

- The Base Annual Production (BAP) for each subarea was stipulated in the Judgment. The BAP for each subarea can be seen in Table C-5. These values were used to estimate the Free Production Allowance (FPA) for each subarea in each year. In 2001, the FPA equaled 80% of the BAP. In subsequent years, it was assumed that the FPA would be reduced by 5% of the BAP each year.

**Table C-5: Base Annual Production and Year 2000 Production Safe Yield for each Subarea (acre-feet/year)**

| | **Alto** | **Baja** | **Centro** | **Este** | **Oeste** |
|---|---|---|---|---|---|
| Base Annual Production (BAP) | 113,137 | 66,558 | 49,371 | 19,251 | 6,857 |
| Production Safe Yield (PSY) | 59,287 | 12,205 | 30,304 | 6,538 | 3,356 |

- The Production Safe Yield (PSY) was determined for each subarea each year. The PSY in each subarea was assumed to equal the average net natural water supply (as presented in Chapter 4) plus the expected return flow (flow that was not consumptively used) from the previous year's water production. The initial year 2000 PSY for each subarea can be seen in Table C-5. As production in the subarea increased or decreased, the PSY would also increase or decrease in response to changes in estimated return flow.
- The FPA was not permitted to be less than the PSY. If the expected reduction in FPA would cause the FPA to be less than the PSY, then the FPA would be set equal to the PSY. The FPA would then continue to be equal to the PSY in subsequent years.
- In each year, each subarea was allowed to pump any amount up to the FPA from that year plus any carryover from the previous year. The carryover consists of any unused FPA from the previous year, and is only available to be used for one year.
- The demand in each year was assumed to equal the year 2000 agricultural production plus the projected production in the non-agricultural sectors. If this amount was less than the available FPA and carryover, the entire demand would be supplied and any excess FPA would be designated as carryover for the following year. If the demand was greater than the FPA and the carryover amount, agricultural production would be reduced until the total production equaled the available supply or until the amount of agricultural production was reduced to a pre-set minimum. The pre-set minimum was established to reflect the agricultural production anticipated that could afford to purchase replacement water. The assumed minimum possible agricultural production amounts can be seen in Table C-6.

**Table C-6: Minimum Thresholds on Agricultural Production (acre-feet/year)**

| Alto | Baja | Centro | Este | Oeste |
|---|---|---|---|---|
| 2,100 | 900 | N/A | N/A | 500 |

- Once the agricultural production had been determined in each year, it was converted to consumptive use using the rates shown in Table C-2.

# APPENDIX D

## Issues Questionnaire
## Summary of Responses to the Issues Questionnaire

**Mojave Water Agency**
**Regional Water Management Plan Update**
**Issues Questionnaire**

**July 26, 2001**

**Please return this questionnaire to the Mojave Water Agency no later than August 30, 2001**. Your responses may be added directly to the space provided below each question, or you may receive an electronic version (MS Word) via e-mail by sending your request and e-mail address to Gloria Golike (gloriag@mojavewater.org). If you believe that specific questions do not apply to you, indicate "not applicable" or "n/a". Questions regarding the survey should be directed to Norm Caouette at (760) 240-9201.

1. How important is it to reverse the trend and recover from the current groundwater overdraft?

2. If the current Water Management Plan were fully implemented, how effectively would it meet your current and future needs? How would you improve the plan?

3. Do you think the current adjudication will solve the region's water supply problems in the short-term (1-5 years) and the long-term (6-20 years)? Why?

4. How will you measure the success of this plan update process?

    a. From your perspective?

    b. From a basin-wide perspective?

    c. For the short-term (1-5 years)?

    d. For the long-term (6-20 years)?

5. What is your confidence level that your expectations will be met in the short-term (1-5 years) and the long-term (6-20 years)? Why?

6. What potential barriers or key issues do you see that will need to be addressed in order for this plan update process to be a success?

7. If the update doesn't address your water supply needs, what do you think is the most likely way that you will be able to meet your water needs?

8. What do you think are the primary interests of the other stakeholders?

9. What is your confidence level that the region's water resources can be managed to meet the region's anticipated water needs?

10. If you represent a water utility, what land use planning data do you use for your future water demand projections?

11. If you represent a water utility, what are your current and projected (5-year increments through the Year 2020) water supply needs?

12. Do you gather and maintain groundwater level or groundwater quality data? What data do you have and what format (manual tabulation, electronic) is it in?

13. To what extent should the MWA be involved in regional use of recycled water?

14. To what extent should the MWA be involved in water conservation efforts?

15. Do you have any specific water quality concerns?

16. Introduction of imported water into our groundwater basins may result in some changes to the to the native water quality. Assuming that changes will not exceed State or Federal health standards, should the maintenance of existing water quality take precedence over measures to reverse the existing overdraft and enhance long-term water supply reliability?

17. What are your thoughts about MWA entering into groundwater storage agreements with outside agencies?

18. What are your thoughts about the MWA and/or the Mojave Basin Area Watermaster entering into groundwater storage agreements with water users within MWA?

19. Should the MWA consider purchasing new State Water Project entitlement whenever it might become available?

20. Do you think there is potential for regional projects that would delay or offset proposed local projects?

21. Are you willing to consider delaying local projects in order to develop the regional projects?

22. Are you willing to work with MWA to jointly finance regional capital facilities?

23. How should the purchase of water and construction of facilities needed for the region to recover from the current groundwater overdraft be financed?

24. How should the purchase of water and the construction of facilities needed for future water supply reliability be financed?

25. Should the MWA offer “degrees of reliability” for wholesale imported water purchases with attendant cost differential (i.e. higher water supply reliability at a higher cost)?

26. Should the MWA commit entitlement to State Water Project water by specific region or area and how should it be done?

27. Should the Plan update consider a financing program where everyone pays for regional projects, but new development pays more than the established community?

28. What should be the guiding principle(s) of the Mojave Water Agency?

29. Do you believe there is input from individuals or groups that may be missed by this process? Please identify them.

30. Please provide any additional input you believe pertinent to the Plan update.

# Mojave Water Agency
# Update of the Regional Water Management Plan
# Summary of Responses to the Issues Questionnaire
# Last Revised 4/11/02

| MWA Questions | Responses | | | | | |
|---|---|---|---|---|---|---|
| | **Alto** | **Centro** | **Este** | **Oeste** | **Johnson Valley / Morongo Basin Area** | **Regional / Multiple** |
| 1. How important is it to reverse the trend and recover from current groundwater overdraft? | **City of Adelanto:** It is impossible to recover.<br><br>**Victor Valley WD:** Stabilizing the overdraft so that water consumption does not exceed the combined use of imported water, reused water, and natural inflow/return flow is critical for long term sustainable growth of the High Desert.<br><br>**Jess Ranch:** If the MWA is to fulfill its obligations under the act and the physical solution approved by the court, | **City of Barstow:** Very important. | **Chuck Bell:** It is absolutely important to reverse the trend of the current groundwater overdraft; however, the term "recover" does not reflect reality. What condition in what year at what water table level in what area do we "recover" to? Achieving some semblance of safe-yield is the most we can expect.<br><br>**Norm Nichols:** It must be done. | **Paul Davis:** It seems to be our only option if we are to realize growth, in any manner, for this high desert area. Water is life – water is the future and hopefully the MWA will have a leading role. An ultra conservative approach would be dangerous. Positive thinking for the future with a reaching out to all. | **Joshua Basin WD:** Joshua Basin Water District is addressing the overdraft for the Joshua Tree sub-basin. Our plan is to shift pumping with new wells in the Copper Mountain sub-basin. State project pipeline is needed to deliver water to J.B.W.D. to insure that we do not return to over drafting either of the above basins. It is important but not critical at this time as long as the above plan can be implemented.<br><br>**Hi-Desert WD:** Reversing the trend and recovering from an overdraft of any groundwater basin is | **SBCSDD:** Since groundwater is the primary source of potable water for all the County Service Areas, it is very important to reverse the current overdraft trend to prevent long term damage to the aquifer.<br><br>**DFG:** It is the first priority for the Departments properties at Victorville and Camp Cady and for its Public Trust interests above and below the Mojave Narrows.<br><br>**RWQCB:** Ground water overdraft in aquifers of the |

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| | the issue is one that is critical in nature.<br><br>**City of Victorville:** It is very important that the continuing overdraft be halted. Regarding the replacement of the water previously overdrafted, we are not aware of a benefit versus cost analysis. The appropriate maintained level of the basin should be based on factors such as adequate storage, well-pump efficiency, environmental concerns, downstream impacts, and economic efficiencies.<br><br>**Joe Monroe:** Very important.<br><br>**Victor Valley WRA:** Since groundwater is the only natural supply of potable water in the Victor Valley, it is imperative that the overdraft of the region's aquifers must be stopped, | | | | important to assure a long term water supply. Within the Warren Valley basin, the process of reversing the overdraft began in 1995 with the importation of State Water Project water.<br><br>**Bighorn DVWA:** Important. | Mojave Desert is of serious social and economic concern to all who live and work here. It is very important to reverse the current trend in ground water decline to prevent subsidence and a loss of potential aquifer storage capacity. Long-term growth will be seriously impeded if there are insufficient quantities of water. Without growth the economy may become stagnant, and worse, fall into decline.<br><br>**SCWC:** It is not only important, it is critical. It is clear that without, at the very least, a stabilization of the current overdraft situation, the long-term viability of groundwater supplies, particularly in the lower basins, will be jeopardized.<br><br>**Unknown:** 100% |

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| | and if possible, reversed.<br><br>**City of Hesperia:** The current extent of overdraft in the basin may be irreversible. However, due to the fiduciary responsibility we have to our community and its future we have supported the physical solution and its implementation. Sustainability of the lifestyle and financial investments made by our residents dictates that we work toward a reliable, sustainable supply of water. The physical solution, however, needs to be tempered with economic realism and active participation with the major stakeholders. While it may not be economically viable to attempt to restore the millions of acre feet of overdraft hypothesized by engineering studies, | | | | | |

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| | prudent maintenance and implementation of the physical solution is acceptable to prevent any further deterioration of the groundwater supply. | | | | | |
| 2. If the current Water Management Plan were fully implemented, how effectively would it meet your current and future needs? How would you improve the plan? | **City of Adelanto:** There is no plan that has a physical solution. Our current and future needs depend on the recharging of the transition zone at the lower narrows.<br><br>**Victor Valley WD:** The current Water Management Plan makes certain assumptions about methods of replenishing groundwater that does not meet our needs. The plan needs to include alternatives for placing groundwater close to its points of withdrawal within the regional aquifer.<br><br>**Jess Ranch:** Jess Ranch's needs for water have been fully reserved | **City of Barstow:** If it were implemented uniformly, I think it would benefit everyone in the basin. | **Chuck Bell:** I don't have a copy of the current Water Management Plan, so I cannot respond to its effectiveness to date.<br><br>**Norm Nichols:** The current plan will finally stabilize the water area. | **Paul Davis:** Outlying areas – try Este and Oeste, - have not been fully included within the current Regional Water Management Plan. The major population is on the Mojave River, thus the political course, but, for a successful plan all areas should be included. | **Joshua Basin WD:** As indicated above, the pipeline project was never completed for JBWD to take delivery of state project water.<br><br>**Hi-Desert WD:** Many areas identified in MWA's current Water Management Plan are consistent with the practices of H-Desert Water District. The District has taken many steps to manage the Warren Valley Basin in a responsible manner to meet our current and future needs. The existing plan is very comprehensive and provides a good foundation for responsible water management. An update of events and additional goals to utilize existing technology such as GIS would be recommended. | **SBCSDD:** The District has not studied the current plan and therefore cannot comment on how to improve the plan or what needs it covers; however, there are new issues to be addressed by the update.<br><br>**DFG:** It lacks specificity. Needed are injection, infiltration sites, and the distribution system from them. Need to find money/mechanism to import water ASAP.<br><br>**RWQCB:** Improve the plan by incorporating for direct water use along with conjunctive water use.<br><br>**SCWC:** A fully implemented plan would allow for the best |

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| | for its build out, the more important issue to this stakeholder is how it can participate in the plan, by providing a well field to store and recover water that is anticipated to be spread at the Rock Springs Outlet. Further to provide the high quality water rights that it owns to users in the Regional Aquifer who have a need from the water at a reasonable and competitive price. Jess Ranch believes that the most cost effective means of recharging the MRB in the Alto sub-area is at Rock Springs as is currently defined in the Regional Plan. The issue of water quality is of prime concern and needs to continue to be monitored. If the conclusions in the previous EIR are correct that the spreading of water will not degrade water quality and that natures process of | | | | **Bighorn DVWA:** Little effect. More study. | management of the water basin. The Alternative 2 facilities that have been installed, particularly the Mojave River Pipeline to the Centro Subarea and recharge sites at Hodge and Lenwood, are providing a strong base infrastructure system to ensure that a water supply in this area can be met. With the completion of Alternative 3 recommended facilities the MWA should be able to further meet the needs of the area. We do not have any specific recommendations regarding the improvement plan other than continuing to get purveyor input and buy-in to the work that needs to be done.<br><br>**Unknown:** Isn't more information needed to let people know that the wells are raising because of the water being discharged now?. |

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| | filtration in the Flood Plain works, MWA could easily spread and store all of its annual entitlement on average of 50,000 acre-feet per year at the Rock Springs Outlet. Of course that would leave no water for any other recharge basins. Currently it is anticipated that the Rock Springs Outlet will only recharge between 17,000 to 24,000 acre-feet per year. Assuming the entire Morongo Basin Entitlement was stored in the Alto Flood Plain, recovery wells could be located at Jess Ranch to pump and send treated water through the Morongo Basin Pipeline. This would allow for direct use of the water or injection into aquifers along the way. Water Districts that could benefit such as Mariana Rancho's Water District and the Lucerne Valley could enter into wheeling | | | | | |

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| | agreements with Morongo Basin to offset the costs.<br><br>**City of Victorville:** I don't believe the Plan adequately addresses the use of recycled water. We are in the process of finalizing a feasibility study on recycled water and there needs to be an element in the Plan that acknowledges and addresses this issue. Additionally, the MWA needs to implement a water conservation ordinance.<br><br>**Joe Monroe:** Unable to say without a thorough review of the Plan.<br><br>**VVWRA:** VVWRA as an Agency has not studied or considered the current Water Management Plan, and therefore cannot comment on this question. | | | | | |

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| | **City of Hesperia:** As outlined in Section X of the 1994 Regional Water Management Plan (pg 113), the seven objectives remain viable options for addressing the areas growing demands. Implementation of item #6 (water conservation) has not been addressed by the Agency. It is important that the solutions be balanced with cost-effectiveness. The Alto sub-area expends that greatest amount of financial resources in assessments, make up obligation and replacement water but yet receives minimal recharge benefit. A greater focus needs to be placed on the unique needs in the individual sub-areas. Deviation from a basin-wide solution may be in order. | | | | | |
| 3. Do you think the current adjudication will solve the | **City of Adelanto:** No. It does not put any new wet water back into the | **City of Barstow:** Short term No, long term Yes. The allocations and | **Chuck Bell:** The current adjudication is a long-term solution, with some minor | **Paul Davis:** The basics are there. Fine tuning is needed in the | **Joshua Basin WD:** NA to JBWD | **SBCSDD:** The existence of the adjudication itself indicates the regions desire |

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| region's water supply problems in the short-term (1-5 years) and the long-term (6-20 years)? Why? | system.<br><br>**Victor Valley WD:** In the short-term, rampdown must be implemented until "paper water" is eliminated. The judgment can work long-term if cooperative planning can be implemented.<br><br>**Jess Ranch:** Only if the tenants of the adjudication are followed:<br><br>1. Return Flow is a key component to basin balance, if water agencies are allowed to use water from the Regional Treatment Plant this is a major potential for destroying balance, at least until there is surplus flow.<br>2. If water agencies are allowed to buy SWP water for direct use in Power Plants, this will prevent the agency | rampdowns compel conservation or pay for make-up water. Both ultimately help the overdraft situation. | short-term benefits; the most productive of which will likely be just setting the long-term solution in place and allowing the open market to allocate water to the highest bidder. (Am not sure that will induce the "most beneficial" land-uses. I might prefer in the Mojave Basin, but life isn't always fair). However, with the public willing to pay as much if not more for store-bought bottled water than for gasoline, who knows what other goofy market forces might prevail. The Judgment provides a tool box for some long-term repairs, but is absolutely dependant on securing "wet" water. With even our entitlement in doubt, I am not sure we can answer that question now.<br><br>**Norm Nichols:** It will take a long time. The problem developed over a period of time, and the fix will take time also. | short term. Long term policy should include other water entities - state etc. Along with conservation efforts – water storage within aquifers for future needs. | **Hi-Desert WD:** NA to the Warren Valley Basin area.<br><br>**Bighorn DVWD:** Will help. | to solve the current shortage and plan for the future needs of a growing community. However, the current water levels do not indicate that the adjudication as yet is solving all the short-term supply problems. To achieve the long-term solution that is needed, the plan update should be carefully planned and accepted by all of the water producers.<br><br>**DFG:** In the short-term, clearly not happening. In the long-term yes, IF rampdowns are implemented, issues are solved regarding non-stipulators and newcomers, and imported SWP water is distributed to reach safe yield, offsetting growth.<br><br>**RWQCB:** The question is difficult to answer without knowledge of water supply problems facing the region.<br><br>**SCWC:** Short-term, no; |

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| | from having water available for recharge.<br>3. If politics is the guiding principal instead of pragmatic reality, then the adjudication will not work.<br>4. If the MWA is compelled to recognize the legitimate water rights of the farming community along the Mojave River and places the burden of the overdraft on the municipal producers in the regional aquifer, all of the entitlement water will be purchased and placed in storage. If only 50% of the water is consumed, then the basins will be receiving a 50% benefit and over time the adjudication will work to cure the overdraft.<br><br>**City of Victorville:** No | | | | | long-term, yes. The basin just completed the first five years under the judgment and is now looking at future rampdown needs for each subarea. Anything that is done now will take at least five years to show meaningful benefits. The judgment will work if given time and once significant imported water begins to flow.<br><br>**Unknown:** It must work for the long term. You have nothing if no water. |

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| | to both. Increasing the cost of water does not motivate users to conserve. For the most part, the users (public) are ignorant of the facts concerning the current overdraft and issues relating to the adjudication. A comprehensive public outreach program is needed in order to educate the users' and get their "buy-in" and commitment to help with the current overdraft. Also, the MWA needs to address the issue of a water treatment facility if it will be considering bringing in imported water.<br><br>**Joe Monroe:** Not able to do so – not comprehensive enough.<br><br>**VVWRA:** The legal basis for the adjudication reflects the collective agreement that is necessary to solve the | | | | | |

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| | area's water shortage. However, the physical solution, which is a component of the current adjudication, does not appear to be solving the region's short term or long term problems, as evidenced by the continuous increase in the overdraft of the region's aquifers. It would appear that the physical solution may need to be revised in order to adequately protect the region's water supply.<br><br>**City of Hesperia:** The issues within each of the sub areas are diverse and require a dynamic solution. What may work to bring one sub area into balance may not be the proper remedy for another sub area. A varied yet well-orchestrated approach to basin-wide water management will be crucial to the end result | | | | | |

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| | desired by the physical solution. The adjudication in its current form is a static document. Establishment of recharge basins is a critical component. | | | | | |
| 4. How will you measure the success of this plan update process?<br>a. From your perspective?<br>b. From a basin-wide perspective?<br>c. For the short-term (1-5 years)?<br>d. For the long-term (6-20 years)? | **City of Adelanto:** By how much new wet water goes back into the system.<br><br>**Victor Valley WD:** The plan will be successful if it assures stakeholders that they will have water available to them as they need it. Our agency and many others wish to retain their independence and, therefore, are seeking alternatives that enable us to plan and manage our own water supply. Success will mean offering options without dictating required solutions. Long term success will be measured by sustainable water supply. Short term success will mean capital | **City of Barstow:** (a) Are all the producers being treated the same? (b) Is water available for new development? (c) Is make-up water being purchased? (d) Re-measure the water table and the amount of overdraft. | **Chuck Bell:** A successful process only gets us a plan update, which will mostly consist of "feel good" words on a lot of paper that might look better as trees back in the forest. The success of the plan update itself should be measured on how realistically it guides the agency to the ultimate solution; which is importing even more than just its entitlement water – probably to the detriment of California agriculture – which supplies me enough energy to write these responses. Any benefits associated with the update will likely surface over the long-term, and probably only as a complement to the benefits of the Judgment; and probably | | **Joshua Basin WD:** (a) Joshua Basin Water District will measure the success of this plan update process if it addresses some of our immediate water deliveries. (b) Same as above. (c) Short-term success will be determined by our joined efforts to obtain grant funding to construct the extension of the pipeline for state water deliveries. (d) Long-term success will be determined if additional entitlements are considered for MWA to provide additional state water to Morongo Basin residents.<br><br>**Hi-Desert WD:** If a consensus is reached by all the members and they buy-in to the proposed policies and recommendations. | **SVCSDD:** (a) The success of the plan can be measured by carefully monitoring groundwater levels throughout the Agency, and the success of the process can be measured by the success of the plan. (b) A slowing down of or stop to the overdraft process measured by reductions in annual production by all water producers, including non-stipulated interests and interests with prescriptive water rights. (c) A plan update that accommodates all groundwater systems including systems not perceived to be connected to the Mojave River system with a monitoring program to record water levels and quality for all the systems |

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| | projects to bank water or increase the use of imported water.<br><br>**Jess Ranch:** (a) When municipal production pays for the 80,000 acre feet of water they are over drafting from the basin and the MWA uses these funds to buy all of the annual allotment available. (b) When water levels stabilize and come up, using a "Key Well" analysis. (c) Same as "a". (d) Same as "b".<br><br>**City of Victorville:** The goal of the plan is to provide clean and adequate water supply to everyone within the MWA boundaries and, at the same time, provide a cost-effective supply for future development.<br><br>**VVWRA:** The plan update must consider wastewater reclamation as a beneficial resource, which must be | | more beneficial to the main stream basin than to its eddies like ESTE and OESTE.<br><br>**Norm Nichols:** We are working on all the fronts. | | **Bighorn DVWA:** Will it be better. | within the Agency. (d) The update should identify alternative water supply programs, including regional treatment facilities, as contingencies against unanticipated growth or continued overdraft. Additional sources of recharge, including recycled wastewater, should be included in the study.<br><br>**DFG:** (a) Specificity of recharge basins, their location and their operation which aids or does not negatively impact DFG ownerships and public trust responsibilities. (b) Quiets issues with small, low volume users, off-stream suppliers, does provide facilities and mechanisms in support of Judgment to provide safe yield and meet Exhibit H criteria. (c) Gets a plan in place that can be quickly implemented. (d) Plan is implemented – recharge/storage operations functioning, safe yield |

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| | considered as an integral element of water management for the region. It is important that the regional wastewater authority be involved in this process.<br><br>**City of Hesperia:** (a) The plan must be dynamic. It must also allow the purveyors options to meeting the demands of the physical solution through creative means. (b) A successful plan will not play to individual stakeholders or "squeaky wheels", but will fairly mete out projects that are scientifically sound that will serve to meet the over-arching goal of providing a long-term water supply for the area. Stakeholder consensus for each rampdown or other major consideration is important since we, the stipulator, have chosen to take a "share the pain" approach. (c) Continued | | | | | accomplished, Exhibit H criteria met.<br><br>**RWQCB:** Our perspective is from a basin-wide point of view that looks at both short-and long-term outcomes of your plan. A plan that addresses water quality as well as water quantity for both short- and long-term perspectives would be regarded as successful from our viewpoint.<br><br>**SCWC:** (a)The plan update will need to provide for a continuation of the commitment on the part of MWA and Watermaster to provide adequate supplies of water to each area of the basin pursuant to and in conjunction with the terms of the adjudication. (b) Same. (c) Provide a program(s) under which the current annual overdraft is mitigated, if not altogether halted, for most, if not all the basin. (d) Provide a program(s) |

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| | implementation of the ramp-downs only as necessary. Exploration of alternatives to include imported and recycled sources. Conjunctive use arrangements including imported and recycled sources. (d) Future growth is dependant upon a reliable water supply. Steps must be taken to store adequate supplies for use during time when aqueduct water is unavailable. | | | | | under which the basin overdraft is reversed and provision is made to allow for growth in the basin as well as providing more reliable supplies during drought conditions.<br><br>**Unknown:** Always long-term population growth is now using more in all areas. |
| 5. What is your confidence level that your expectations will be met in the short-term (1-5 years) and the long-term (6-20 years)? Why? | **Victor Valley WD:** Given our current Board and management team, we are very confident that Victor Valley Water District will develop a multitude of water supply options in the next five years. We have a high level of hope that the RWMP can be a cooperative method of assisting us in our water | **City of Barstow:** Low short-term. Greater long-term. Why? Political interference. | **Chuck Bell:** My expectations will most likely be met in the long-term for reasons expressed above.<br><br>**Norm Nichols:** It will take a long time. The problem developed over a period of time, and the fix will take time also. | **Paul Davis:** High confidence level – the demand factor, waterwise, will get the job done. Whether the Mojave Water Agency in its current form will still be in charge depends on their abilities to solve the problems coming up in the future. | **Joshua Basin WD:** Past experience with the pipeline project was only completed to Warren Basin. Joshua Basin Water District spent an additional $300,000 to extend pipeline to the west district boundary. However, the pipeline needed is still not completed to deliver any state water to Joshua Basin Water District. | **SBCSDD:** The District is confident that the expectations of all water producers can be addressed in the plan update. Current expectations, based on the existing plan, are low requiring that the update raise the expectations of all interested parties through a comprehensive management plan for both the short and long term. |

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| | supply goals. Likewise, we feel the options we are pursuing can have regional benefits that can be shared with our neighbors.<br><br>**Jess Ranch:** Stronger as each day goes by. The Supreme Court has recognized that farmers have water rights; the USGS has defined graphically where the overdraft is. Men of common sense can see that it is not the farmers production along the Main Stem of the Mojave River [at least in the upper reaches] that have caused the overdraft.<br><br>As the court establishes who has the responsibility, it should be a short step to implement a plan that assesses the cost to cure.<br><br>In the end, it is only a matter of money – who will pay for the fix. | | | | **Hi-Desert WD:** NA<br><br>**Bighorn DVWA:** Hopeful. | **DFG:** Short term – 50/50; long term – better than 50/50. Because of many existing present day conflicts and lack of public perception of problem. In long term, water shortage problem should become more of catalyst. The basic problem here, as in many such planning issues, is the overcoming of short-term profit interests. For water, is it to be mined or provide a sustainable resource?<br><br>**RWQCB:** Confidence that our expectations will be achieved with the plan is predicated upon a reliable and available source of water. In periods of drought there would be a potential for water quality to degrade.<br><br>**SCWC:** We believe that it is entirely realistic for our short- and long-term expectations to be met. The judgment provides a framework for the |

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| | **City of Victorville:** Not good. It would depend upon the cooperation of all the various water purveyors and communities working together to implement the plan.<br><br>**Joe Monroe:** High, because of the effort GM Brill is putting into it.<br><br>**VVWRA:** VVWRA is confident that this process will result in an updated management plan that will meet the area's short-term and long-term needs. MWA's desire to update the plan demonstrates their commitment to properly manage the region's water resources.<br><br>**City of Hesperia:** We will remain optimistic. | | | | | accomplishment of the short-term goals This, combined with other avenues, as discussed in answers to later questions, provide the opportunity for the long-term goals to be accomplished. This will, however, only occur if the parties work together for the good of the basin rather than focusing solely on their own interests.<br><br>**Unknown:** In the long-term it may be possible, and must work to control water usage - even if building and population must be controlled. |
| 6. What potential barriers or key issues | **Victor Valley WD:** The MWA needs to develop a | **City of Barstow:** (a) Lack of understanding of | **Chuck Bell:** The primary barrier to just adopting an | **Paul Davis:** Political – selfish interests. | **Joshua Basin WD:** Maintain balance in state | **SBCSDD:** Key issues to be dealt with are the |

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| do you see that will need to be addressed in order for this plan update process to be a success? | fair method allocating State Water Project entitlement. In our opinion, in the event of shortages, it should be proportioned based on taxes paid over time by various areas. If our entitlement and groundwater basin storage is used to broker water deals with entities outside our basin, a fair method of allocating the benefits needs to be devised.<br><br>**Jess Ranch:** The Plan mandates an update every five years. The framework of the plan is being implemented at least as to infrastructure. The capital costs in the plan to build the Rock Springs outlet and the Mojave River Pipeline have been or are being spent and these infrastructure projects will soon be complete. The Morongo Basin Pipeline is complete and | the physical situation and the physical solution. (b) Keep attorneys out of it. | updated Plan could be our current unwillingness to acknowledge the future, bottom-line, very harsh realities of severe water shortages; which is understandable when we turn the tap and water comes out. Voids don't get filled until they are created. Pumping from greater depths might be more expensive, but it still provides water, usually cheaper that other alternatives.<br><br>Recent attacks on the adjudication will definitely cloud the plan update process, since the Judgement is the only real tool box at our disposal now. If the Judgement's fate is not resolved before the Plan is drafted, the Plan might have to include alternatives. A State-legislated requirement for developers to obtain real water for new development (a de facto moratorium) could be a reality; | | water deliveries to meet priorities in major quality and overdraft issues. (Warren Basin upstream from the Joshua Basin Water District has quality issues that need to be acknowledged and addressed.)<br><br>**Hi-Desert WD:** The key issue is how the allocation of State Water Project water will be administered by MWA.<br><br>**Bighorn DVWA:** Human nature. Fairness. | continued overdraft conditions in the region and the diversity of opinions as to the best solution to the problem. This diversity of opinions and the motivation for this diversity is the barrier that needs to be removed for the success of the plan.<br><br>**DFG:** Equity with the many off-stream users. Flexibility to handle imbalances within basins caused by transfer of FPA.<br><br>**RWQCB:** Full consideration and incorporation of both short and long-term water quality implications due to the importation and storage of potentially lower quality State Water Project (SWP) into aquifers of the Mojave River.<br><br>**SCWC:** In order for any plan to work, the competing interests of the various parties to the plan must be melded and |

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| | operational. These major components allow MWA to provide water to the majority of its territory where water will be needed in the future.<br><br>The Pipeline infrastructure is based on "Recharge" and "Storage." The capacity of the pipelines can easily handle double the full entitlement of the MWA. The MWA has no funds to put any water in the pipeline. The issue is how to collect funds and from who.<br><br>So our memories are not short, the Plan should recognize the "conditions" imposed on the MRPL. The grant funds were initially sought from the farm home loan administration to prevent the farmers from being squeezed out of business. There are probations on its use. | | obviously having major effects.<br><br>The Plan's ultimate success will depend on how well it accommodates a wide range of options, mechanisms, recharge locations, financial incentives, etc.<br><br>**Norm Nichols:** The farming issue. | | | molded such that the greatest good of the group is met. This may mean that not everyone gets everything that they would want. Compromise and cooperation will be needed. If parties doggedly hold to their provincial desires, the opportunity for success is reduced dramatically or, worst case, eliminated.<br><br>**Unknown:** Control of water usage. |

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| | For instance there is no provision that this pipeline can be used for Power Plants. The sole purpose shown in the grant applications is for "Recharge."<br><br>Even the specific "Recharge Basins" are shown on the Plan. If water is to be used in Power Plants for cooling, it must conform to the Regional Plan – and it is not currently addressed. The consumptive use allocation described in the Physical Solution must be addressed so that all new production for new development is treated equally. If power plants can use either natures water or water purchased from the SWP it must be consistent with the 50% consumptive use policies that all other producers are held to. In other words if water is to be used for cooling and men of wisdom approve | | | | | |

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| | this use as a priority over domestic consumption, then the cost should be at least equal, power producers should but two acre feet of water for each acre foot consumed returning one acre foot to the basin to cure the overdraft as was stated as the reason for the grant money.<br><br>**City of Victorville:** The commitment and cooperation of every water purveyor and user is needed in order for this plan update process to be a success. Again, the recycled water element needs to be added using information from the WateReuse Association and examples from other cities and agencies that have successfully implemented a recycled water program. Additionally, it will also take the cooperation of everyone involved working together towards | | | | | |

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| | implementing the plan and not spending money on attorneys.<br><br>**Joe Monroe:** Resistance by some stakeholders.<br><br>**VVWRA:** The cost of water will increase in the region, which many will use as a reason to resist updating or changing the plan. The physical solution to the adjudication must also be revised, which will require a considerable effort by all of the stipulated parties. It is imperative that the plan clearly identify the consequences of the current rate of overdraft if no changes are made, and it is equally important that the plan identify the positive aspects of proper water management in this arid region.<br><br>**City of Hesperia:** | | | | | |

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| | Commitment from the stakeholders to the physical solution is a key element in maintaining the current course of action. MWA must not get in a position of making "deals" with each of the different entities, but rather must take a sub-area or regional approach. | | | | | |
| 7. If the update doesn't address your water supply needs, what do you think is the most likely way that you will be able to meet your water needs? | **City of Adelanto:** By recharging the Transition Zone up stream of our well field.<br><br>**Victor Valley WD:** We are not relying solely on the MWA to meet our long-term water supply needs. We are seeking a measure of independence by seeking supply from multiple sources such as conservation, re-use and groundwater storage.<br><br>**Jess Ranch:** N/A<br><br>**City of Victorville:** By | **City of Barstow:** This is an unacceptable scenario. | **Chuck Bell:** If the update doesn't address (my) water supply needs (obviously I don't know that yet), it will likely be due to a predominant focus on mainstream issues; a predictable outcome since fewer options are available in the fringe ESTE sub-area. Our agricultural production is declining, our water market is of low to zilch value, and we can probably live off groundwater longer than most of the other basins. If the update doesn't work for us, we will just continue | **Paul Davis:** The courts, or, in Oeste interests, update the water management plan. | **Joshua Basin WD:** I would expect that the update would meet our major water supply as noted above. If water deliveries are reduced, we can meet our water needs through other alternative plans.<br><br>**Hi-Desert WD:** A great portion of our future water supply needs relies on MWA's ability to provide State Water Project water through the Morongo Basin Pipeline. Without that water or a different source of supplemental water, overdraft of the Warren | **SBCSDD:** It is the District's opinion that the plan update must address all the out-standing issues and that there is no recourse through the Mojave Water Agency (MWA). If the plan is not successful then the water producers must individually and collectively find a source independent of the MWA.<br><br>**DFG:** Unknown at this time.<br><br>**RWQCB:** N/A |

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| | implementing a recycled water program whereby large-end water users (i.e., greenbelts parks, golf courses, cemeteries, and large factories) use recycled water to maintain the greenery.<br><br>**Joe Monroe:** By my purveyors efforts to find source(s).<br><br>**VVWRA:** This question does not apply to VVWRA.<br><br>**City of Hesperia:** Undecided. | | pumping. Delivery of imported water via the Morongo pipeline is certainly an advantage. All we need is a recharge basin and some water; both of which would be components in a successful Plan, assuming we or a grant can pay for it.<br><br>**Norm Nichols:** It will take a long time. The problem developed over a period of time, and the fix will take time also. | | Valley Basin is likely to occur once again. Exploration of other sources would be necessary to avoid this.<br><br>**Bighorn DVWA:** Local. | **SCWC:** Presently, available water pursuant to the judgment is sufficient to meet virtually all of our current needs within the basin. Should further rampdowns occur and/or should significant growth occur within our service areas, then additional supplies, most probably imported, would be needed. An alternative would be to acquire additional rights within the basin.<br><br>**Unknown:** Move where more water is available. |
| 8. What do you think are the primary interests of the other stakeholders? | **City of Adelanto:** Bringing new wet water into the region. The economy is the driver for new development, that makes it difficult to determine a growth rate.<br><br>**Victor Valley WD:** Quantity – Quality – Cost. Sufficient quantities of water for future growth. A supply | **City of Barstow:** Being able to continue to produce water, being able to continue to issue "will serve" letters, being treated equitably under the plan criteria. | **Chuck Bell:** The primary interest of just about everyone involved is probably new sources of affordable water, or access to deep aquifers we haven't tapped yet.<br><br>**Norm Nichols:** Failure to see a dry desert. | **Paul Davis:** Hopefully – the same as ours! | **Joshua Basin WD:** I would think that other stakeholders would want to acquire as much water as they can to meet their anticipated growth projections. Adjudication has been a major issue for most agencies. So far our AB3030 program is being implemented to manage our basins.<br><br>**Hi-Desert WD:** Equity to | **SBCSDD:** The District cannot speak for the other stakeholders, however, it is our opinion that all the stakeholders interests should include the fair and equitable solution to the protection of the regional water resources.<br><br>**DFG:** M&I interests - growth; small farmers, landowners - sustainability; |

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| | plan that protects water quality (as defined by drinking water standards). Plans to minimize cost while meeting quantity and quality requirements.<br><br>**Jess Ranch:** A. For agriculture interests who have the God given right to nature's water, to ensure that they are charged for production in the regional aquifer and curing an overdraft they did not create.<br><br>B. For municipal producers to make decisions that ensure that there is a reliable water supply for existing will serve letters and future will serve letters and face the reality that the cost of water is going to dramatically increase. Board Members need to stop being lied to by the lawyers.<br><br>**City of Victorville:** It is | | | | all divisions during the re-districting process of MWA. When and how they will be able to use SWP water. Banking allocation for the future. Term of the IDM agreement. Others buying into the MB Pipeline. The 1/7 allocation.<br><br>**Bighorn DVWA:** Individual and social interests. | some alfalfa growers - delay of cost imposition (rampdown, makeup water) for period long enough to cover operations and provision of capital to move on to cheaper water or sell land for profit.<br><br>**RWQCB:** Most likely water quantity and sustained use for the long-term.<br><br>**SCWC:** While we would not purport to speak for any other entity, we would expect that the general interest of other stakeholders in the basin is similar to ours – i.e. ensure adequate supplies of water at reasonable prices on a continuing basis (including during drought events).<br><br>**Unknown:** Sell - Sell – Money- Money – No care for the future. |

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| | not politically correct to say so, but unfortunately, political issues drive many stakeholders while other are driven by the goal of increased profits from the sale of water.<br><br>**Joe Monroe:** Getting sufficient supplies.<br><br>**VVWRA:** The cost of providing water to their customers, and their ability to continue providing this service.<br><br>**City of Hesperia:** Ability to meet production demands, water quality issues, and affordability of the physical solution. | | | | | |
| 9. What is your confidence level that the region's water resources can be managed to meet the region's anticipated water needs? | **Victor Valley WD:** A high level of confidence for the currently urbanized areas.<br><br>**Jess Ranch:** Very high if the municipal producers recognize that they are responsible for the overdraft and | **City of Barstow:** Good. | **Chuck Bell:** MWA has been telling us that the "region's water sources" can't meet the "region's anticipated water needs," at least over the long term. In ESTE, we can probably remain self-sufficient for quite a long time under our "anticipated" needs, | **Paul Davis:** Confidence level? Being a positive thinker, I believe that if all stakeholders will address all issues with an eye on the future of this region – all will go well. Not having an extensive water | **Joshua Basin WD:** Difficult to say at this time, but if you know the history of managing water resources I have some concerns that not everyone is responsible to help manage both water needs and quality issues.<br><br>**Hi-Desert WD:** With | **SBCSDD:** If the MWA can obtain the necessary level of trust by consistently addressing the issues throughout the entire Agency, then the regions water resources can be managed to meet the current and long-term needs. |

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| | immediately start a method of paying for it. A $15.00 per month surcharge on each water bill would begin to ensure water for the future.<br><br>**City of Victorville:** Not very high. The high desert is experiencing rapid growth and increased population every year. This is a boon for the pro-growth cities in the high desert. It would be unacceptable to see a moratorium placed on building because of the diminished water supply.<br><br>**Joe Monroe:** High.<br><br>**VVWRA:** The cost of providing water to their customers, and their ability to continue providing this service.<br><br>**City of Hesperia:** Optimistic. | | especially with the current decline of agricultural pumping. Regionally, there is still FPA (paper water) to move around. Much depends on what demand is "anticipated." Developers having to literally bring in their own water could prolong the viability of our local regional groundwater sources.<br><br>**Norm Nichols:** It has to work! | background, I, like many others, have to rely on MWA's expertise to lead the way. And as I have noted before, it is the responsibility of the agency to put forth these issues to the public so that they too will accept responsibility for proper decisions. | continuous growth within the boundaries of MWA and the difficult balance between domestic and agricultural uses, additional sources of water for MWA will be necessary. The State Project Water system has already proven to be somewhat interruptible source because of its dependency on yearly rainfall and snowmelt.<br><br>**Bighorn DVWA:** Hopefull. | **DFG:** Legal, agency mechanisms mostly exist. Technical ability available, need implementation of rampdowns and water importation.<br><br>**RWQCB:** We believe the potential to solve the region's anticipated water needs while maintaining water quality objectives is very high.<br><br>**SCWC:** We are confident that if parties to the judgment allow it to work, without attempting to twist it to meet their own parochial needs, then the region's existing water resources will not only be managed, but also augmented through the importation of state water. As noted earlier, effectively implementing this part of the basin plan is critical to the long-term future of the basin.<br><br>**Unknown:** Very low if |

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| | | | | | | regulation's and control are not enforced. |
| 10. If you represent a water utility, what land use planning data do you use for your future water demand projections? | **Victor Valley WD:** We utilize both County and City planning documents, including the General Plan, zoning, and growth projections. We develop water use coefficients by land use type and use these factors to estimate total water demand at saturation density. We use a rolling 2-5-20-40 year window for capital facilities.<br><br>**Jess Ranch:** N/A<br><br>**City of Victorville:** Victorville currently oversees the water utility at SCLA and is currently working on a master plan for water, sewer and storm drain usage.<br><br>**Joe Monroe:** We don't have control of the variables.<br><br>**VVWRA:** This question does not apply to | **City of Barstow:** N/A | **Chuck Bell:** I do not represent a water utility. Not much "future water demand projecting" going on here. A new house being built here is usually the "talk of the town." Most of the water purveyors and their wells are located south of the Helendale Fault in the so-called "Fifteen Mile" basin; water levels of which have remained fairly constant over the years due to the fault barrier, minimal agricultural pumping, etc. The bulk of the overdraft is in the "Lucerne" basin north of the fault; non of which drains to the Mojave River – actually a closed basin that if filled would flow to the Colorado River. (Of course a lot of us would drown first)!<br><br>**Norm Nichols:** N/A | **Paul Davis:** N/A | **Joshua Basin WD:** We are in the unincorporated area of the San Bernardino County and have been using the county's zoning plans for our District water needs.<br><br>**Hi-Desert WD:** Our future water demand projections are derived from the General Plan of both the Town of Yucca Valley and the County of San Bernardino. Hi-Desert Water District provides water service to both the incorporated and unincorporated areas.<br><br>**Bighorn DVWA:** Varied. | **SBCSDD:** Water demand projections for the District are based on figures provided by the County of San Bernardino Planning Department, who in turn is provided figures by the United States Census Bureau.<br><br>**DFG:** N/A<br><br>**RWQCB:** N/A<br><br>**SCWC:** We have used the City of Barstow General Plan, as modified by later information and our own experience, to forecast growth in the number of customers and our historical consumption records to determine water use per customer. In other areas in the basin where we serve, we consult with the local planning departments and utilize our knowledge of available growth opportunities within the area (partly driven by past |

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| | VVWRA.<br><br>**City of Hesperia:** Land use and zoning maps, historic and project growth rates, sphere of influence, per capita consumption, Urban Water Management Plan and Water Master Plan. | | | | | growth patterns) to determine probable future growth patterns.<br><br>**Unknown:** N/A |
| 11. If you represent a water utility, what are your current and projected (5-year increments through the Year 2020) water supply needs? | **City of Adelanto:** 2005 = 10 MGD, 2010 = 16 MGD, 2015 = 20 MGD, 2020 = 25 MGD<br><br>**Victor Valley WD:** See the *VVWD Long Range Water Supply Plan* dated January 2001. Our current annual demand is between 17,000 and 18,000 acre feet. The 2020 projection for demand is 28,0000 acre feet.<br><br>**Jess Ranch:** N/A<br><br>**City of Victorville:** No answer.<br><br>**Joe Monroe:** Unable to project needs adequately. | **City of Barstow:** N/A | **Chuck Bell:** (Same as #10) I do not represent a water utility. Not much "future water demand projecting" going on here. A new house being built here is usually the "talk of the town." Most of the water purveyors and their wells are located south of the Helendale Fault in the so-called "Fifteen Mile" basin; water levels of which have remained fairly constant over the years due to the fault barrier, minimal agricultural pumping, etc. The bulk of the overdraft is in the "Lucerne" basin north of the fault; none of which drains to the Mojave River – actually a closed basin that if filled would | **Paul Davis:** N/A | **Joshua Basin WD:** Our current new DRAFT Water Master Plan projects the following water needs: 2000 = 1,550 AF; 2005 = 1,639 AF; 2010 = 1,773 AF; 2015 = 1,905 AF; 2020 = 2,037 AF<br><br>**Hi-Desert WD:**<br>2005 – 2,835 AF<br>2010 – 3,484 AF<br>2015 – 3,753 AF<br>2020 – 4,043 AF<br><br>**Bighorn DVWA:** 2% to 7% (guestimate). | **SBCSDD:** The District has not generated projections for all the County Service Areas, however, has recently contracted with consulting professionals to provide detailed studies on those service areas that have not been analyzed. The following are the projections (in acre feet) for those areas where studies have been completed:<br>CSA 70 L (Pinion Hills Phelan Area) 2005 = 3,632; 2010 = 4,272; 2015 = 5,026<br>CSA 70 J (Oak Hills) 2005 = 3,710; 2010 = 4,512<br>CSA 64 (Spring Valley) 2005 = 3,468; 2010 = |

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| | **VVWRA:** The question does not apply to VVWRA.<br><br>**City of Hesperia:**<br>Year Acre Feet<br>2000 15,635<br>2005 17,093<br>2010 19,815<br>2015 22,971<br>2020 26,630 | | flow to the Colorado River. (Of course a lot of us would drown first)!<br><br>**Norm Nichols:** N/A | | | 3,829; 2015 = 4,191; 2020 = 4,552<br><br>**DFG:** N/A<br><br>**RWQCB:** N/A<br><br>**SCWC:**<br>Barstow (Centro Basin):<br>2005: Cust=8634, 10404 AF;<br>2010: Cust=8897, 10720 AF;<br>2015: Cust=9167, 11046 AF;<br>2020: Cust=9445, 11381 AF<br><br>Apple Valley (Alto Basin)<br>2005: Cust=2251, 1029 AF;<br>2010: Cust=2411, 1101 AF;<br>2015: Cust=2582, 1176 AF;<br>2020: Cust= 2767, 1259 AF<br><br>Apple Valley (Este Basin)<br>2005: Cust=272, 162 AF;<br>2010: Cust=285, 170 AF;<br>2015: Cust=298, 177 AF; |

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| | | | | | | 2020: Cust=313, 186 AF<br><br>**Unknown:** N/A |
| 12. Do you gather and maintain groundwater level or groundwater quality data? What data do you have and what format (manual tabulation, electronic) is it in? | **City of Adelanto:** We have both and it is in manual form.<br><br>**Victor Valley WD:** We maintain extensive records of groundwater levels and water quality. All our existing wells are currently equipped with automatic water level sensing equipment which can gather water levels in real time. Water levels are captured on our telemetry system and also recorded in Excel spreadsheets. Various water quality constituents are measured at well heads per a sampling plan approved by the Department of Health Services. Samples are taken weekly and evaluated by an independent lab. Hard copies of the results are | **City of Barstow:** No, but our purveyor, Southern California Water, does. | **Chuck Bell:** I have sporadic groundwater level and quality data for this property. Ed Stringer has significant data on numerous well levels (including mine) over many years throughout much ESTE, with consistent and standardized measurements, on graphs, etc. Either MWA or Bob Wagner has copies. If Judge Kaiser accepts ESTEs proposed alternative to immediate rampdown, this data will have to be brought up to date.<br><br>**Norm Nichols:** See Ed Stringer in ESTE. | **Paul Davis:** Local – El Mirage Area – I do record some individual wells in the area regarding groundwater levels and have information through Lahontan as to water quality. My data is collected with a electronic unit. There has been studies by Lahonton as to water quality. | **Joshua Basin WD:** We have been gathering both manual and electronic data working with USGS during our four-year ground water basin study. A dozen monitoring wells have been installed throughout our two basins. This second year we will put together our basin's computer program with USGS.<br><br>**Hi-Desert WD:** We gather both water levels and water quality information. Currently this data is manual tabulation but is scheduled to be converted to a computer database by the end of the year.<br><br>**Bighorn DVWA:** Yes. General. Manual. | **SBCSDD:** The District does gather data and maintain records on both the water levels and quality as required by the Department of Health Services (DHS). The District's records have been charted manually in tabular form, however, the DHS has converted recent records to digital format.<br><br>**DFG:** Water level data at Cady, hatchery - in Excel spreadsheets<br><br>**RWQCB:** Yes, we have collected water quality data from a number of monitoring wells in the Mojave River watershed from the Mojave River floodplain aquifer, our regulated discharges, El Mirage, and Ivanpah Valley. Our intent is to incorporate groundwater |

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| | maintained in files and some digital water quality data is also maintained.<br><br>**Jess Ranch:** N/A<br><br>**City of Victorville:** No.<br><br>**Joe Monroe:** We do both, in both formats.<br><br>**VVWRA:** VVWRA gathers and maintains groundwater level and water quality data for One (1) upgradient and three (3) downgradient monitoring wells. The data is available in Microsoft Excel format.<br><br>**City of Hesperia:** We have well level data and hydrographs per well per month and per well per year from 1983 to the present. Other raw production data is available from the 1970s. We maintain weekly water quality data. This data is available from | | | | | quality data provided by facilities we regulate into our existing database. The ground water database is maintained using Microsoft Access software.<br><br>**SCWC:** SCWC maintains groundwater level and groundwater quality data at each of its active production wells. The data is maintained in hard copies as well as in internal database spreadsheets. Electronic copies of Title 22 monitoring data are available from the Department of Health Services.<br><br>**Unknown:** N/A |

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| | 1990 in the form of lab reports and Title 22 reports. | | | | | |
| 13. To what extent should the MWA be involved in regional use of recycled water? | **City of Adelanto:** It is important to put recycled water to beneficial use.<br><br>**Victor Valley WD:** I don't see MWA having a role in the development of recycled water. The jurisdiction for this water source seems to belong to the sewer agencies and water retailers.<br><br>**Jess Ranch:** To the extent that it is calculated to provide balance to basins, keeping the transition zone full and water quality issues. If at some point in the future there is surplus water, then the use of reclaimed water should be allocated equally to all stakeholders.<br><br>**City of Victorville:** MWA could oversee and monitor the distribution of recycled water | **City of Barstow:** I don't think they should. There are other agencies that already regulate gray water and secondary water systems. | **Chuck Bell:** Generally, MWA should have a role in the regional use of recycled water in its jurisdiction. A lot of the region's groundwater has been "recycled" from upstream users for the past 100+ years. The most likely issue will be, per the adjudication – whose water is it and would its management put MWA into a different role? Recycled water that is recharged becomes part of the system. Recycled water held in ponds for subsequent uses might be a different matter. (That's a long way of saying "I don't know").<br><br>**Norm Nichols:** Totally involved. | **Paul Davis:** N/A | **Joshua Basin WD:** We do not see any sewers installed for another 5-10 years in our area. If recycled water in the Victor Valley area would help reduce using state water then I would say MWA should be involved in recycled water.<br><br>**Hi-Desert WD:** It could be an additional water source and should be explored. Additionally, MWA should encourage agencies to utilize this commodity when available and where feasible. HDWD is currently designing a wastewater facility for long term future construction. Included in the design is the use of recycled water for supplemental recharge into the Warren Valley Basin.<br><br>**Bighorn DVWA:** Interesting, but no opinion. | **SBCSDD:** Recycled water should be considered as a beneficial resource to the region, and further regarded as an alternate to potable water for non-potable usage. The MWA should consider this resource in the water management plan update as well as future potential sources of recycled water.<br><br>**DFG:** As pertains to meeting Judgment conditions. May have to become a permitting agency if intra-basin imbalance will result.<br><br>**RWQCB:** Use of recycled water within MWA should be encouraged to defray use of fresh water. MWA should provide regional leadership and incentives for the appropriate use of recycled water.<br><br>**SCWC:** |

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| | throughout all the high desert cities to ensure compliance with State standards. Recycled water should not be dominant in any one agency, but the benefits shared equally by all. MWA should be responsible for insuring that recycled water is either used for make up of downstream obligation or resold to member entities of the VVWRA.<br><br>**Joe Monroe:** That must be part of the physical solution.<br><br>**VVWRA:** MWA must address recycled water as a beneficial resource for the area, and as a mechanism to reduce the current overdraft of the region's aquifers. It is clear that the physical solution to the adjudication serves to discourage reclamation as a means to reduce the use of potable | | | | | MWA should act as a coordinator/facilitator/ financier of such projects for the good of the basin, so long as so doing does not upset its existing obligations under the judgment (e.g. redirection of recycled water used for river recharge to other purposes).<br><br>**Unknown:** Be 100% that it is used for crops and land and not household. |

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| | groundwater for non-potable uses. For this and other reasons the physical solution should be revised.<br><br>**City of Hesperia:** As a regional entity responsible for the groundwater basin, it is a natural fit to be involved in recycled water projects. Such projects will reduce the demand on potable water for irrigation purposes. MWA is the common denominator between the municipal entities producing recycled water and the purveyors pumping groundwater. | | | | | |
| 14. To what extent should the MWA be involved in water conservation efforts? | **City of Adelanto:** It is very important to implement water conservation on a regional basis.<br><br>**Victor Valley WD:** MWA should actively promote water conservation to extend the usefulness of SWP | **City of Barstow:** Water conservation should be one of the criteria used in the decision to sell additional water to a purveyor. | **Chuck Bell:** The water market and future higher costs will eventually induce greater conservation, but MWA should be involved. A combined effort involving the Mojave Desert Resource Conservation District might be the most productive. | **Paul Davis:** 100% involvement in water conservation! By whatever measures – the MWA has to get the public more involved as to the conservation factor. My observation is that the MWA falls short as to informing the public in this | **Joshua Basin WD:** This is an important issue that to further make best use of our water needs we all need to be involved in water conservation including MWA.<br><br>**Hi-Desert WD:** Conservation efforts should be adopted by the individual | **SBCSDD:** The MWA should support and encourage water conservation efforts, however, it is the responsibility of the water producers to individually and collectively enforce water conservation through their ordinance, resolutions and other legal methods |

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| | entitlements.<br><br>**Jess Ranch:** In an educational format only – MWA's role is to provide supplemental water from the SWP, as a wholesaler.<br><br>MWA did agree to establish water pricing policies within the conditions for the MRP Grant for users who conserve water. This could be a tool to establish a pricing policy that requires 2:1 replacement use for Power Plant Cooling.<br><br>**City of Victorville:** This is extremely important. MWA should undertake a comprehensive public education and outreach program to connect with every demographic in the high desert regarding the seriousness of the water issues affecting the high desert and its residents. The "conservation" | | **Norm Nichols:** Total. | regard. | agencies as they believe is appropriate for their individual areas and constituents. At the most, MWA's involvement with conservation efforts should be to encourage agencies to adopt policies and ordinances where feasible and appropriate.<br><br>**Bighorn DVWA:** Large extent. | available.<br><br>**DFG:** Probably only as needed to cover occurrences/areas outside of local jurisdictions (cities, water districts).<br><br>**RWQCB:** Here also, MWA must provide the leadership, long range planning, and conservation incentives to bring water users to implement conservation measures. The MWA needs to partner with community governments and water purveyors to establish a tangible conservation program that results in an economic saving for those who implement conservation efforts.<br><br>**SCWC:** Again, MWA should participate in such efforts as a clearinghouse/coordinator/ financier of such projects, much the same as is done by other entities in other basins (e.g. Orange County |

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| | message needs to be taught like a habit.<br><br>**Joe Monroe:** It should have an ordinance for that.<br><br>**VVWRA:** MWA must become active in water conservation efforts. Without conservation, much of the area's water resources will be wasted.<br><br>**City of Hesperia:** MWA has the opportunity to assist entities throughout the region in the development of water conservation programs. This was a key component identified in the 1994 Water Management Plan and never implemented. Water conservation has even greater relevance today as the Agency seeks further rampdowns of free production allowance. As a regional entity, MWA can | | | | | Water District, Three Valleys MWD, Upper San Gabriel Basin MWD, Central and West Basin MWD's, etc.)<br><br>**Unknown:** They should be sure its taught in classrooms. A required subject. |

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| | develop programs, adopt BMPs, host workshops and act as a clearinghouse for conservation-related information. | | | | | |
| 15. Do you have any specific water quality concerns? | **Victor Valley WD:** Arsenic is a significant problem for several municipal pumpers. Specifically the VVWD and BMWD must find solutions to this problem no later than January 2006 in order to be in compliance with proposed drinking water standards. Assuming the MCL is set at 10 ppb, BMWD will have 90% of its supply affected and VVWD will have 33% of its supply at risk.<br><br>Nitrates in our wells are increasing as a result of local septic tanks.<br><br>**Jess Ranch:** Yes – As provided herein – MWA needs to be concerned that the water placed in spreading basins does not | **City of Barstow:** Increases in arsenic and chromium. | **Chuck Bell:** My personal water quality concern is minor – mostly a slight TDS increase over the years. The ESTE basin has some nitrate and volatile organics showing up, mostly south of the fault. Leaking fuel tanks are always a problem. Continued depressions in the center of the valley could cause infiltration of high TDS groundwater from under Lucerne Dry Lake from the north, but recent increases or stabilization of groundwater levels in these central areas may dilute this possibility.<br><br>**Norm Nichols:** Saline | **Paul Davis:** Water quality concerns – you bet! While Lahonton (State Regional Water Quality Board) is the agency concerned with water quality, the MWA should be working much closer together with them. We have some potential (serious) water quality concerns in Oeste that should be addressed in the near future. | **Joshua Basin WD:** To my knowledge with very limited information available for our two sub-basins there is some evidence of fluoride issues out in the east area of the Copper Mountain sub-basin (also known as the Coyote basin).<br><br>**Hi-Desert WD:** Currently the District is facing a nitrate problem as a direct result from recharging SWP water into the Warren Valley Basin. A nitrate removal facility is being constructed.<br><br>**Bighorn DVWA:** General consensus. | **SBCSDD:** The District has a variety of water quality issues including:<br>CSA 70 J (Oak Hills) – Chromium VI<br>CSA 42 (Oro Grande) – Iron & Magnesium<br>CSA 70 W-4 (Pioneertown) – Uranium & Arsenic<br>CSA 70 W-3 (Morongo) – Uranium<br>CSA 70 F (Morango) – Uranium<br>CSA 70 G (Oak Springs) – MTBE<br>CSA 64 (Spring Valley) – Nitrate<br>CSA 70 C (Helendale) – Arsenic, Fluoride, Iron, TDS & Magnesium<br><br>**DFG:** Yes. With hatchery supply water, and the potential for translocated pathogens from State Project water. Aquatic |

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| | degrade existing water quality. The water quality differs significantly throughout the MWA territory.<br><br>It has been stated that higher TDS water from SWP is not a significant impact, but this should be studied and findings of overriding considerations such as curing the overdraft should be made if degradation is determined significant.<br><br>**City of Victorville:** Yes, we have concerns regarding the new rule on acceptable arsenic levels; Chromium 6 levels spreading in the Hinckley sub-region, and increased water chlorination. MWA needs to work more closely with Lahontan to address these water quality concerns.<br><br>**Joe Monroe:** Not in my area. | | | | | biota in the river can be sensitive to high TDS, high nutrient levels, and pollutants. Riparian habitats are much less sensitive to usual variations in water quality until they reach brackish conditions.<br><br>**RWQCB:** Yes. The Regional Water Quality Control Board is concerned for a number of water quality issues affecting ground waters of the Mojave Desert region. In particular, we are concerned that there is no long-term evaluation of the potential for engineered ground water recharge via spreading basins in the region to increase salt loading as SWP of lower quality is introduced into aquifer storage. All drainages and tributaries to the Mojave River add some salt loading impact to the floodplain aquifer that will eventually build up over time. There is no mechanism to remove |

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| | **VVWRA:** MWA should work closely with the Lahontan Regional Water Quality Control Board to monitor and address water quality concerns, specifically pertaining to groundwater.<br><br>**City of Hesperia:** No | | | | | these salts from the Mojave River watershed.<br><br>**SCWC:** Artificial recharge of a previously dewatered portion of a basin can cause contaminants that have been previously "locked" in soils to liberate and contaminate the groundwater. The phenomenon is most common in urban versus rural settings, where contamination of soil is more likely to occur. Nevertheless, the potential should be evaluated at specific known soil contamination sites. See also comments on recharge with imported water below.<br><br>**Unknown:** "Safe" by any means. |
| 16. Introduction of imported water into our groundwater basins may result in some changes to the native water quality. Assuming that | **City of Adelanto:** If the overdraft continues the water quality will deteriorate on its own. If the standards are met some changes should be acceptable. | **City of Barstow:** No. | **Chuck Bell:** This question assumes that existing groundwater quality could be maintained. Probably not. Continued overdraft of native groundwater could and probably would | **Paul Davis:** Lets maintain – or keep an eye on water quality but balance that out with the need to reverse the existing overdraft. Again – let the MWA | **Joshua Basin WD:** Our ground water levels average between 250’ in the east area to 450’ in the western areas. Our anticipated future state water recharge site will be at the 350’ above ground water | **SBCSDD:** The use of imported water for recharge will in fact change the quality of the native groundwater, however, is an acceptable solution compared to other |

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| changes will not exceed State or Federal health standards, should the maintenance of existing water quality take precedence over measures to reverse the existing overdraft and enhance long-term water supply reliability? | **Victor Valley WD:** The beneficial use of our groundwater storage could be greatly curtailed by requiring all imported water to meet or exceed current groundwater quality. For example, a degradation of water quality for salts (TDS) is acceptable as long as the level is below drinking water standards. Especially when considering that the standard for TDS is not based on a health risk, but on aesthetics of water for consumption. Also, the benefit of imported water not only assists with sustainable growth, but may also reduce real health risks by diluting the arsenic concentrations in native supplies. The money that would be required to improve water quality to background levels for items like TDS would be a waste of community | | result in quality deterioration (particularly TDS), possibly even exceeding state or federal health standards. Minor groundwater quality degradation resulting from recharge of imported state project water is probably more acceptable to the general public than the inherent downside of over-pumping a basin to the point of expensive well deepening, subsidence, even worse quality, etc.<br>**Norm Nichols:** Ditch water needs to be cleaned up for direct use. | do its duty and cultivate the citizens' interest. The MWA needs more input from the people. | levels. We don't know of any quality concerns at this time. Possible maintenance should be considered for water quality issues that arise.<br><br>**Hi-Desert WD:** Although water quality is very important, the recharge and reversal of overdraft situations should take precedent, providing however all State and Federal health standards are being met.<br><br>**Bighorn DVWA:** Awareness and care necessary. | extremely costly alternatives.<br><br>**DFG:** No, generally current and imported water quality is acceptable, particularly if water is first filtered through strata.<br><br>**RWQCB:** Some degradation to local ground water in consideration of the benefit to the people of the state may be warranted. However, an anti-degradation analysis should be performed by the project proponent wherein the long-term effects of salt loading to the Mojave watershed are evaluated. The Mojave watershed is a closed basin with no where for salts to exit other than to collect over time resulting in a degradation of ground water quality.<br><br>**SCWC:** This is not a "black and white" question. At a minimum, maintenance of existing water quality should be |

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| | resources. We have much higher priorities for the use of our customers' money such as reducing real potential health risks such as arsenic and purchasing larger volumes of imported water.<br><br>**Jess Ranch:** Perhaps – but these limits need to be clearly established and determined what happens when, what is acceptable and where.<br><br>**City of Victorville:** Both issues are equally important and go hand-in-hand with each other. While we want to maintain the current water quality level – which is well above State and Federal health standards – we also recognize the importance of reversing the existing overdraft for long-term water supply reliability.<br><br>**Joe Monroe:** Both are | | | | | considered when evaluating options for reversing the existing overdraft. Obviously meeting State or Federal health standards is paramount, but is certainly not the only measure that should be utilized in determining the best management of the basin. Degrading water quality may adversely impact water utilities ability to use such water for blending purposes, regardless of its meeting State or Federal drinking water standards. Additionally, there are many contaminants of concern (e.g. NDMA) that may not have a State or Federal drinking water standard that are present in imported water. Drinking water utilities must also report on findings of contaminants below State or Federal standards, but above Public Health Goals determined by the Office of Environmental Health Hazard Assessment. |

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| | concurrent.<br><br>**VVWRA:** It is unfortunate, but unavoidable, that the quality of the water in the groundwater basins will change if imported water is introduced into the basins. The only way to avoid changing the quality of the water in the groundwater basins would be to prohibit the introduction of imported water. The latter would require tremendous expenditures for imported water treatment and distribution systems, and it is unlikely that funding could be obtained for all of the required facilities. In most cases the natural supply of water is thousands of years old, which can never be replaced with water of equal quality.<br><br>**City of Hesperia:** Although there may be a | | | | | Introduction of imported water containing contaminants above the Public Health Goals puts the utility at risk of drawing these contaminants into the drinking water supply. Finally, use of imported water may introduce emerging contaminants that otherwise are not found in native waters. These emerging contaminants do not have State or Federal standards, but may pose a health risk and treatment cost nonetheless. These comments are not meant to indicate that imported groundwater should not be brought in, but are meant to highlight areas that need to be considered. Ultimately, the water quality and water supply reliability compatibility conundrum can be solved.<br><br>**Unknown:** Water has a way of purifying as it seeps through the ground. But |

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| | change in the native groundwater quality, the crucial issue for municipal interests is that the water quality meets the State and Federal standards. There are already constituents of concern in many of the region's wells (arsenic, nitrates, etc.) | | | | | by all means keep it as clean as possible. |
| 17. What are your thoughts about MWA entering into groundwater storage agreements with outside agencies? | **City of Adelanto:** If it will benefit the existing groundwater basin by maintaining higher groundwater levels.<br><br>**Victor Valley WD:** Storage for parties outside the basin are acceptable under the following conditions:<br>- Local entities have the priority for use of MWA facilities and groundwater storage.<br>- The benefits of such an agreement are equitably distributed, preferably resulting in | **City of Barstow:** Go for it. Need criteria. Exactly what criteria will be applied is crucially important. We do not want to see any outside, regional or local agency usurp or take over the functions, powers or responsibilities of MWA. | **Chuck Bell:** MWA's participation in groundwater storage agreements with outside agencies is a valid concept to explore, as long as we receive "principle plus some interest," we don't agree to "pay back" more than a basin's annual recharge for a set period of time, and we don't skew our own local solutions.<br><br>**Norm Nichols:** Water should be stored in our area. | **Paul Davis:** Let's get more information. Feed this into the public relations factor. | **Joshua Basin WD:** It depends on the benefits that are derived from the agreements versus the needed security to receive needed water in drought or emergency conditions. I am not opposed to good agreements with outside agencies.<br><br>**Hi-Desert WD:** There are advantages to groundwater storage agreements. Storage agreements, if negotiated well, can prove to be very beneficial for all parties. Storage agreements can provide a means for the | **SBCSDD:** Mining of native water and quality issues aside, the District would not be opposed to outside agencies storing water for short terms in local basins provided the terms of the agreement do not adversely impact the operation of the District.<br><br>**DFG:** If there is a benefit of keeping some of the water, or money to support importation to meet overdraft, and does not create flow/water level imbalance within river riparian areas – yes. |

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| | lower costs for the purchase of imported water.<br><br>**Jess Ranch:** The concept is excellent provided that we do not "give away the farm" in the process. We need to prioritize our water issues – look at the worst case [draught] and have a plan that takes care of our population. Storing water for the future is a great plan, but we are overdrafting more water than we can import now.<br><br>**City of Victorville:** On the surface, this sounds like a feasible option that should be investigated further by MWA. However, there isn't enough detailed information with which to make a decision at the present time.<br><br>**Joe Monroe:** Good idea, overdue. | | | | storage of additional water which otherwise could not be stored in a local groundwater basin due to lack of capacity. A basin with sufficient capacity could also be recharged utilizing water belonging to another agency.<br><br>**Bighorn DVWA:** Fine. | **RWQCB:** It is probably a good idea.<br><br>**SCWC:** The storage capacity of the basin should first be used for the benefit of the entities within the basin. Once this is done, use of excess storage capacity within the basin by outside entities could be entertained, again to the extent that it provides some benefit to the basin (i.e. $$$). Such agreements would need to be carefully evaluated, monitored and managed to prevent damage to the basin, either short- or long-term<br><br>**Unknown:** There shouldn't be a problem. This works with other materials and liquids. |

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| | **VVWRA:** VVWRA has no comment on this issue.<br><br>**City of Hesperia:** If there is no detriment to the region or major groundwater degradation we would not object. | | | | | |
| 18. What are your thoughts about the MWA and/or the Mojave Basin Area Watermaster entering into groundwater storage agreements with water users within MWA? | **City of Adelanto:** Any means of adding imported water should be a benefit to the region.<br><br>**Victor Valley WD:** The judgment requires such agreements to be made available and to assure equal terms for all parties. Terms that encourage groundwater storage will benefit the region by increasing the volume of water available locally.<br><br>**Jess Ranch:** This is an essential part of the existing plan and the adjudication. Storage agreements must have 50% average consumptive use | **City of Barstow:** Go for it. Need criteria. Exactly what criteria will be applied is crucially important. We do not want to see any outside, regional or local agency usurp or take over the functions, powers or responsibilities of MWA. | **Chuck Bell:** Storage agreements with water users within MWA may be acceptable if we have the physical ability to move water from one basin to another and resolve thorny "inter-basin transfer" issues. Resource interdependence can actually promote community bonding. Or, remember Mark Twain's observation "water's for fighting, whiskey's for drinking."<br><br>**Norm Nichols:** Water should be stored in our area. | **Paul Davis:** Get the information out – lets get a show of hands! | **Joshua Basin WD:** Joshua Basin Water District is one of the few basins that are not adjudicated. I think agreements within MWA should be considered. However, there may be some concerns depending on the location and conditions of both the benefits and adverse effects of the proposed groundwater storage agreements. (Example: Hi-Desert Water Agency had an agreement with MWA and unfortunately created a high nitrate problem due to the program. More studies may be needed to prevent this again.)<br><br>**Hi-Desert WD:** Same as No. 17 | **SBCSDD:** The District encourages groundwater storage agreements between users within the MWA, however, the benefit of the storage locations should be fair and equitable to all users, whether connected to the river system or not.<br><br>**DFG:** Possibly necessary to have jurisdiction and control to maintain water level/quantity balance within basins.<br><br>**RWQCB:** N/A<br><br>**SCWC:** Absolutely, yes. In order to coordinate such activities with the production and recharge capabilities of the basin, |

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| | provisions.<br><br>**City of Victorville:** Victorville agrees with the policy of groundwater storage agreements for users within the boundaries of MWA.<br><br>**Joe Monroe:** Should be done.<br><br>**VVWRA:** VVWRA has no comment on this issue.<br><br>**City of Hesperia:** We each must have the flexibility to manage our production demands and supplies within the constraints of the physical solution. MWA and the Watermaster should not foster an environment of competition among the agencies where each entity is trying to negotiate the best deal. It is important to maintain a | | | | **Bighorn DVWA:** Fine. | Watermaster would seem to be the most likely entity with which to have such agreements. Such agreements can provide for near-term physical assistance to the basin (a form of overdraft stabilization) as well as provide users with the opportunity to create a measure of drought protection in the long run.<br><br>**Unknown:** This may be a good conserving way plus maybe a training method. |

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| | more regionalized focus. | | | | | |
| 19. Should the MWA consider purchasing new State Water Project entitlement whenever it might become available? | **City of Adelanto:** Yes, but it also has to be put into the groundwater system.<br><br>**Victor Valley WD:** It depends. The agency is currently underutilizing its current entitlement. The fixed costs of entitlement are an ongoing operational cost burden. It seems that we should first seek a high utilization of entitlement before seeking to acquire more. However, options to purchase entitlement do not occur with great frequency and analysis should be undertaken to consider the timing of such purchases, including adequate safety factors.<br><br>**Jess Ranch:** No. Not without a means of fully importing the water each and every year. By way of example, taxpayers are paying for the Brenenda Mesa entitlement, with | **City of Barstow:** Yes. | **Chuck Bell:** Purchase of new State Water Project entitlement should be the #1 priority whenever available, but at a level of affordability consistent with the economic value of our most likely future land uses.<br><br>**Norm Nichols:** Yes. | **Paul Davis:** When available – absolutely. Question – Where are the funds? | **Joshua Basin WD:** Yes, I would support increasing MWA's entitlement so that all of us can increase our water supplies for future needs.<br><br>**Hi-Desert WD:** As our desert communities continue to grow, the need for an increased water supply will be needed is obvious. MWA should do everything possible to acquire additional SWP entitlements if growth dictates and if feasible.<br><br>**Bighorn DVWA:** Consider yes. | **SBCSDD:** The District feels that the MWA should purchase State Water Project entitlement whenever available for recharge, however, it should not exceed the capacity of the regions basins to store the water.<br><br>**DFG:** Certainly.<br><br>**RWQCB:** N/A<br><br>**SCWC:** If it is at the right price, this should always be a consideration. However, the overriding question should be the need/utilizability of such supplies. Much of MWA's existing entitlement is not now being used for the benefit of the basin (again, the judgment must be allowed to work to bring such supplies into the basin). In any case, any such purchases by MWA should be for the benefit of the basin as a whole and not to fill the "special |

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| | principal, interest and re-allocated costs in the SWP the mere carry cost is approaching $200.00 per acre-foot per year, without even one drop of water reaching us.<br><br>If and when MWA can deliver all of the water entitlement it has, then it should consider buying additional allocations if the end user is identified and agrees to pay the cost.<br><br>**City of Victorville:** Yes.<br><br>**Joe Monroe:** Yes, whenever fiscally advantageous.<br><br>**VVWRA:** The plan should identify the quantity of water that the area must import to meet current and future demands. Therefore, the update of the plan should answer this question for MWA. | | | | | interest" needs of any particular party or parties in the basin.<br><br>**Unknown:** Always. |

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| | **City of Hesperia:** Yes. | | | | | |
| 20. Do you think there is potential for regional projects that would delay or offset proposed local projects? | **City of Adelanto:** Yes.<br><br>**Victor Valley WD:** We are interested in how regional projects may integrate into our own plans, especially in the long-term. Given the time constraints of the arsenic rule our agency will not be able to wait for regional projects to meet our water supply needs in the short-term.<br><br>**Jess Ranch:** With the main infrastructure in place – all new projects should be considered direct benefit or zone of benefit projects. MWA should be a facilitator to assist end users and find financing methods that charge only the users benefited.<br><br>**City of Victorville:** This should be considered on a case-by case basis.<br><br>**Joe Monroe:** Yes, but | **City of Barstow:** Only if MWA uses its financial resources for regional projects only, so that local projects cannot be financed. | **Chuck Bell:** The potential for regional projects to delay or offset local projects will always be a reality, i.e.: more water for fish or whatever. But when our society gets really thirsty, we top-of-the-food-chain homo sapiens will prevail; maybe not in the best interests of the future of the earth, but in the reality of the here and now.<br><br>**Norm Nichols:** Who knows? | **Paul Davis:** NA | **Joshua Basin WD:** Some concerns for a major water treatment plant that may not be needed but is requesting commitments for locking up state project water for the proposed project.<br><br>**Hi-Desert WD:** Don't understand this question.<br><br>**Bighorn DVWA:** Potential yes. | **SBCSDD:** The District is not aware of proposed MWA projects and therefore cannot provide a specific answer to this question, however, any project with regional impacts should be thoroughly discussed with the representative stakeholders prior to commitment by the MWA.<br><br>**DFG:** Not aware of this issue.<br><br>**RWQCB:** N/A<br><br>**SCWC:** The basin is fragmented and separated in such a way that the potential for truly regional projects (with the exception of any for the Victorville/Apple Valley area) might well be limited. Such regional projects, however, might include recycle water projects (although a conveyance system would need to be developed) or water |

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| | that's part of the evaluation process.<br><br>**VVWRA:** Because it is unclear what types of local and/or regional projects are suggested by this question, VVWRA has no comment on this issue.<br><br>**City of Hesperia:** Yes. | | | | | treatment facilities. However, we do not see any such projects as presently delaying or offsetting local projects that we would undertake – such as the drilling of new wells or the construction of storage facilities.<br><br>**Unknown:** Only greedy water districts and their law suits. |
| 21. Are you willing to consider delaying local projects in order to develop the regional projects? | **City of Adelanto:** Yes, if there is a commitment on regional projects.<br><br>**Victor Valley WD:** Not for our needed short-term goals (see question (20), but definitely for long-term goals.<br><br>**Jess Ranch:** NO. Not unless the specific project is approved in the Regional Plan has prior CEQA analysis and is prioritized.<br><br>**City of Victorville:** Again, this would depend on a case-by-case basis. | **City of Barstow:** Need to define local and regional. | **Chuck Bell:** Question should be: Do we have a choice in not deferring local projects to regional projects? Who knows? Regionalism usually prevails. That's only one of many bridges to cross.<br><br>**Norm Nichols:** Need work. | **Paul Davis:** More information | **Joshua Basin WD:** Yes, the pipeline project needed for the Copper Mountain sub-basin to receive state water would be important to us to delay other local projects.<br><br>**Hi-Desert WD:** Same as above.<br><br>**Bighorn DVWA:** Possible. | **SBCSDD:** All projects should be evaluated on their own merit. The District recommends that MWA develop a prioritized list of local and regional projects that meet the needs of all the regions within the Agency.<br><br>**DFG:** If regional projects means pipelines and spreading basins and "local projects" means housing or other M&I development, yes - IF purpose is to provide safe yield and other requirements of Judgment. |

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| | **Joe Monroe:** Yes.<br><br>**VVWRA:** Because it is unclear what types of local and/or regional projects are suggested by this question, VVWRA has no comment on this issue.<br><br>**City of Hesperia:** Possibly. This will depend upon stakeholder consensus. | | | | | **RWQCB:** N/A<br><br>**SCWC:** At present, we would plan to continue with the well and storage projects that we deem necessary. Notwithstanding this, however, we remain open to considering other viable, cost-effective alternatives.<br><br>**Unknown:** No way. This MWA project supersedes. How can others develop without water? |
| 22. Are you willing to work with MWA to jointly finance regional capital facilities? | **City of Adelanto:** Yes, if there is a direct benefit.<br><br>**Victor Valley WD:** Yes, if governance and operational issues can be agreed upon.<br><br>**Jess Ranch:** NO. Not unless the specific project is approved in the Regional Plan has prior CEQA analysis and is prioritized.<br><br>**City of Victorville:** Yes. We would be more than | **City of Barstow:** Yes. | **Chuck Bell:** Most of us would be willing to work with MWA to jointly finance regional capital facilities. The honest question is: are we willing to pay our fair share? If its close to fair and we are running out of water, what choice do we have?<br><br>**Norm Nichols:** Need work. | **Paul Davis:** N/A | **Joshua Basin WD:** Yes, we want to continue our joint application and any other efforts with MWA to receive grant funding, matching funds, and consider other methods to finance the necessary project.<br><br>**Hi-Desert WD:** If those regional projects benefit multiple agencies, those agencies benefiting should be partly responsible for a portion of the financing.<br><br>**Bighorn DVWA:** Possible | **SBCSDD:** The District would be willing to work with MWA on joint financed projects depending on the type of project, the benefits of the project and the merit of the project in regards to the relief of the current overdraft conditions.<br><br>**DFG:** Not a role for DFG.<br><br>**RWQCB:** N/A<br><br>**SCWC:** Due to our status as a Public Utilities |

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| | willing to put our in-house resources together to work with MWA staff for the purpose of researching and obtaining grants to fund regional capital facilities.<br><br>**Joe Monroe:** If able.<br><br>**VVWRA:** VVWRA has already discussed jointly funding expansions of the area's wastewater collection system, which are regional capital facilities.<br><br>**City of Hesperia:** Possibly. This is a policy issue. | | | | (and visa versa). | Commission regulated entity, our ability to participate directly in financing regional projects, the cost of which would be borne by customers outside of the Mojave basin, is problematic. However, to the extent that regional projects are viable, cost effective and provide benefit to the basin or a subarea of the basin as a whole (and not to one or a small group of beneficiaries), we would consider participation, to the extent possible.<br><br>**Unknown:** The public should have complete information about capital facilities before an answer is asked for. |
| 23. How should the purchase of water and construction of facilities needed for the region to recover from the current groundwater overdraft be financed? | **Victor Valley WD:** Water should be purchased by those that need it. Facilities should be built for those that are willing to buy water. MWA's revenue is largely from property taxes. Those that pay | **City of Barstow:** All alternatives should be considered, of example, user fees, connection fees, assessments, loans, grants, etc. | **Chuck Bell:** Financing for the purchase of water and construction of facilities should be a long-term benefit of the Judgment. If not, soon cometh another pump tax proposal, development fees, etc. Remind me not to attend | **Paul Davis:** N/A More information. | **Joshua Basin WD:** Prop. 13 funds, 303 monies, EPA or USDA possible grants or matching funds should be considered for construction of projects that would qualify. Currently we can address and correct our overdraft for the present | **SBCSDD:** The projects should be selected based on a cost-benefit ratio analysis and applications for financing should be sought beginning with the most economical option (grants) and progressing through other available |

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| | into the MWA should receive benefits in proportion to their payments. Grants should be pursued at the State and Federal levels for capital facilities.<br><br>**Jess Ranch:** Overdraft is principally in the Regional Aquifer – caused by municipal production. Charge the municipal producers for the water they pump with a mark-up and MWA will generate "Cash Flow" – Cash Flow will provide the source of funds to buy water and assist in providing well fields and pipelines from the River Aquifer to the Regional Aquifer.<br><br>**City of Victorville:** There should be many different sources of financing sought, not just rely on any one revenue source.<br><br>**Joe Monroe:** By a | | that hearing! (Unless of course I am running out of water).<br><br>**Norm Nichols:** Good question. | | time. (See item #1 on shifting well production)<br><br>**Hi-Desert WD:** N/A-Mojave project<br><br>**Bighorn DVWA:** Perhaps loans and grants. | options (loans).<br><br>**DFG:** By conditions already in Judgment.<br><br>**RWQCB:** There are mechanisms for specific types of water quality-related projects, watershed planning, and studies that may qualify for funds under Proposition 13.<br><br>**SCWC:** The judgment provides some of the framework for this with the replacement water requirement. Implementation of a "wet" water replacement program is, to say the least, paramount to curbing further overdraft in the basin. Beyond that, the implementation of storage agreements, as discuss above (if properly managed), would assist in reversing some of the overdraft condition. These types of programs bring with them their own financing. As to providing |

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| | MWA.<br><br>**VVWRA:** VVWRA has no comment on this issue.<br><br>**City of Hesperia:** Grants, assessment districts, low-interest loans, user fees. | | | | | for further reversal of the overdraft outside of these programs, we believe that the financing for such should be borne on a proportional (e.g. some type of fee be it fixed or per acre foot) basis by all within the basin if dealing with the current overdraft or solely by growth should such place additional strains on the existing water supply capability of the basin.<br><br>**Unknown:** Part of sales tax so all can contribute. |
| 24. How should the purchase of water and the construction of facilities needed for future water supply reliability be financed? | **Victor Valley WD:** Same as question 23.<br><br>**Jess Ranch:** Charge the end user a fair price – ask the folks in the Morongo Valley.<br><br>**City of Victorville:** Through as many available State and Federal grants as possible. As a second alternative, the option of pursuing low-cost loans | **City of Barstow:** Again, all alternatives should be considered. | **Chuck Bell:** Same as #23.<br><br>**Norm Nichols:** Good question. | **Paul Davis:** N/A | **Joshua Basin WD:** Same as above (see item 23) purchase of future water supply may be levied through property taxes within the MWA boundaries.<br><br>**Hi-Desert WD:** N/A-Mojave project<br><br>**Bighorn DVWA:** Good question! | **SBCSDD:** The answer to this question is the same as the answer to question number 23 above.<br><br>**DFG:** As, above and with cost sharing by new projects – a development fee.<br><br>**RWQCB:** There are mechanisms for specific types of water quality-related projects, watershed planning, and studies that |

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| | should be considered. Lastly, a financing program could be developed whereby everyone pays a pro-rata portion of the costs for new facilities.<br><br>**Joe Monroe:** See 23<br><br>**VVWRA:** VVWRA has no comment on this issue.<br><br>**City of Hesperia:** Grants, assessment districts, low-interest loans, developers' fees. | | | | | may qualify for funds under Proposition 13.<br><br>**SCWC:** The answer here is the same as the last sentence of the answer to number 23. In other words, if such supplies are for existing needs, then some type of fixed fee or per acre foot feet for all parties would be appropriate; if for growth, such should be covered by the growth.<br><br>**Unknown:** Same as above. |
| 25. Should the MWA offer "degrees of reliability" for wholesale imported water purchases with attendant cost differential (i.e. higher water supply reliability at a higher cost)? | **City of Adelanto:** There needs to be a feasibility and cost benefit study.<br><br>**Victor Valley WD:** It depends. It seems clear that the existing entitlement has been and continues to be purchased with property tax revenues. Therefore, this entitlement should be distributed in proportion to payments made. However, if additional | **City of Barstow:** Should be considered. Need to evaluate criteria. | **Chuck Bell:** "Higher water supply reliability at a higher cost" is a concept consistent with free market mechanisms. But when directly orchestrated by government, it runs the risk of being accused of favoring a particularly lucrative land-use over others, forcing the MWA into the role of playing God – deciding what is good for society and what isn't, significantly altering | **Paul Davis:** N/A | **Joshua Basin WD:** Yes, this maybe necessary in the event of an extended long drought and no availability of reasonable water costs.<br><br>**Hi-Desert WD:** If those types of guarantees could be made, the District would be able to make better water purchase decisions.<br><br>**Bighorn DVWA:** No. | **SBCSDD:** The District does not support the tiered approach. The reliability of water supply must be fair and equitable to all water producers.<br><br>**DFG:** Seems too complex a process.<br><br>**RWQCB:** N/A<br><br>**SCWC:** While this may sound good in concept, it holds the potential for |

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| | entitlements were purchased by other means, a two-tier pricing structure might be feasible. A higher price for “non-interruptible” supply and a lower price of “interruptible" supply.<br><br>**Jess Ranch:** No, because the state has set the water priority and all taxpayers contribute to the MWA, many of those for over 40 years. The priority should be:<br><br>1. Domestic<br>2. Agriculture<br>3. Industrial<br><br>**City of Victorville:** Yes.<br><br>**Joe Monroe:** I'd want to see details.<br><br>**VVWRA:** VVWRA has no comment on this issue.<br><br>**City of Hesperia:** How can reliability be offered to an unreliable supply? | | community characteristics and customs, plus upsetting a whole lot of voters, board recalls, etc. But, even with all that, if the market-place indicates readiness, it is a likely option. (Remind me not to attend that hearing too)!<br><br>**Norm Nichols:** Big question. | | | creating a schism among parties in the basin, particularly in times of drought or reduced supplies. Rather, MWA should focus more on providing for the base needs of its constituents through the concepts discussed above. However, if there are parties that wish to have a higher degree of reliability beyond the base needs provided, then that party should bear the total cost of such.<br><br>**Unknown:** This would lead into a price war which no one can survive. |

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| | MWA should offer all water at cost. | | | | | |
| 26. Should the MWA commit entitlement to State Water Project water by specific region or area and how should it be done? | **City of Adelanto:** MWA should take every step to ensure there is enough water for everyone**.**<br><br>**Victor Valley WD:** The fairest method would seem to be allocate entitlement in proportion to payments. This method would consider both density and assessed value over the time period for which records are available. This allocation would vary over time based on future property tax payments.<br><br>**Jess Ranch:** Great question: BY NEED<br><br>Soon the water districts that provide water for public consumption will require all the MWA entitlement, except perhaps if we get a major change in weather patterns. Based on | **City of Barstow:** Each area of MWA needs to have a fair-share reserved for them in any given period of time. Each area would need to exercise their options by specific cut-off dates. | **Chuck Bell:** Commitment of MWA's entitlement by specific region will be best accomplished by a free market if we let it work. If government tries to do it, albeit with the best of angelic intentions, it probably won't work. The American public is predictably peculiar. If it happens, it happens. If government does it, it shouldn't happen. (The later it gets, the more philosophical I get).<br><br>**Norm Nichols:** Big question. | **Paul Davis:** N/A | **Joshua Basin WD:** Originally it was thought that the 1/7 rule for dividing the 7 divisions should also be used for assuring appropriate shares of MWA entitlements for each division.<br><br>**Hi-Desert WD:** SWP water should be allocated on an annual basis according to a reached agreement between MWA and a participant that is ready to use the water. By creating additional permanent allocations based on area, an inequity is created among agencies that have the ability to take the water and those that do not.<br><br>**Bighorn DVWA:** Not sure. | **SBCSDD:** The District is unclear as to the intent of this question and cannot answer without further clarification.<br><br>**DFG:** The MWA should control entitlement distribution only to satisfy conditions and priorities of Judgment. Those basins, subareas, locales with worst overdraft, water quality problems should be given priority.<br><br>**RWQCB:** N/A<br><br>**SCWC:** Again, while conceptually this may have appeal, it opens up the potential for discord among the parties (we have seen some of this already with respect to the High Desert Power Plant). As well, the needs for given areas will likely change over time and a commitment of entitlement would not easily address this. |

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| | history and the retirement of agricultural production and the placing of 50,000 acre-feet of water in storage with 50% consumption factor we should have water for the foreseeable future. The bigger question is where to place the water.<br><br>The water needs to be placed where the water quality of the "background water" will not degrade the water stored. Monitoring wells should address this issue and is discussed in the RMP.<br><br>Equity dictates that all uses should have equal access based on the priorities set above. In other words, if the MWA receives annual applications for 50,000 acre-feet of water all for domestic purposes and only 40,000 is available, then the MWA would allocate the water all to | | | | | Instead, the MWA's entitlement should be used as needed based on a prioritization of the basin needs on a year-to-year basis (and looking out several years into the future). The key is to use the entitlement to provide the maximum benefit to the basin.<br><br>**Unknown:** No – you wouldn't survive a war. |

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| | domestic users at 80% of their request. If reversed, the MWA should bank the remaining allocation for times of shortage. Industrial uses, such as Power Plants, should always have the last priority.<br><br>**City of Victorville:** Again, certain projects that require State Water Project water should be negotiated on a case-by-case basis. However, MWA should be obtaining as much State Water Project water as possible.<br><br>**Joe Monroe:** No, not with the current Division/Basin setup.<br><br>**VVWRA:** VVWRA has no comment on this issue.<br><br>**City of Hesperia:** Undecided. | | | | | |
| 27. Should the Plan update consider a | **City of Adelanto:** There needs to be a feasibility | **City of Barstow:** Consider, yes. Need | **Chuck Bell:** It is political and economic reality that | **Paul Davis:** N/A | **Joshua Basin WD:** Yes, this method has been used in | **SBCSDD:** Again, the District's perception of the |

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| financing program where everyone pays for regional projects, but new development pays more than the established community? | and cost benefit study.<br><br>**Victor Valley WD:** Financing projects will most likely need to be conducted on a case-by-case basis. Foreseeable variables include grant availability, benefit of the project by area, extent of local control, etc. I'm not sure how the MWA, as a wholesale entity, would have a vehicle to charge new development a different rate. It seems that the only entities that collect a connection fee related to water are the retailers.<br><br>**Jess Ranch:** Until you clarify what regional projects that you are anticipating, this question is impossible to answer.<br><br>**City of Victorville:** No. This will inhibit the pro-growth philosophy of the high desert cities. New developments will think twice before building in | criteria. | the new guy moving into a crowded neighborhood bears a greater financial burden than should those of us already here. Current residents (and current voters by the way), having paid years of taxes and fees, attending countless hearings, spending our time and resources trying to work out solutions, fighting the good fight; are probably not willing to overly subsidize the new guy who is screwing up our lifestyle. That may not be consistent with the concept of "freedom of movement," but it is fact (I could have just answered "yes," but this response was more fun).<br>**Norm Nichols:** Reads like a possible plan. | | development fees, whereas residents have been paying the expense for many years. Why not increase the costs for new development to pay what is reasonable.<br><br>**Hi-Desert WD:** This should be determined on the basis of a benefit level. New developments should pay their fair share of current and future infrastructure.<br><br>**Bighorn DVWA:** No - No. | plan is that it should be fair and equitable to all water producers and consumers. The question of new development paying a higher proportionate share requires further discussion with all the stakeholders contributing.<br><br>**DFG:** Yes.<br><br>**RWQCB:** N/A<br><br>**SCWC:** In large part, whether this works or not depends on why the regional facility is needed and timing. If a regional facility is needed to meet both current and growth needs, then the cost of such should likely be borne by all equally. However, if the facility is largely, if not totally, needed to facilitate growth, then growth should bear the cost of such. Timing comes into play insofar as the construction of new facilities to handle projected needs. |

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| | this region if the infrastructure costs are exorbitant and not cost effective.<br><br>**Joe Monroe:** Yes – those who add to the demand should bear the burden they bring.<br><br>**VVWRA:** VVWRA has no comment on this issue.<br><br>**City of Hesperia:** It is important that those who benefit pay their fair share, new development or existing communities. Basically, existing development should pay for the existing overdraft, and new development should pay based upon their projected impact. | | | | | **Unknown:** Every one should pay a fair cost. |
| 28. What should be the guiding principle(s) of the Mojave Water Agency? | **City of Adelanto:** Putting as much wet water in the Basin as possible.<br><br>**Victor Valley WD:** The mission statement | **City of Barstow:** As the original charter provides: To procure State aqueduct water for the High Desert. | **Chuck Bell:** The guiding principles of the MWA should be "what ever works – whatever is reasonably fair and equitable." But, that aside, why not use the statement we recently worked out? | **Paul Davis:** To be the leading agency in the high desert concerning all water matters. Distribution, water quality, water quantity, establishment of a public relations | **Joshua Basin WD:** To oversee that the MWA's Regional Groundwater Plan will meet the short and long range water needs of the Mojave River and the Morongo Basin/Johnson Valley areas. | **SBCSDD:** The MWA should demonstrate fairness and equity to all the communities it serves.<br><br>**DFG:** Meet safe yield, support sustainable growth. |

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| | currently under development is a good beginning.<br><br>**Jess Ranch:** The MWA ACT – as passed by the legislature did a pretty good job of that:<br><br>a. The agency may do any and every act necessary to be done so that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants of the agency, including, without limiting the generality of the foregoing, irrigation, domestic, fire protection, municipal, commercial, industrial, and recreational uses.<br>b. Without limiting the generality of the authority given under subdivision (a) or under any other section of this act, the agency has the following additional powers: | | **Norm Nichols:** Establish an unending water source. | program that will get the attention of all users and have them realize just how vital water is to their lives, both now and in the future. Work with all agencies regarding future storage plans; purchase of imported water, both county and state entities. | **Hi-Desert WD:** To do everything necessary to assure a long term water supply to its member agencies at a fair and reasonable cost.<br><br>**Bighorn DVWA:** Do no harm. | **RWQCB:** Seek to sustain ground water resources for both short-term and long-term uses without compromising the ground water quality.<br><br>**SCWC:** Not to sound trite, but the overall guiding principle of MWA should be to provide reliable, cost-effective service to all of its constituents while spreading the cost of such in a fair and equitable manner.<br><br>**Unknown:** Always be fair and just to all. |

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| | 1. To make surveys and investigations of the water supply and resources of the agency, to gather data on water use, to plan water projects, and to publish and distribute reports thereof.<br>2. To develop, protect, conserve, and reclaim water, reduce the waste of water, control and prevent the intrusion of salinity in water, and replenish underground water supplies within the agency, including the collection, treatment, and disposal of sewage, waste, and storm water, in those areas within the agency where no reclamation authority currently | | | | | |

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| | exists and to fix and collect rates and charges therefore.<br>3. To store, regulate, control, transport, divert, and distribute water for use within the agency by any reasonable means, including, without limitation, the construction, maintenance, alteration, purchase, and operation of works and improvements and the spreading and sinking of water into underground storage basins.<br>4. To appropriate water and acquire and protect water rights for any beneficial purpose.<br>5. To commence, maintain, appear before, intervene in, defend and | | | | | |

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| | compromise, in the name of the agency, and to assume the costs of, any action, hearing or proceeding before any court of the United States or of the State of California, involving or affecting the ownership, use or supply of water, water rights or water service within or without the agency which is or may be used or useful for any purpose within the agency, or involving or affecting the interference or diminution of the natural flow of any river or stream or subterranean water supply, which is or may be used or useful for any | | | | | |

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| | purpose within the agency.<br>6. To enter into any contract with any person, corporation, utility, district, public corporation, the United States, or the State of California, as the board determines to be proper or advisable or in the interest of the lands and inhabitants of the agency, to carry out or to execute any of the purposes of this act.<br>7. To promote and coordinate existing and planned water service facilities in the agency with the operations of the California Water Plan and Aqueduct System.<br>8. To join with one or more persons, | | | | | |

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| | corporations, utilities, districts or other public corporations, the United States, or the State of California, for the purpose of carrying out any of the powers granted by this act.<br>9. To make application to the State of California, the Department of Water Resources, or any other appropriate department or agency of the State of California for the department's or agency's share of water made available by the State Water Resources Development System or any other supplemental water source.<br>10. To construct, operate, and | | | | | |

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| | maintain works to develop hydroelectric energy as a means of assisting in financing the construction, operation, and maintenance of works for other beneficial uses and purposes, and to enter into contracts for the sale of that energy for a term not to exceed 50 years. The energy may be marketed only at wholesale rates to any public agency or private entity engaged in the sale or use of electric energy.<br>11. To gather data for, and to develop and implement, after consultation and coordination with all public and private water entities who are in any way affected, | | | | | |

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| | management and master plans to mitigate the cumulative overdraft of groundwater basins, to monitor the condition of the groundwater basins, to pursue all necessary water conservation measures, and to negotiate for additional water supplies from all federal, state and other sources.<br><br>**City of Victorville:** To insure that there is an adequate supply of clean, inexpensive, high quality water to sustain future growth within the MWA boundaries.<br><br>**Joe Monroe:**<br>1. Adequacy<br>2. Equity<br>3. Reliability<br>**VVWRA:** This is most appropriately a question | | | | | |

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| | for the representatives elected to the Governing Board of the Mojave Water Agency.<br><br>**City of Hesperia:**<br>- Prudent oversight of the limited groundwater resources available in the Mojave River Groundwater Basin.<br>- Fair and consistent application of consumptive use issues.<br>- Focus on water supply issues not the politics of economic development<br>- Working to provide regional solutions that benefit the entire basin. | | | | | |
| 29. Do you believe there is input from individuals or groups that may be missed by this process? Please identify them. | **Victor Valley WD:** It seems the major interests are all represented.<br><br>**Jess Ranch:** I believe that when the | **City of Barstow:** BIA, all cities, and Community Services Districts. | **Chuck Bell:** Whatever "input from individuals or groups that may have been missed by this process" will surface when the draft plan update is circulated. We probably "missed" a lot | **Paul Davis:** Minimal users – approximately 8,000 well owners in the upper desert. They should have input but also pay their fair share. The current | **Joshua Basin WD:** There are ongoing groundwater studies that could provide new water information that would be pertinent to the proposed MWA Groundwater Plan such as | **SBCSDD:** There is the possibility that input from other individuals and/or groups may be missed, and the District recommends that the completed responses should be |

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| | amendments to the Plan are clear, they should be put before the public at large in the newspaper so they may be commented on.<br><br>**City of Victorville:** Yes. The Desert Communities Water Awareness Expo is a volunteer coalition of representatives from high desert water purveyors and public agencies promoting water awareness and getting the water conservation message out to the schools and the public.<br><br>**Joe Monroe:** MDRCD Municipalities, such as Apple Valley, which dot not control its water supply although it does contribute to VVWRA.<br><br>**VVWRA:** VVWRA has no comment on this question.<br><br>**City of Hesperia:** No. | | of good input. It is too late to go after it now. If I don't deliver this tomorrow, I might "get missed."<br><br>**Norm Nichols:** Always possible. | minimal user program passed by the Board but not yet ruled on by Judge Kaiser was a joke. My thoughts on this is that the Board "caved" in. My guess is that they didn't want to get run out of town. One hundred dollars a year assessment per well owner (minimal) would raise in the neighborhood of eight hundred thousand dollars a year. Initially, the organizing would create problems, but long term would put money into the "pot" for the purchasing of water. Complications yes, but who said it would be easy! | the USGS, and private firms such as Geoscience etc.<br><br>**Hi-Desert WD:** This was provided previously.<br><br>**Bighorn DVWA:** Yes – statistical.. | circulated and published for public comment to ensure that this is not the case.<br><br>**RWQCB:** I am not aware of the various individuals and groups you contacted.<br><br>**SCWC:** Based on our understanding of the process, we are not aware of any parties that have been or might have been missed.<br><br>**Unknown:** If you are fair and just to all, no one would be different. |

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| 30. Please provide any additional input you believe pertinent to the Plan update. | **City of Adelanto:** Recharge the transition zone at the Lower Narrows.<br><br>**Victor Valley WD:** MWA's role as Watermaster produces some inherent conflict of interest issues. This dual role can work if Watermaster is perceived as neutral in carrying out the requirements of the judgment.<br><br>In our opinion, Watermaster has recently acted more as a political body than an administrative arm of the court (e.g., Makeup Obligation location).<br><br>**Jess Ranch:** In the forty years the MWA has existed, all it has done is do studies – millions upon millions of dollars have been spent.<br><br>Over a hundred million has been spent on a | | **Chuck Bell:** "Additional input" – You guys sure ask a lot of questions!<br><br>**Norm Nichols:** None to add. | **Paul Davis:** Despite some of my comments that seem to be on the critical side, I do have faith in both the MWA and the adjudication process. The "M" word is not in my vocabulary and, "bottom line," I don't think any body that lives up in the high desert feels that way either. However, and again, the staff and board of the agency have a job to do. I hope I can be of help! | **Joshua Basin WD:** A periodic schedule to assure that the plan objectives and guidelines are being followed and met. I believe the previous plan was adopted, but was someone verifying that the plan was considered when MWA decisions were made.<br><br>**Big Horn DVWA:** Patience. | **SBCSDD:** The District is of the opinion that the Plan update needs to be a living document that is consistently reviewed and revised in order to react to the changing economy and population in this region. The previous document was circulated but never revisited and little or nothing resulted from its publishing. The District maintains an optimistic outlook that there is a solution and that MWA will devise a plan to deal with the complex water management problems of the desert communities.<br><br>**RWQCB:** No further input is required from this agency.<br><br>**SCWC:** The plan will only be as good as the commitment of the parties to make it work. Building consensus and gaining commitment among the various parties in the basin will be the keys to the |

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| | backbone system to deliver MWA entitlement; with Grant Funds that were requested to "Recharge" the basins. The priority must be to put this water in the ground. The Municipal Producers must have a clear recognition of who must pay for it. They have put the farmers out of business, when will someone tell them they are at the end of the free ride?<br><br>**City of Victorville:** No answer.<br><br>**Joe Monroe:** Take the time to get it right. This includes provision for future fine tuning.<br><br>**VVWRA:** VVWRA commends the Mojave Water Agency for embarking on this process to update the Regional Water | | | | | successful implementation of this update. On behalf of Southern California Water Company, thank you for this opportunity to participate in the update process. Should you have any questions about any of the comments included in this response or regarding any other matter, please contact Mr. Perry Dahlstrom at (760) 247-3391 ext. 700.<br><br>**Unknown:** Above all prove its working. We do not see enough evidence, facts or information that dump basins are working. |

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| | Management Plan. The problems associated with water management in the Mojave Desert are complex, and interconnected with a great number of other social and physical issues. The cost of water will undoubtedly increase, although as this happens the increasing cost of water will encourage conservation, and conservation should be an integral aspect of the updated plan. The consequences of failing to maintain adequate supplies of water for this region are far more serious.<br><br>**City of Hesperia:**<br>- Urban Water Management Plan<br>- Hydrographs with potential recharge locations highlighted<br>- Water Master Plan<br>- Water System Map (on CD)<br>- Zoning Map | | | | | |

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| | - Proposed Recharge Basins (3 copies) – excerpts from Master Drainage Plan | | | | | |

# APPENDIX E

## Technical Advisory Committee
## To The
## Mojave Water Agency

## MINUTES

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

January 7, 2004
9:00 a.m.

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1. **CALL TO ORDER**: Chairman Clarke called the meeting to order at 9:05 a.m.

2. **INTRODUCTIONS**: Introductions of 35 members in attendance were made.

3. **APPROVAL OF AGENDA**: Chairman Clarke asked for any amendments to the agenda. Barring none, the agenda was approved as mailed.

4. **APPROVAL OF MINUTES FROM NOVEMBER 5, 2003 MEETING**: Motion was made and seconded to approve the minutes. Motion was carried by unanimous vote of the TAC.

5. **PREVIEW FINAL REGIONAL WATER MANAGEMENT PLAN**

Mr. Brill introduced Mark Williamson, Schlumberger Water Services, (previously Saracino-Kirby-Snow). Mr. Williamson began the presentation by stating that the final Regional Water Management Plan (RWMP) is the culmination of the Phase 1, Phase 2 and this phase of studies put into a comprehensive package. The RWMP will cover the Groundwater Management Plan and the Integrated Resources Plan. A draft final RWMP will be distributed to the TAC prior to the March 2004 meeting. An outline of the final plan will be reviewed at this meeting. Mr. Williamson requested input from the TAC on the presentation.

The RWMP will consist of 11 chapters. Chapter 1 will be the introduction which will incorporate an Integrated Water Management Plan, Groundwater Management Plan and Urban Water Management Plan. Mr. Williamson reminded that the RWMP will comply with SB 1938 even though it is not required of adjudicated areas such and the Mojave Basin.

Chapter 2 will include the Mojave Water Agency's background such as the agency being a wholesaler for the State Water Project contract supplies. Responsibilities will include pipeline construction, distribution facilities, and recharge facilities. Adjudications in the Mojave Basin area will be addressed and include a listing of water supply agencies and stake holders within the basin.

Chapter 3 will encompass the physical setting such as the boundaries, geology, groundwater basins and the water supply agencies (38 agencies including mutuals and CSAs).

Chapters 4 and 5 will address the supply and demand forecast. The focus will be on Agricultural Scenario 2 which is the lowered projected agricultural demand. As determined in Phase 2 of the RWMP update, supply and demand will be equal in this scenario if full utilization of the State Water Project water is utilized to meet the projected 2020 demand. The adoption of 10% municipal conservation will allow some flexibility with this projection.

Chapter 6 will describe the water shortage contingency plan. This chapter will cover the large storage reserves within the Agency boundary. These storages will allow for utilization of groundwater in case the State Water Project entitlement is reduced to as little as 25%. Most urban agencies have contingency plans which will also be summarized in this chapter.

Chapter 7 will cover water conservation. This chapter will address the efforts of the Alliance for Water Awareness and Conservation (AWAC) Memorandum of Understanding (MOU).

Chapter 8 is a summary of stakeholder assessment and public outreach which will include efforts of the Mojave Water Agency such as: Technical Advisory Committee; AWAC MOU; Annual Symposia; Speakers Bureau, Community Liaison Officer; Subarea Advisory Committees; Newsletter; and Website. This chapter will reflect on these activities for bond application purposes to establish community involvement.

Chapter 9 will include basin management objectives and alternatives. The objectives are to balance future water demands with available supplies and to maximize the overall beneficial use of water throughout the Agency boundary. This chapter will discuss how meeting each basin management objective will increase supply reliability. The project alternatives and management actions will also be addressed.

Chapter 10 is the management action plan which is what the Agency proposes to commit to for managing the water resources. This chapter includes the following 7 principle management actions:

1. Monitoring
2. Improving Basin Understanding
3. Continue Long-term Planning
4. Groundwater Protection
5. Construction and Implementation
6. Financing
7. Public Participation

Mr. Williamson reviewed each of these items in depth. Refer to the Powerpoint presentation for further detail of this chapter.

The Regional Water Management Plan update will be available for review a week or two prior to the next TAC meeting on March 3, 2004.

In response to a question posed by Mr. Woods, Mr. Clarke stated that last year all water purveyors were required to submit a source assessment of any potential contaminants in their areas. This was a very thorough document. Mr. Brill added that the Regional Water Quality Control Board monitors leaky underground tanks and other areas under investigation. This data exists in a database which the current GIS database is capable of merging the data. Mr. Brill anticipates that this will be accomplished in the future but at present doesn't exist.

An unidentified individual asked what would happen in the population projections for 2020 were reached in seven years. Mr. Williamson replied by stating that the continued monitoring of what is happening on the ground versus the projections is an important part of maintaining the viability of this plan. If this was the case, existing programs would need to be accelerated or possibly revised.

Mr. Pearl inquired about a maximum number of septic systems to be placed in an area. Mr. Clarke stated that the Regional Board currently has a MOU with the County in the Lahontan Region which limits septic tanks to only ½ acre or larger lots other issues are also taken into consideration with regard to septic systems. Since Mr. Pearl's region is within the Colorado Region he was advised to approach them with his concerns.

In response to a comment by an unidentified individual, Mr. Kirby clarified that Mojave Water Agency does not have jurisdiction over many of the topics which are in the Regional Water Management Plan. Mojave Water Agency is a large-scale regional planning entity that helps to consolidate all of these issues into one place. It is not Mojave Water Agency's responsibility to see that the standards are being met, but to facilitate coordination and raise awareness to help further cooperation.

## 6. PUBLIC AND AGENCY ENVIRONMENTAL IMPACT REPORT SCOPING COMMENTS

Mr. Barns reviewed the comments received at the Scoping Meetings. The first meeting was held during the last TAC meeting on November 5, 2003. This meeting was the best attended with 23 persons signing-in. The next meeting was held that same evening in Barstow. There were only 4 people in attendance at this meeting. The third meeting was held the following morning at Hi Desert Water District where 15 people attended. The total number of comments received was 12 verbal and 9 written prior to the closing of the comment period on November 24, 2003.

Mr. Barns reviewed the questions which are outlined in the Powerpoint presentation which are attached to the minutes on-file. With regard to the comment received from the California Department of Fish and Game, Mr. Barns stated that they will be contacted early and often as requested.

Mr. Wayne Snively representing the Newberry Springs Harvard Real Property Owners Association referred to the minutes of the November 5th meeting, page 4/3-7, and wanted to emphasize the importance of Mr. Bilhorn's request to consult Exhibit A of the Adjudication and Victor Valley Water Reclamation Authority. Mr. Snively's concern is that these comments were not included in the CEQA process. His main concern is with the possibility of over-pumping prohibiting water from proceeding down river. Mr. Barns replied that these comments will be discussed in the project description.

Mr. Barns proceeded to explain the process being that the comments which were received help to guide the scope of the EIR. Therefore, the Programmatic Environmental Impact Report (hereinafter EIR) will include the comments received. A scoping report has been prepared will a summary of all comments. Copies of this report and also of the comment letters themselves are available upon request. There will be no formal response to these comments, but they will be addressed in the EIR.

The key environmental issues addressed in the EIR will include groundwater quality, the river resource, biological resources, land use restraints, treatment plant alternatives, and pipelines.

The Notice of Preparation (NOP) has been completed and the scoping process is also concluding. The next step is to prepare the Draft EIR which will be released to the public for review. The comments received on this document do require a formal response. At the end of the process, the official findings will be approved by the Board and a Notice of Determination (NOD) that the EIR has been certified will be submitted to the state. Mr. Barns presented a slide with the milestones for this aspect of the process. The plan is to certify the EIR in early 2005 which will be followed by Board approval. Mr. Davis clarified with Mr. Barns that when he is referring to an EIR it is a programmatic EIR as opposed to a project level EIR. Mr. Barns confirmed this and added that the program level EIR will assess the potential environmental affects or physical changes that could likely occur from the implementation of such a broad program.

In response to a question presented by Mr. Woods, Mr. Barns replied that the comment period is officially closed; however, this does not mean that comments will no longer be accepted. He asked that any comments be placed in writing and submitted as soon as possible.

7. **ALTERNATIVES PRE-SCREENING** – There was no direct reference made to this item.

8. **POST-2020 SUPPLY OPTIONS**

Mr. Kirby explained that the post 2020 supply options is not part of the Regional Water Management Plan Update or the Environmental Review Process. This is a separate document being prepared. The goal is for long-term planning. Mr. Kirby added that emphasized that it is important to remember that the focus should be on the near future more than the post 2020.

The possible supplemental supply options that Mr. Kirby mentioned were more State Water Project water; water banking and exchanges; water transfers; conservation and desalination credits; and aggressive management.

Mr. Kirby illustrated the 2050 demand versus supply with a bar graph which showed that the need of 2020 could be met with natural supply and State Water Project water supply. The needs of 2050 showed a deficit of 60-100 KAF.

New appropriations or increased State Water Project yield may be available north of the Delta. It is however very difficult to find water that someone isn't already using. Building new storage reservoirs does not work because the water needs to exist there already. Water banking and exchanges can help, but it may not solve the long-term problem. Pooling of existing supplies is a good opportunity to exchange with other State Water Project Contractors. There is some potential of importing reclaimed water and purchase of water districts but it is somewhat limited.

Mr. Kirby feels that desalination credit is where the future is going. Aggressive management will help to offset what is needed in the future. Aggressive conservation includes mandatory conservation measures, regulated landscaping water use, water waste ordinances, water efficient fixtures, and water use reduction incentives. Mr. Kirby stated that water reclamation does not increase the supply. Delta pumping has several issues which make it not very promising. Conveyance capacity and wheeling with the California Aqueduct/East Branch or Colorado Aqueduct do not seem viable options. Water quality is a concern which Mojave Water Agency is undergoing a study on this issue.

The actions which can be done now to improve the future are to use the total entitlement of State Water Project water for banking and pursue aggressive conservation measures. Mr. Kirby added to look toward long and short-term transfers and exchanges. Mr. Brill informed the committee that the Mojave Water Agency is currently pursuing a demonstration project with the Metropolitan Water District which allows over the next 2 years up 75,000 acre-feet from their entitlement to be brought in to our basin and then transferred back from our unused entitlement in the future. Over the last 3 months, 20,000 acre-feet has been released from our various facilities throughout the Agency boundary. It is

not known whether this is something that will continue in the future. It is dependent on the amount of allocation of State Water Project distributed for 2004.

Mr. Kirby stated that looking ahead 10 to 20 years, conservation and desalination credits is the direction that we need to head. These methods have been proved and as technology improves the costs will decrease.

9. **OTHER BUSINESS**

Mr. Clarke mentioned that the Technical Advisory Committee By-laws state that to be a member of the Executive Committee, you may not be an elected official. Mr. Beatty is an elected official and was inadvertently elected to represent the Morongo Basin Area. Nomination of Martha Ostrander to represent the Morongo Basin Area was made and seconded. There were no oppositions presented therefore Ms. Ostrander will represent the Morongo Basin Area for 2004.

Mr. Clarke plans to call a meeting of the Executive Committee in February.

Mr. Woods approached the Committee regarding storage basins in Lucerne Valley. The concern of some of the citizens is that if a storage basin is established in Lucerne Valley, high-density development will increase and they will loose their rural life-style which they desire. Mr. Kirby stated that these comments have been heard and this project is not on the high-priority list. It has not been dropped from the list due to the fact that there are some individuals in this area that would like to see a treatment plant in Lucerne Valley.

Another concern of Mr. Woods is regarding an EIR report from the Mitsubishi plant which he said will affect the water table dramatically. Mr. Kirby said that he will review the report. The comment period for this EIR report ends on January 30. Mr. Woods plans to request that this date be extended until the Mojave Water Agency staff has the opportunity to review and comment on the report.

10. **ADJOURNMENT**

Motion to adjourn was made and seconded at 11:20 a.m.

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Jack Clarke – Chairman

1.12.04
TAC
minutes

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

November 5, 2003
9:00 a.m.

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1. **CALL TO ORDER**: Chairman Cox called the meeting to order at 9:00 a.m.

2. **INTRODUCTIONS**: Introductions of 34 members in attendance were made.

3. **APPROVAL OF AGENDA**: Ms. Cox stated that agenda item number 9 needed to be removed from the agenda. The committee approved the amended agenda by unanimous vote.

4. **APPROVAL OF MINUTES FROM AUGUST 20, 2003 MEETING**: Motion was made and seconded to approve the minutes.

5. **ELECTION OF OFFICERS FOR 2004** – Ms. Cox stated that due to the results of the recent election, she would no longer be eligible to chair the TAC. Nomination of Mr. Jack Clarke was made by Mr. Steve Older. Barring any other nominations, Mr. Clarke will serve as Chairman of the TAC for 2004. Mr. Steve Older nominated Mr. Mike Davis for Vice-Chairman of the TAC 2004. Mr. Davis was also unopposed and will serve as Vice-Chairman for 2004.

6. **APPOINTMENTS TO TECHNICAL ADVISORY COMMITTEE EXECUTIVE COMMITTEE FOR 2004** – Appointments were made as follows:
   - Upper Mojave River Basin – Paul Johnson
   - Middle Mojave River Basin – Wayne Soppeland
   - Lower Mojave River Basin – Karen Gray
   - El Mirage Basin – Paul Davis, Jr.
   - Lucerne Valley Basin – Chuck Bell
   - Morongo Basin – Rick Beatty
   - At Large – Harold Singer (Hisam Baqai – alternate)

   Ms. Karen Gray nominated Mr. Wayne Snively in addition to a nomination for Mr. Harold Singer to remain the At Large representative. An anonymous vote was taken in which Mr. Singer was determined to continue to represent this area.

7. **REGIONAL WATER MANAGEMENT PLAN ENVIRONMENTAL IMPACT REPORT SCOPING SESSION**

Mr. Kirby Brill gave a brief summary of what is to be accomplished at this meeting. In order to meet the requirements of the Environmental Impact Report (EIR) several public meetings will be held in different areas throughout the basin. This TAC meeting serves two purposes, one as a publicly noticed Scoping Meeting. These meetings were publicly noticed in local papers as well as distribution of a Notice of Preparation for the programmatic EIR to approximately 150 recipients expressing interest in this phase. The other Scoping Meetings are to be held on November 5, 2003, in the Barstow Council Chambers, at 6:30 p.m. and the third meeting in Morongo Valley at the Hi-Desert Water District on November 6, 2003 at 10:30 a.m. Mr. Brill referred to these meetings as being the "opening bell" where the California Environmental Quality Act (CEQA) process begins. Mr. Brill encouraged comments from the members of the TAC.

Mr. Mark Williamson reviewed the materials which have been developed in Phases 1 and 2 of the Regional Water Management Plan Update with the assistance of a Powerpoint presentation (copy of which is contained in the minutes on-file).

A question was asked by Mr. Tom Bilhorn as to whether the plan was to meet the future demands or recover from the deficit. Mr. Williamson's response was that the plan is to balance supply with demand no recovery of the aquifer is explicit in the objective.

Mr. Williamson stated that the next phase of the preparation of a programmatic environmental document will signify the beginning of the plan.

Mr. Tom Barns with Environmental Science Associates began the Scoping Meeting portion of the TAC meeting by defining the objectives of the California Environmental Quality Act (CEQA). The same process is going to be done as was for the 1994 development of the Regional Water Management Plan. A Program-level Environmental Impact Report (EIR) which addresses "Big-Picture" issues. Mojave Water Agency is the lead agency due to the fact that they will be adopting the plan. Mr. Barns identified key environmental issues (refer to Powerpoint on-file).

The key steps of the EIR process begin with scoping sessions to attempt to get as much local agency and public feedback as possible. The comments received will be incorporated into a draft EIR which will be followed by another comment period and hearing. The final EIR will then be taken to the Mojave Water Agency Board for consideration and certification of the EIR and approval of the plan. The plan will include a mitigation monitoring and reporting plan which is required by CEQA. The official findings and Notice of Determination is filed with the County and State. Mr. Barns illustrated the milestones with a timeline in the presentation. Final EIR is expected to be completed by January or February 2005. Comments were

encouraged either in writing through forms provided at the meeting, verbally, or in writing to the MWA prior to November 24, 2003. Mr. Barns stressed that comments are to be related to an individual's jurisdiction and a program-level EIR is the issue of consideration. Specific projects will be considered at a later date once a project-level EIR is being addressed.

Mr. Hisam Baqai asked what would be the result if the mitigated measures are not being properly implemented. Mr. Barns replied that it is dependent on the impact and the monitoring program. The regional board could comment and enforce additional monitoring. Generally, it is up to the lead agency to comply with the Mitigation Monitoring Program. Ms. Leslie Molton added that if there were any observation on non-compliance of mitigation implementation, MWA would be notified of the observation. The lead agency retains responsibility and authority for mitigation implementation. The MWA board's adoption of the Mitigation Plan is a commitment to implement the monitoring plans.

Mr. Wayne Snively asked a question regarding the potential for this projects relationship with growth and the impacts of growth. This question will be addressed at the next TAC meeting.

Mr. Rick Beatty requested the alternative of above-ground storage considered as an alternative to recharge.

Mr. Tom Bilhorn stated that the plan should look at Exhibit H of the Adjudication. An agreement with Victor Valley Wastewater Reclamation Authority was referred to as a way to mitigate the issues.

Mr. Chuck Bell asked if it is now thought that Old Woman Springs is included in the watershed in Lucerne Valley, since it is listed under this category on page 10 of the Notice of Preparation. Mr. Brill stated that it is categorized in this group but it does not reflect a determination of the supply. Mr. Caouette added that the connection was that there is some surface supply from Old Woman Springs over to Lucerne Valley. Mr. Bell next asked if the alternative of a north-slope natural recharge option would be included in the EIR. Mr. Barns replied that a more broad Subarea designation is being considered at this point. Ms. Molton stated that there will be room for additional projects as long as they fit within the program of the anticipated accomplishment. Mr. Bell suggested the assistance of County Flood Control. Mr. Bell suggested the use of biological fees to preserve and protect the riparian locations.

Mr. Matthew Woods added to Mr. Bell's suggestion for using the natural watershed methods of recharge by stating the cost benefits. Mr. Woods asked if the costs associated specific projects would be addressed in Phase 3. Mr. Brill's response was that as this process is a more broad regional scale of impacts. Some conceptual level of cost estimating has been done for comparison purposes. Projects will then be developed. Mr. Brill stated that the costs will then be communicated to the public. Mr. Woods asked how a citizen would best

present their comments or concerns. Mr. Brill stated that attending the TAC meeting is one of the best means to provide comments. In addition, the MWA board meetings have an opportunity for public comments to be heard with the decision making process. Mr. Woods commended the MWA board for past consideration of comments from the public. Mr. Brill added that once a project specific level is reached, environmental documentation will be required. Mr. Woods also added that they have appreciated the fact that MWA representatives have come to their community in an effort to keep them informed.

Mr. Lou Kershberg stated that he has concerns with the water quality in Lucerne Valley. He feels the situation cannot wait until after an EIR can be processed. Mr. Kershberg suggested the MWA provide assistance such as discounts on water purification systems or water testing to those individuals with wells pumping poor-quality water.

Ms. Dianne Gehling expressed concern with the water quality of the State Water Project water being imported into the ground near Southern California Water Company's extraction wells. Southern California Water Company does not want to have problems with the Stage 1 and Stage 2 DBP rules especially with THM's and the H85's.

Mr. John Leveillee requested that reclaimed water be addressed in the EIR. Mr. Leveillee suggested that Victor Valley Wastewater Reclamation Authority be contacted since they have hired a sub-consultant to perform a CEQA EIR on this matter.

Mr. Barns expressed his appreciation for the comments which were presented at the meeting. The comments received either verbally or in writing will be addressed in the EIR. Mr. Barns re-emphasized that the deadline for comments is November 24, 2003.

Mr. Barns indicated that the schedule shows a draft EIR to be completed by late summer and then finalized and adopted by January 2005.

8. **DISCUSSION OF GROUND WATER MANAGEMENT PLAN**

Mr. Kirby Brill stated that the purpose of this document is to be of use to the community.

Mr. Ken Kirby began the discussion by stating that the goal is to finalize the Regional Water Management Plan Update but there are other components which go along with it. The phase 3 schedule has been divided into two areas: Task A includes Final Regional Water Management Plan, Programmatic EIR, Identification and Application for Financial Assistance, Post 2020 Water Supply Options, and Bi-Monthly TAC Meetings; and Task B includes Programmatic EIR, Finance Strategies, Identification and Application for Financial Assistance, and continuation of Bi-Monthly TAC Meetings.

The Regional Water Management Plan will comply with the requirements of an AB3030 plan but without going through the formal process. Mr. Kirby stated that since this is an adjudicated area it is not necessary to have the authority of an AB3030 plan. In terms of grant funding or low-interest loans, the State will see that everything required of a Groundwater Management Plan has been done. An Urban Water Management plan is not likely required for this project; however, Mr. Brill has expressed a desire to proceed with the requirements anyway. The plan will be SB1938 compliant which will require a groundwater management plan and monitoring protocols.

In response to a question presented by Mr. Lee Pearl, Mr. Kirby stated that their area would want to have a 3030 plan for the area which is not adjudicated. MWA's regional plan would most-likely not cover this area in terms of having the groundwater management plan specifically for this area. This will be clarified with the Department of Water Resources.

Mr. Kirby reviewed the water balance objectives and beneficial use objectives which were determined during a previous phase of the development of the Regional Water Management Plan update. (See list of objectives in Powerpoint presentation on-file.) The Committee was asked if these objectives meet the needs of a groundwater management plan. Any additions to the lists presented were asked to be provided in writing.

Mr. Brill stated that the primary focus of the State is that there is a plan in place for the region.

There was much discussion regarding projected population growth and meeting the needs of the population. Mr. Kirby cautioned against too much focus being placed on the post-2020 issues such as these due to the fact that there is much work to be done in the near future.

Mr. Kirby stated that in order to comply with the Groundwater Management Plan, the Urban Water Management Plan and the Integrated Resource Planning documents, there are some additional information needed. The needed information includes monitoring protocols, water conservation measures, wastewater recycling, riparian habitat protection, and floodwater management. Mr. Kirby stated that the MWA is currently involved with a newly-organized group of purveyors involved with water conservation. This group will be contacted to determine their findings to include in the draft document as far as objectives and actions likely to be taken. Victor Valley Wastewater Reclamation Authority will be contacted to incorporate information regarding wastewater recycling into the document. The County has been consulted and their comments related to floodwater management will be incorporated.

Mr. Kirby reviewed the requirements of SB1938. Most of the requirements are already being met by MWA or other agencies within the MWA boundaries. The purveyors were requested to forward any monitoring protocols which need to be included in the document.

Mr. Brill stated that the Alliance for Water Awareness and Conservation (AWAC) group consists of approximately 25 local entities which have been meeting for the last 4 months. There is currently an MOU being circulated for approval from the appropriate policy-making individuals. The MOU consists of 3 primary goals: Goal #1, create awareness for the need for conservation; Goal #2, to empower the community with the appropriate tools; and, Goal #3, to establish a measurement for measuring conservation with the goals of achieving a 15% gross reduction in production by 2020. The Morongo Basin has a somewhat different goal of a 5% gross reduction which is an acknowledgement of the advances already achieved in this area.

Mr. Kirby stated that a draft document will be available at the January TAC meeting. The environmental work will then take priority in this process. At this point the document will be of use and available in draft form. Once the environmental work is completed, it will be included in the document and brought to the MWA board for adoption.

The next meeting in January will include the post 2020 water supply options.

~~9. **POST-2020 WATER SUPPLY OPTIONS**~~

10. **UPDATE ON THE METROPOLITAN WATER DISTRICT WATER BANKING PROJECT**

Mr. Norman Caouette stated that last July or August, Metropolitan Water District (Metropolitan) proposed a short-term demonstration project for MWA to take up to 75,000 acre-feet of Metropolitan's available State Water Project supply for storage in our groundwater basins. The water would then be returned to them from our available State Water Project supplies over 5 years. An agreement is currently in the process of being approved by the appropriate boards and executed by MWA and Metropolitan. A CEQA document, in which MWA is the lead agency, has been completed. The necessary papers have also been filed with the Clerk of the Board. Currently in the process of attempting to obtain a nationwide 404 permit from the Army Corps of Engineers. This is necessary due to the large amounts of water being released in a short period of time. Due to this, a series of berms in the Mojave River channel will be necessary to help capture and slow the water so as it can easily percolate into the groundwater system. Mr. Caouette expressed his gratitude to both Hissam Baquai and Harold Singer with the Lahontan Regional Water Quality Control Board for providing the necessary 401 Certification letter which was a key component to the Army Corps of Engineers.

The Department of Water Resources (DWR) is working on an agreement between DWR, MWA, and Metropolitan regarding how the exchange program fits into the different contracts and also address the details of water deliveries and billing.

Once all the documents are processed, the near-term objective is to receive 45,000 acre-feet from Metropolitan to MWA. If the 404 permit is not executed, delivery can continue with limitations on deliveries from Silverwood Lake.

## 11. OTHER BUSINESS

Results from a vote for the at-large representative were addressed at this time. By majority vote, Mr. Harold Singer will remain the at-large representative for 2004.

## 12. ADJOURNMENT

Motion to adjourn was made and seconded at 11:15 a.m.

Kimberly Cox - Chairman

12-1-03
TAC
Minutes

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

August 20, 2003
9:00 a.m.

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1. **CALL TO ORDER**: Chairman Cox called the meeting to order at 9:00 a.m. Ms. Cox encouraged the committee to stress the importance of public participation in upcoming meetings.

2. **INTRODUCTIONS**: Introductions of 35 members in attendance were made.

3. **APPROVAL OF AGENDA**: Motion was made and seconded to approve the agenda.

4. **APPROVAL OF MINUTES FROM APRIL 16, 2003 MEETING**: Motion was made and seconded to approve the minutes.

5. **INTRODUCTION OF TASK MANAGERS AND RESPONSIBILITIES**

Mr. Brill welcomed everyone to the third phase of the Regional Water Management Plan (RWMP). The Committee was informed of the future process of development of the RWMP. Mr. Saracino, Saracino-Kirby-Snow, approached the Committee with an introduction of staff and including their responsibilities. The firm of Environmental Science Associates (ESA) has teamed up with Saracino-Kirby-Snow for Phase 3. ESA will primarily be working on the environmental aspects of this phase of the RWMP.

Mr. Kirby, Saracino-Kirby-Snow, acknowledged comments received related to the Phase 2 update from Edward Riddle, Hinkley resident. The comments have been noted and are relative to development of recharge sites or water delivery into the Hinkley or Pioneer Town area.

Mr. Kirby reviewed the process beginning with the Phase 1 report where historical information was updated; key issues were identified; and long list of projects were identified. Phase 2 included a very involved process of scenarios and alternatives. The result was a selection of priorities. We are currently in Phase 3 which involves environmental review and moving toward adoption of a plan which follows all of the guidelines mandated by the legislature.

## 6. OVERVIEW OF PHASE 3 PROCESS

Mr. Williamson outlined the events to come in the next two years with the adoption of the final plan. The first eight months will involve very intensive activity. The programmatic EIR will consist of additional pre-screening, developing additional information of current activities within the Agency boundaries either by the Agency or by another entity. Environmental scoping will begin in the initial portion (Task A) of this phase and then development of the EIR document in Task B. A finance strategy will be developed approximately 18 months into this phase. Ongoing tasks will include the monitoring of grant funding to determine available funding. Mr. Williamson informed the Technical Advisory Committee (TAC) that participation will be necessary on a by-monthly basis until July, 2005.

## 7. APPROACH TO FINAL REGIONAL WATER MANAGEMENT PLAN

Mr. Williamson stated that a combined document will be developed which includes a Groundwater Management Plan (GMP), Urban Water Management Plan (UWMP); and Integrated Water Resource Plan (IRP). This document will still be referred to as the Regional Water Management Plan, but will serve multiple purposes such as grant application or approval of development. Mr. Williamson reviewed the elements in an IRP, GMP, and UWMP by presenting a table contained in the Powerpoint Presentation on file. Grant funding such as AB 303, Prop. 13, and Prop 50 will be pursued; all of which require or give priority to areas which have a current GWP. Mr. Brill referred to fairly new legislations which make any future funds require a GMP or IRP. Mr. Williamson stated that notices will be posted in local newspapers for two weeks. The anticipated adoption of the GMP is scheduled for February, 2004. In reply to a request for clarification, Mr. Williamson stated the difference between a GMP, UWMP, and IRP. A GMP statute was meant to promote looking at all aspects of the groundwater--basin-wide planning for example. UWMP is directed to water utilities, making sure the appropriate planning process has been performed, and assured that there is going to be water supply for planned growth. This plan will include multiple-drought contingencies such as development of additional supply or ration water and impose conservation measures. An IRP is a broader look at every aspect of water supply such as surface water, groundwater, supply, and demands. Much of these elements are taken from the UWMP and GMP with the addition of management of riparian corridors and flood water management. Mr. Kirby added that a groundwater management plan is not necessarily limited to a basin, but intended to be regional. The focus of an urban water management plan is on urban use, whereas a groundwater management plan is broader. Most of the work has been completed as far as preparing the package for the Regional Water Management Plan. A checklist of events now needs to occur. The focus is now on strategy as to timing such as formal adoption. This will occur after the environmental work which is a major time constraint. However, it is possible to adopt the groundwater management plan prior to completion of the environmental work. This may also have some advantages in terms of application for funding on other grants. Due to

the Mojave Basin being adjudicated, it is not required to have an AB3030 plan or a 1938 plan. It is advantageous to complete these requirements anyway for responsible regional planning.

## 8. POST-2020 SUPPLY, DEMAND, AND SHORTFALL

Mr. Williamson stated that the goal is to estimate the demands into 2050. Extending the current growth rate will be examined. In gross terms, 80-120 thousand acre-feet of water will be required to meet demands of 2050. These numbers are preliminary. If an agency-wide reduction in municipal use is effective, 60-100 thousand acre-feet of water will be required to meet the demands of 2050. Mr. Kirby added that 60-100 thousand acre-feet is almost triple the natural supply. Mr. Williamson stated that new contracts or entitlements; water transfers; water banking and exchanges; and conservation and desalination credits are a number of potential water supplies. The Mojave and Morongo Basin are closed systems and therefore reclaiming water within the agency boundary may result in stretching supplies but doesn't add water to the system. The supply needs to be increased. Desalination is a viable means of supplementing the water system.

## 9. PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

- **ENVIRONMENTAL PROCESS OVERVIEW**
- **ADDITIONAL PRE-SCREENING OF ALTERNATIVES**
- **PROJECT OBJECTIVES**
- **MILESTONES AND TECHNICAL ADVISORY COMMITTEE INPUT**

Ms. Moulton of Environmental Science Associates presented an overview of the environmental review process. The California Environmental Quality Act's (CEQA) main objectives are to disclose environmental impacts to make sure there is a review and public disclosure of the environmental issues and consequences of an action may be. Identification and prevention of environmental damages through mitigation or choices of possible alternatives are presented. The Agency's decision-making process is also disclosed to the public. CEQA is a very public-oriented process with relation to disclosure as well as mitigating effects. CEQA is required for discretionary actions made by public agencies in the state of California. The first discretionary action is the Mojave Water Agency's adoption of the Regional Water Management Plan (RWMP) update which sets the near-term and long-term roadmap for actions taken and projects implemented. Second in the approval process is the approval of specific projects from the RWMP. National Environmental Policy Act (NEPA) is similar to the state environmental review process and is required if the plan or project has federal involvement. The MWA RWMP does not require NEPA since it is a regional endeavor and does not have federal involvement. However, at the project level it is likely that a federal NEPA review may be required due to federal funding, partnership, or permitting.

MWA is the lead agency responsible for implementing the CEQA process. In some cases there are other agencies with authority to adopt the plan. In this case, MWA is the main authority for adoption of the RWMP. Implementation of particular projects will include the involvement of other agencies will have responsibilities such as encroachment permits. The relevant resource agency for this process will be the

California Department of Fish and Game as the key trustee agency. This responsibility will include involvement in the process being that they have regulatory authority over resources in California. This involvement will include critiquing of impacts and development of mitigation measures relevant to their jurisdiction. The public is a key participant and a main focus of the outreach through the CEQA process.

Ms. Moulton reviewed the CEQA steps (listed in Powerpoint presentation included in minutes on file) which include three kinds of Environmental Impact Reports (EIR): Program, Staged or Master EIR for plans, programs that involve a series of actions or projects over time and/or geography; Project EIR is if there is a specific project to be implemented including details; Subsequent or Supplemental EIR is used when a project EIR requires revision. In this case, a program EIR is required which allows the coverage of several projects over a broad geography which will be implemented over time. This type of plan is designed when there are not many details of specific projects but information of how the overall plan can be accomplished. Water Resource areas will be one of the key issues addressed in CEQA. CEQA's interest is on the environmental perspective. The CEQA tiering process will include a program EIR which will tier into several projects EIR's. Mr. Brill asked the reason for this process rather than just development of project EIR's only. Ms. Moulton responded that this method has the advantage that the big picture issues are able to be addressed at one time rather than each time a project EIR is developed. The result is a streamlining of future CEQA requirements the focus is then directed toward specific issues. There may be a need for updating but in the long-run, the process is greatly simplified. Five to ten years is a general rule of thumb so that the current information is maintained accurate. There is a lot of strategy and legal appropriateness involved with determining whether a project should be included in this CEQA document or include in a separate document. Mr. Brill added that this would be dependent on the priority of the project.

Ms. Moulton stated that the focus of the analysis will be on the preferred alternatives selected in the Phase 2 process of the RWMP update. If there are any significant environmental effects resulting from these projects, alternatives will then be determined. Not all projects require EIR. It may be possible that a Mitigated Negative Declaration would be appropriate if no significant impacts are determined.

It is necessary to update the CEQA review due to the fact that the document is now almost 10 years old and there have been significant changes in the area. These changes include land use planning, growth projections, and groundwater conditions.

The CEQA process will begin with the Notice of Preparation (NOP) this October. Public scoping meetings will be held at that time. There is a 30-day official review period to allow for public comments.

The next few months will consist of development of additional project description. The list of projects will be better defined by the end of the year. After this is accomplished the EIR workplan will be well-defined for implementation. The environmental impact analysis will be drafted at the beginning of the year, which an administrative draft will be presented to the Mojave Water Agency in May. A public draft will be available in August

which will allow for a 45-day review period. Following the review period, a formal response and final EIR will be prepared (Jan. 2005).

Ms. Moulton pointed out that use will be made of the project objectives which were defined in the Phase 2 process of the RWMP update. Key environmental issues include Water Resources; Biological Resources; Land Use Effects; Growth inducement and secondary effects; and Agricultural land conversion.

Mr. Williamson noted that there will be a number of additional topics in addition to the environmental issues which will be discussed at the upcoming TAC workshops. The October workshop will include the EIR Notice of Preparation and Scoping. The next meeting is tentatively scheduled for October 15. Once a definitive date is determined, the TAC will be notified.

Mr. Saracino re-emphasized the importance of this plan due to the fact that all its elements comply with the current legislation. This is a significant issue and due to Mr. Brill's foresight. Mr. Brill gave his and the Agency's commitment to continue to inform the public of their importance in the process.

Ms. Cox reiterated the importance of the Committee's involvement over the next year and a half. Active participation from the public is key to the success of this endeavor.

## 10. OTHER BUSINESS

Ms. Cox encouraged everyone to attend the Water Conservation Coalition which has been organized by Mr. Stevens, Community Liaison Officer of Mojave Water Agency. Mr. Stevens can be contacted for the next meeting date. This forum is designed to address some of the conservation components related to the RWMP.

Mr. Brill addressed concerns expressed by Mr. Hill and Mr. Bell related to the Metropolitan Water District (MWD) Water Banking program as follows: The terms are setup to utilize MWA's unused entitlement as far as return. This provides an alternative versus participating in the Turn-back Pool. Any water above our hard demands which otherwise would have been sent to the Turn-back Pool, is now on the books as available for exchange. The MWD water will be placed in areas based on the adopted interim guidelines for groundwater banking. These areas are targets based on projected potential future demands of a 3-year accumulative amount. The Agency is working closely with the County on levees within the river to contain the water so it is not just flushing downstream. Water will be released at Hodge, Lenwood, Daggett, Rock Springs, and Silverwood. Water will not be released from Oro Grande due to the pending expiration of the temporary siphon permit. In order to take full advantage of this opportunity, all available discharge locations will be utilized to full capacity. MWD would like us to take 75,000 acre feet; however, this is not possible within the 2-month time frame. The most we can anticipate releasing is about 30,000 to 35,000 acre feet. The current terms are then to transfer this amount out of our unused entitlement over the next 5 years. Ms. Cox noted that the MWA Board of Directors unanimously supported this project. The intent was not to bypass the TAC Committee on this issue; however, due to

the time constraints, MWA Board approval was needed. Mr. Brill added that if this water is not used by the end of the year, it is basically lost. Strategically, moving quickly is necessary not only for this issue but to set the future potential for establishing ourselves as a viable partner with MWD. Mr. Brill encouraged questions related to this issue in order for all to have a comfortable level of understanding.

Ms. Cox requested an item added to the agenda of the next TAC meeting to update the committee on this project. Mr. Brill stated that he would be more than happy to provide this information.

## 11. ADJOURNMENT

Motion to adjourn was made and seconded at 11:00 a.m.

Kimberly Cox - Chairman

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# TECHNICAL ADVISORY COMMITTEE TO THE MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

April 16, 2003
9:00 a.m.

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1. **CALL TO ORDER**: Chairman Cox called the meeting to order at 9:00 a.m.

2. **INTRODUCTIONS**: Introductions of 35 members in attendance were made.

3. **APPROVAL OF AGENDA**: Motion was made and seconded to approve the agenda.

4. **APPROVAL OF MINUTES FROM MARCH 19, 2003 MEETING**: Motion was made and seconded to approve the minutes.

5. **REVIEW RECOMMENDED ALTERNATIVES**:

Mr. Kirby of Saracino-Kirby-Snow reviewed the key findings that it is not possible to meet the future water needs through only natural and State Water Project water. There are a number of different projects required in order to accomplish this goal. Centro was in surplus in all alternatives which were modeled.

Comments from the following were reviewed by Mr. Kirby, in response to information which was presented at the March 19, 2003 meeting:

Tom Bilhorn – Department of Fish and Game
Ginger Hancock – Newberry Springs-Harvard Real Property Owners Assoc.
Randy Hill – Victor Valley Water District
Michael Davis – Silver Lakes Association
Terry Lyons – Joshua Basin Water District
Gary Ledford – Jess Ranch
Karen Gray – Baja Representative

Mr. Hill clarified one of his comments for Mr. Kirby stating that according to the USGS model also age dating of water wells indicate that of the 25 wells in the Victor Valley Water District service area; only two are under any influence of the Mojave River even though many of these wells are within a mile of the river. Mr. Kirby stated that this comment was related to the separation of the Regional Aquifer versus the Floodplain

Aquifer. Mr. Hill stated that according to this model it would take 1,000 years to reach these wells, which is too long. Mr. Kirby stated that in the modeling that they have done shows that water is needed in both the Floodplain and the Regional Aquifers in Alto. The results of the modeling show that much of the water is concentrated in the Victor Valley Water District service area.

In response to a question from Mr. Lyons, Mr. Kirby stated that the RWMP update will refer to the Warren Valley Basin Adjudication to the extent that the parameters will be outlined. All the rules have been incorporated into what is currently being used in the model. The Morongo Basin is given first priority for State Water Project water in the modeling. In all of the alternatives, Morongo Basin will receive 100% of whatever is being requested. The two refined alternatives will also include recharge into this area as discussed in the Community Meeting in Yucca Valley.

Mr. Bagai asked for the consumptive use factor being used for agriculture. Mr. Kirby replied that the Watermaster data and the WEBB report are being used for agricultural consumptive use projections. These amounts will be recommended for refinement in Phase 3.

Mr. Williamson stated that there has been a correction to the modeling of water levels in the Transition Zone which were presented at the last meeting as C and D alternatives. These were very similar to the A and B alternatives except for the correction. In the last TAC meeting, alternatives D5 and D6 were the alternatives of focus. Both of which assume 20% municipal conservation in the Mojave Basin with an additional 5% in the Morongo Basin. Alternative D5 had a regional water treatment plant included. Alternative D6 relied on recharge ponds and in-lieu supplies. The focus has been primarily on D5 and D6 alternatives with some variation. Alternative D5r has decreased municipal conservation target to 10% in Mojave Basin with a larger regional water treatment plant.

Project groupings and management actions were presented. Mr. Williamson stated that there are a variety of possible alternatives; whereas, the focus needs to be on supplying enough water to the particular aquifer units to balance supply with demand, rather than focusing on particular projects.

A selection of individual projects was made to determine the alternatives. The alternatives for the Flood Plain, Non-Flood Plain and Regional Aquifers were listed in the PowerPoint presentation as follows:

| *Floodplain Aquifer Recharge (11)* | *Specific Zone* |
|---|---|
| Minneola Recharge | Floodplain Baja |
| Daggett Recharge | Floodplain Baja |
| Lenwood Recharge | Floodplain Centro |
| Hodge Recharge | Floodplain Centro |
| Recharge North of Helendale Fault | Floodplain Centro |
| In-Lieu Supply to Silver Lakes | Floodplain Transition Zone |
| Mojave River Pipeline Extension - Transition Zone | Floodplain Transition Zone |
| Rock Springs Release | Floodplain Alto |
| Hesperia Lakes Recharge | Floodplain Alto |
| Recharge Facilities South of Rock Springs Turnout | Floodplain Alto |
| Release SWP from Silverwood Lake | Floodplain Alto |

| *Non-Floodplain Aquifer Recharge (12)* | *Specific Zone* |
|---|---|
| Kane Wash Recharge Ponds | Regional Baja |
| El Mirage Recharge Ponds | Regional Oeste |
| Sheep Creek Recharge Ponds | Regional Oeste |
| Oro Grande Wash Recharge Ponds | Mid Regional Alto |
| Cedar Street Detention Basin | Mid Regional Alto |
| Antelope Valley Wash Recharge Ponds | Mid Regional Alto |
| Recharge Facilities South of Apple Valley | Right Regional Alto |
| Recharge Ponds West of Helendale Fault | Regional Este |
| Lucerne Valley Recharge Ponds | Lucerne Valley |
| Means/Ames Valley Recharge Ponds | Means/Ames Valley |
| Hi-Desert Water District Recharge Basin #3 | Warren Valley |
| Joshua Basin District Recharge & Pipeline | Copper Mountain Valley |

| *Water Treatment and Blending (10)* | *Specific Zone* |
|---|---|
| Regional Surface Water Treatment Plant | Left Regional Alto |
| Injection Wells in Mesa Area of Adelanto | Mid Regional Alto |
| Injection Wells in Victorville Area | Mid Regional Alto |
| Blending local water with treated SWP | Mid Regional Alto |
| Blending local water with Floodplain Aquifer | Mid Regional Alto |
| Local Wastewater Treatment Plant (Alto) | Mid Regional Alto |
| HDWD Nitrate Removal Plant | Means/Ames Valley |
| Yucca Valley Wastewater Treatment | Means/Ames Valley |
| Individual Wellhead Treatment | Entire MWA |
| Hinkley Water Supply Augmentation by SCWC | Floodplain Centro |

| Conservation and *Storage Agreements (11)* | *Specific Zone* |
|---|---|
| Land Purchase to Protect Riparian Habitat | Floodplain Baja |
| Eradication of Non-native Plant Species | Floodplain MWA |
| Agricultural Conservation Programs | Entire MWA |
| Urban Conservation Programs | Entire MWA |
| Pricing Changes | Entire MWA |
| Storage agreements with agencies inside MWA | Entire MWA |
| Banking water agreements with outside agencies | Entire MWA |
| Pre-delivery SWP Water | Entire MWA |
| Water (entitlement) exchanges | Entire MWA |
| Baja Storm Flow Retention - 2 locations | Floodplain Baja |
| Cushenbury Flood Detention Basin | Lucerne Valley |

All alternatives included full implementation of the Judgment; Warren Means/Ames, and Copper Mountain given first priority SWP deliveries; State Project supply to AVEK and make-up water to Hodge/Lenwood ponds; Operation of Victor Valley Water Reclamation operation up to the first 9,700 acre-feet per year (additional reclaimed to irrigate golf courses); and alternative supply to Hinkley, Pioneertown, and wellhead treatment in selected areas in Alto subarea.

Mr. Williamson noted that the natural supply in the Warren Valley was estimated at 900 acre-feet per year. Recent work by the Geological Survey suggests that this could be as low as 200 acre-feet per year. In this case, the supply would drop, but with additional recharge being modeled, the areas should continue to be in surplus.

A graph was shown to illustrate the quantity of State Water Project water needed to balance the Copper Valley supply in 2020.

It was determined that in Alternative C0 only 40% of MWA demand would be met; 62% of agricultural demands met in Alto and 29% of agricultural demands met in Baja; and 24% of municipal demands met in Alto. Alternative D0 29% of demand met in Alto and Oeste; 51% of demand met in Baja; 74% of demand met in Este; 26% of municipal demands met in Alto; and 100% of agricultural demands met without import.

Mr. Williamson reminded the TAC that at the prior meeting, Alternatives D5, D6, and D7 were determined to be the most promising alternatives. Revised Alternatives D5r and D6r incorporate a 10% municipal conservation. Alternative D5r includes a 12,000 acre-feet regional treatment plant. Both D5r and D6r performed well in the modeling—meeting all the demands within the Agency boundary. Ms. Cox requested an explanation on the additional costs related to the revised alternatives. Mr. Williamson replied that the treatment plant would be smaller and the demand would be increased, the assumption being less conservation. Mr. Kirby added that none of these costs include conservation actions.

**Alternative D5r**

- Agricultural Demand Scenario 2
- 10% Municipal Conservation in the Mojave River Basin; 5% Municipal Conservation in the Morongo Basin/Johnson Valley Area
- 13 Projects Including:
  - Regional Treatment Plant in Alto (12,000 AF/yr capacity)

**Alternative D6r**

- Agricultural Demand Scenario 2
- 10% Municipal Conservation in the Mojave River Basin; 5% Municipal Conservation in the Morongo Basin/Johnson Valley Area
- 16 Projects Including:
  - Up to 38,000 AF/yr Recharge into the Alto Regional Aquifers

Alternative D6r requires more projects due to the absence of the regional treatment plant. Both alternatives result in a balanced sub-basin.

Mr. Williamson stated that Alternatives D5 and D6 have the largest positive net change in storage. Alternatives D5r and D6r show improvements in all subareas. Alternative D5r increases total Agency-wide storage by 10,500 acre-feet; and Alternative D6r illustrated an increase by 8,800 acre-feet per year. Alternative D7 showed a decline. Alternatives D5, D5r, D6, D6r and D7 met the greatest percentage of demands. Alternative D3 meets more than 90% of demand in each subarea and Alternative D2 has significant shortages in some subareas.

In the alternatives which were devised, there was not a significant interaction within the Mojave River between subareas. With the exception of Alternative D7 which includes a 40,000 acre-fee per year release from Rock Springs.

In response to Mr. Davis's question to water supply performance south of Rock Springs, Mr. Kirby referred to the spreadsheet titled "Water Supply Performance", stating that since the areas are in close proximity, it was modeled as Hesperia Lakes. This modeling was based on achieving balance within the Alto Floodplain Aquifer. In the modeling, this would take advantage of the longer distance in the Floodplain Aquifer in making an active discharge further south which is a benefit to the Alto Floodplain Aquifer. Mr. Kirby added that the more locations there are to put water into the ground, the better response is achieved from the aquifers. Mr. Brill added that there are also projects on the east side of the river which affect the Regional Aquifer.

Mr. Williamson reviewed a chart which indicated that the majority of State Water Project water recharge will need to occur in the Alto subarea due to this being the major demand center.

Mr. Williamson reviewed the water quality assessment. Seven constituents were evaluated: arsenic; boron; fluoride; iron; manganese; nitrates; and total dissolved solids (TDS). These constituents were compared in native water quality and State Water Project imported water. On average, State Water Project water is a benefit to the basin due to the higher quality of water in all areas. Although the water supply would be improved, over a period of several hundreds or thousands of years, there would be additional salt entered into the basin.

## 6. STEPS TO A COMPREHENSIVE WATER MANAGEMENT STRATEGY

Mr. Kirby reviewed the objectives of Phase 3 of the Regional Water Management Plan update. Phase 3 will require a programmatic level review for all of the alternatives being carried forward. This document will be consistent with SB610, SB221 and SB1938. In addition, full implementation of the Judgment will continue. There will continue to be a number of different public processes implemented.

Mr. Kirby stated that Mojave Water Agency has indicated interest in developing a strategic plan for Regional Water Conservation which targets a 10% reduction in consumptive use.

A working draft Summary (Table 1) of Alternatives D5r and D6r for presentation to the Mojave Water Agency Board was distributed for review and revision by the TAC. Projects and management actions included in Alternatives D5r and D6r were evaluated to determine recommended priority for further evaluation. The criteria for evaluating priority included: whether it is an existing project or is already being pursued; the level of current overdraft that the project attempts to mitigate; and the expected growth of the subarea where the project will be applied. Each project and management action was designated as having high, moderate or low priority. Mr. Kirby stated that when evaluating the use of reclaimed water, there is no consumptive savings by reclaiming water. Water quality can benefit and balance particular regions.

Mr. Kirby noted that the reference made to Municipal Conservation of 16,000 acre-feet per year in terms of production or 8,000 acre-feet in terms of consumptive, 12,000 acre-feet from the treatment plant in Alternative D5r is included in the average recharge in the Mojave Regional Aquifer. In terms of water supply, a surface treatment plant in the Victorville area is being considered an in-lieu recharge project as well as having a potential for water quality benefits. Percolation ponds are considered as having a half-foot per day of continuous recharge with a two times peaking factor which allows for capacity to be maintained. Mr. Kirby explained that there are three methods in which to get water into the ground: natural recharge; active recharge which is usually percolation ponds or injection wells; and in-lieu. In-lieu is defined as an area which water is currently being extracted from which in-lieu of pumping groundwater, water is therefore being left in the ground. In a sense, this is a form of recharge because the demand of the natural supply or artificially recharged supply is being reduced. The plant will receive a direct connection from the State Water Project water supply. The treatment is of a size so that a reliable supply can be expected in most years for the capacity. If there was a disruption, groundwater would then be utilized.

A Priority List (Table 2) was distributed to the TAC for comments to be presented to the Mojave Water Agency Board. Mr. Kirby clarified that a high, low, or moderate priority does not reflect importance. It signifies which projects require focus over the next 2-3 years. All projects are important and will not be removed from the list. The significance is related to timing. Overdraft conditions and highest rate of growth were also considered to develop priority.

Conservation was placed high at the top of the list due to the fact that it will take time to fully implement and immediate benefits can be expected.

The two alternatives which will be presented to the Mojave Water Agency Board will allow for a variety of different perspectives. The priority list is also necessary for CEQA requirements. There is another alternatives process necessary for CEQA.

Mr. Hill indicated a need to revise the priority for the Alto Wellhead Treatment project to high. Another recommendation from Mr. Hill was to add the Alto West Regional location to the table with a high-priority status. The table was subsequently adjusted to reflect these comments.

Mr. Brill added that the purpose is to meet 2020 needs and does not necessarily take operational needs that may be required. Priorities can be adjusted but the focus needs to be on the big picture.

Mr. Davis requested and the Committee agreed that a moderate priority status should be placed on the recharge into the Transition Zone Floodplain.

Mr. Brill referenced the term used for the Baja Floodplain being referred to as Regional--if it is Regional, then it is being pursued with the terminus of the Mojave River Pipeline in Newberry Springs. Mr. Kirby stated that there is some disagreement as to whether Newberry Springs is in the Regional or Floodplain Aquifer. The USGS map indicates that the Floodplain is quite wide in this region which would indicate that it is in the Floodplain, however, some disagree. Mr. Brill added that the only thing that would change is whether it is existing or being pursued with the priority still being moderate.

Mr. Bell requested the definition of Este Regional versus Lucerne Valley. Mr. Williamson replied that Este Regional would be west of the Helendale Fault. Mr. Williamson further clarified for Mr. Bell that the Cushenbury Fault is the Helendale Fault and that the water flowing from the mountains can be diverted either west or east. The modeling has been done with the flow directed west. Mr. Bell does not feel that this area is the Mojave Regional Aquifer. It was determined that this would be referred to as the Lucerne Basin. In response to Mr. Bell's comments, Mr. Kirby suggested that the Este Regional and Lucerne Valley categories be combined into one. It was decided that the identification and classification of the project can be addressed at a future time. With reference to the priority listing, the determination was that they were appropriate as presented with Este Regional having a moderate priority and Lucerne a low priority.

Mr. Lyons stated that there are currently feasibility studies underway in the Copper Mountain Valley. The table was therefore revised to reflect that recharge projects in Copper Mountain Valley are being pursued and the overdraft in the aquifer is moderate with a moderate priority assignment.

The amount of overdraft for Pioneertown Water Supply was revised to reflect a high rating as a result of a comment from an unidentified individual.

Mr. Kirby noted that with regard to recharge in Means/Ames Valley, Bighorn Desert View commented that some of their water is being produced outside of this area. In the past, Bighorn Desert View has been treated as part of Means/Ames Valley.

In response to a comment by Mr. Pearl, overdraft in the Means/Ames Valley was revised to reflect a moderate standing. Mr. Pearl also added that on Table 1 there needs to be an "x" added to the column D5r next to Warren Valley. This sub-basin is also in an overdraft and needs to be revised to reflect a moderate standing.

Mr. Brill revised Table 1 to reflect the removal of "x"s next to Kane Wash Recharge Ponds and the addition of "x"s next to Newberry Springs Recharge Ponds. Mr. Kirby added that this is due to recent discussions to refer to Newberry Springs as part of the Floodplain Aquifer. Mr. Brill suggested that the delineation line be looked at to determine whether Newberry Springs is located in the Floodplain or Regional Aquifer. The "x"s were then added to Newberry Springs which is to remain in the Floodplain Aquifer until further research can be done. If it is determined to be located within the Regional Aquifer, it will be moved on the table.

Mr. Pearl requested the addition of a column in Table 2 to indicate whether a project has occurred as a result of the Phase 1 or Phase 2 process. Mr. Pearl referred to the Yucca Valley Waste Water Facility which is expected to be constructed in the next 20 years, that is not on the list of projects and is a priority. Mr. Kirby responded that the reason that this project is not on the priority list is because it was not considered an alternative solution to the issues which were outlined. The priority list does not address all projects that every entity is involved with on their own. The list is more related to the common projects with common solutions.

Mr. Davis expressed concern with the difference of projects on the D5r and D6r list being considered as a whole rather than separately. Mr. Kirby assured Mr. Davis that the Mojave Water Agency Board will be informed that these are not the only two combinations of projects and management actions. Due to the fact that these were the ones that were modeled, time restraints do not permit any revisions at this point. However, since these were the projects that made the list, the ultimate choice can be any combination. Mr. Kirby suggested that the two columns on Table 1 be combined into one. This would reinforce the fact that there a number of combinations rather than only two.

Mr. Hill requested that the currently available injection wells be included in the table in the West Regional Mojave sub-aquifer. This would not change the modeling since 12,000 acre-feet has already been considered. Mr. Hill reminded that when average annual recharges are being referred to, it takes into account that more will be necessary to achieve the annual average. Mr. Kirby agreed and added that these are target amounts. These amounts will vary once a more detailed feasibility is performed.

Mr. Bell asked if the priorities of the plan could be adjusted based upon unusual supply circumstances. Mr. Brill stated that the plan is intended to be flexible; adding that it is a roadmap to allow the allocation of resources in a resourceful manner.

## 7. ACTION BY THE TECHNICAL ADVISORY COMMITTEE RECOMMENDING ALTERNATIVES TO THE MOJAVE WATER AGENCY BOARD FOR PHASE 3

The list of projects and management actions will be presented to the Mojave Water Agency Board on April 24, 2003. The Board will be requested to adopt the recommendation with which to carry forward into Phase 3. Mr. Brill emphasized that this is not being brought to the Board for a selection of projects. This is something that legally cannot be done at this point in the process. The request is going to be for the approval to move into the next phase of the process which will be the feasibility and recombining of alternatives, which is the environmental documentation phase. The result will provide a much smaller focus.

Ms. Cox requested a motion to approve the package which will be presented to the Mojave Water Agency Board for approval on April 24. Noted was the revision to "draft" Attachment "A" of the current memo format being changed to a letter format. In addition, a participation list will be added to the package. Motion was made by Mr. Hill to accept the revisions as stated. The motion was seconded by Mr. Davis and unanimously approved.

## 8. OTHER BUSINESS

Ms. Cox reminded the participants of the Water Symposium scheduled for May 1, 2003. Mr. Brill added that the conference will be held at Victor Valley College. The conference is directed toward the elected officials to clear up any misconceptions, also to inform them of the critical role that water holds for the future. Considering the interrelationship of the water system, it needs to be addressed that the solution requires a broad focus.

Mr. Brill thanked everyone for their participation in Phase 2. He looks forward to continued involvement of the TAC with Phase 3.

Copies of the presentation of this meeting were made available as noted by Ms. Cox.

## 9. ADJOURNMENT

Motion to adjourn was made and seconded at 11:50 a.m.

Kimberly Cox - Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

March 19, 2003
9:00 a.m.

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1. **CALL TO ORDER**: Chairman Cox called the meeting to order at 9:00 a.m.

2. **INTRODUCTIONS**: Introductions of 39 members in attendance were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

3a. **SPECIAL PRESENTATION**: Chairman Cox presented Jack Clark with a plaque in appreciation for his past three years of service to the Technical Advisory Committee. Mr. Clark commended the Mojave Water Agency Board of Directors and Staff for the advances that have been made over the years. He added that the many improvements in the region are especially due to the involvement of the Technical Advisory Committee members and supporters.

4. **APPROVAL OF MINUTES FROM FEBRUARY 19, 2003 MEETING**: The minutes were approved with the following revision noted on page 4-3, second paragraph should read "…Scenario 1 Agriculture is a continuation of the **2000** level…"

5. **PRESENT FINAL SCREENING RESULTS**: Mr. Brill expressed his appreciation to those in attendance for taking the time out of their busy day to participate in this process. Due to the complexity of the development of the Regional Water Management Plan, participation is the vital to the success of this Plan.

   Mr. Kirby reviewed the difference in the Phases. The current status is the development of Phase 2 which involves the development of objectives, evaluation of alternatives and selection of alternatives. With the aid of a PowerPoint presentation, Mr. Kirby reviewed a systems approach to screening. (A complete copy of the PowerPoint presentation is attached to the minutes on file.) This meeting is nearing the conclusion of Phase 2.

With regard to the alternatives being presented for the development of the Regional Water Management Plan (RWMP), it is presumed that the terms of the Judgment will be implemented. The data from the Phase 1 report is what will be used in order to meet the 2020 needs. There has been some disagreement with the demand levels reported in the Phase 1 Report, in particular Morongo Basin/Johnson Valley. At this point, there is no new data that can be substantiated or that everyone can agree on. Therefore, the levels reported in the Phase 1 Report will be used and it is understood that updating will be required when it comes to long-term planning. There were two agriculture scenarios reviewed. Scenario 1 is considering year 2000 level agriculture. Scenario 2 is a substantially reduced level of agriculture. This scenario will allow agriculture to continue to produce the water for the level of demand without having to pay to import water. The presumption is that 4900 acre feet of State Water Project water will be imported to AVEK, Hi-Desert, and make-up water to Hodge and Lenwood. A comparison of year 2000 levels with demands of 2020 with Scenario 1 cannot meet the demands. Scenario 2 comes close to meeting demands of 2020. State Water Project water estimates 78% reliability in 2020.

An aggressive approach to the impact of 20% conservation of municipal use was considered. There is some question as to whether or not this would be possible; however, it was considered to determine the likely impacts. The possible occurrence of Base Annual Production (BAP) transfers from lower value to higher value uses were also considered in the model by using historical data to determine trends. At 80% Rampdown levels, Scenario 1 demand indicates some areas are below; however, Alto can be expected to indicate the greatest rise under both scenarios. In order to obtain balance in 2020 by implementation of the Judgment, Este would need to rampdown to 22%, Oeste 18%, Alto 44%, Centro 71%, and Baja 12%, to meet the Sustainable Free Production.

It is presumed that production between Warren Valley and Means/Ames Valley can be exchanged between the basins to balance this area. This is based on current methods being performed and comments received.

The alternatives which were preferred by the TAC at the last meeting were refined and are being presented for consideration at this meeting. Alternatives B3 and B4 appear promising in meeting close to 100% of the demands for the entire service area in 2020.

Based on comments received at the last meeting revisions to the way the model operates relative to groundwater elevations especially in the Transition Zone. It was determined that due to the use of an extraction of the MODFLOW model in which this scenario was different than the MODFLOW model, the result was an overfilling of the groundwater basin beyond capacity. Revisions have been made to limit the ability to hold water which results in more river flow.

The modeling determined that a subarea obtaining balance does not necessarily result in all aquifers within this area being in balance. This will require internal refinement. Another finding was that the river and groundwater flow into Baja does not change with supply or demands upstream. The Centro subarea is in surplus with all the alternatives.

Mr. Kirby addressed the comments received from the following:

John Leveilee & Michael Podegracz, City of Hesperia
Randy Hill, Victor Valley Water District
Patrick Lendway, City of Barstow
Chuck Bell, citizen
Spike Lynch, Ginger Hancock, et al.,
Newberry Springs-Harvard Real Property Owners Association
Hildamae Voght,
Newberry Springs-Harvard Real Property Owners Association
Matthew Woods, citizen, Lucerne Valley
Gary Ledford, Jess Ranch
Terry Lyons, Joshua Basin Water District
Lee Pearl, Hi-Desert Water District
Kimberly Cox, City of Victorville

Summaries of the comments are included in the PowerPoint presentation and original documents are attached to the minutes on file.

Mr. Kirby stated that the list in which the TAC is working to establish is a priority list, not an exclusionary list. This will help gain focus on accomplishing the most important projects first.

Mr. Hill from Victor Valley Water District added that when an average recharge is referred to at a particular location, it is important for everyone to understand that these are averages and any facilities that are constructed would have to be capable of releasing more than the average. This will allow for years in which State Water Project water is available can be banked to balance years when water may be unavailable. Mr. Kirby agreed stating that the maximum amount will be greater than the average amount of water demonstrated.

In response to a comment from Mr. Bell regarding the RWMP including funding for water and sewer service for Lucerne Valley, Mr. Brill stated that this is more of a water quality issue which needs to be addressed.

Mr. Brill responded to a question raised by Mr. Woods regarding the relationship of groundwater banking to the RWMP. The guidelines for water banking which were adopted by the Board state that they are interim guidelines until the RWMP has been concluded. They are basin wide and allow the Agency to move forward

immediately to begin banking in areas which fit the criteria of available water; facilities to recharge; and projected demands.

In response to a comment from Terry Lyons, Joshua Basin Water District, material being distributed prior to monthly meetings, Mr. Kirby stated that this is impossible given the aggressiveness of the schedule. Phase 3 may not require as much time to evaluate and work the data as is necessary in Phase 2.

There was a comment from Lee Pearl regarding transfer of water from Ames/Means basin to Warren Basin. Mr. Kirby stated that according to historical data which has been gathered, this is already taking place and will continue.

In response to a comment presented by Ms. Cox, City of Victorville, Mr. Kirby disagreed that a regional treatment plant is impractical due to unpredictability of State Water Project water supply. Mr. Kirby stated that this may be true when considering a large treatment plant, but a small plant makes much sense.

Mr. Williamson demonstrated the differences in alternatives by use of a graph which was distributed at this meeting and included with the PowerPoint presentation. This graph listed Alternatives A and C together since they are considered high-demand scenarios with Alternatives B and D considering low-demands. There has been a correction made to the water levels in the Transition Zone related to C and D scenarios. As noted earlier, Mr. Williamson stated that the model had represented the flow in groundwater from the Transition Zone floodplain aquifer to the Centro basin in terms which were determined to be unrealistically high relative to the average ground surface elevation. The correction has been made to the model. The average elevation was determined to be 2,510 feet above sea level. Any flow which exceeds this elevation will be demonstrated as surface flow in the stream channel into the Centro basin. The result will be greater river flows from Alto to Centro. Based on the Phase 1 report and the Watermaster report which indicate an average annual river flow of approximately 34,000 acre-feet per year, the modeling was run on 37,000 acre-feet per year under 2020 conditions. The finding is that this flow was underestimated by about 8,000 acre-feet a year, primarily due to the reclamation discharges to the Transition Zone floodplain aquifer which is currently 9,700 acre-feet per year. Mr. Kirby added that this does not resemble base flow. The model is demonstrating that due to the fact that the Transition Zone is fairly full many of the years, when peak water flow exists, the water is able to flow through. The low points still signify a decrease in water level, but when a high flow exists, there is more water in the river.

Mr. Williamson presented the new alternatives which represent the new Transition Zone relationship. As a reminder, Mr. Williamson stated that there are various categories of projects: Supply Enhancement Projects, includes State Water Project and non-State Water Project supplies including Baja storm retention, and

an analysis of the Cushenburry Canyon recharge project in Este; and Management Actions. A new numbering system to signify the various projects was presented with the following letter designations prior to the project number:

"F" - Floodplain Aquifer Recharge Projects
"N" - Non-floodplain Aquifer Recharge Projects
"W" - Water Treatment Management Actions,
"C" - Conservation and Storage Agreements (Management Action)

Mr. Williamson defined the F10 project for Mr. Hill, stating that F10 is a recharge project to the south of the pipeline. This will allow conveyance to some of the mountain-front areas.

Mr. Williamson mentioned that some projects such as Hinkley and Pioneertown have been omitted from the list. However, there is an assumption that an alternative water supply for the Hinkley area would be implemented for any alternative primarily for water quality reasons. This would include pumping from the floodplain aquifer to Hinkley which is in the regional aquifer. The same scheme exists for Pioneertown.

The significant variations in the alternatives are: recharge options; regional treatment plant; urban conservation, 0%, 5%, 20%; and storm flow retention (Baja and Cushenburry). In response to a comment made by Mr. Bilhorn, Mr. Caouette clarified that the storm flow retention is primarily related to the Baja area since this is the end which is different from impeding storm flow in Alto which would affect Centro and Baja. These projects would exist in the lower Baja area.

There are some common assumptions for all the projects: full implementation of the Judgment; State Water Project supply to AVEK and make-up water to Hodge/Lenwood ponds; Victor Valley Wastwater Reclamation Authority operation; supply to Hinkley, Pioneertown, Alto wellhead treatment. Mr. Hill provided the information that there is a motion pending before the court which would signify that make-up water from Alto would be released to the Transition Zone rather than the Hodge/Lenwood basins. Mr. Williamson was unaware of this pending motion, but would take it into consideration.

**Alternatives List –**

C0 - No action with Agricultural Scenario 1
C3 - Agricultural demands at 80% Rampdown levels with no municipal conservation
D0 - No action with Agricultural Scenario 2
D2 - 46,000 AF/yr treatment plant with 5% municipal conservation
D3 - No treatment plant with 5% municipal conservation
D5 - 26,000 AF/yr treatment plant with 20% municipal conservation
D6 - No treatment plant with 20% municipal conservation

D7 - No treatment plant with 20% municipal conservation, with 40,000 AF/yr release from Rock Springs Outlet

Mr. Williamson added that Pioneertown is common to all action alternatives.

Mr. Hill asked if the recharge facility south of Rock Springs being considered to support entitlement swap. Mr. Williamson clarified that this was not the case. There is a water supply deficit in this eastern portion of the regional aquifer. This eastern portion includes the area from the mountain front to the eastern portion of Apple Valley. The location of the recharge facility is necessary within this vicinity, whether at Rock Springs or some other comparable facility. Mr. Bilhorn was under the impression that a facility was more needed toward the southern portion of Hesperia. Mr. Williamson stated that there a number of facilities south of Hesperia such as Antelope Wash and Oro Grande Wash. Mr. Brill stated that this planned recharge facility south of Rock Springs needs further review, since it seems that it would be difficult to get the water into the regional system. Mr. Williamson stated that he would check into this and report back to the TAC.

Mr. Bell inquired as to the differences between the Lucerne Valley Recharge Ponds and the Recharge Ponds west of Helendale Fault. Mr. Williamson clarified that the Lucerne Valley Recharge ponds are east of the fault. It has been determined that most of the deficit lies west of the fault. Mr. Bell suggested that Mr. Bob Wagner, Watermaster Engineer, be consulted with regard to this issue.

**Alternative C0 Summary –**

- 40% of total MWA demand met
- 62% of Agricultural demands met in Alto and 29% of Agricultural demands met in Alto and 29% of Agricultural demands met in Baja
- 24% of municipal demands met in Alto

**Alternative C3 Summary –**

- 100% of Agricultural demands met
- 85% of total MWA demand met
- 41% of Agricultural demands met in Alto and Baja
- Between 70% to 78% of municipal demands met in Alto, Baja, Este, and Oeste
- Baja Regional aquifer declines 24 feet
- Baja Floodplain aquifer declines 28 feet

Mr. Kirby responded to a comment by an unidentified individual that there are not 3 recharge projects included in Alternative C3 was due to there not being enough water to spread to all 3 projects. The goal is to meet the demands in 2020 with looking at the variability and what agricultural demand could be. In this case, with the available water, there is not enough water to go around. Therefore, only the number of projects was used to justify the distribution of available water.

The result of Alternative C3 is the Baja floodplain and regional aquifers continue to exist in overdraft condition.

Mr. Brill added that this is the alternative presented at the last meeting which was prompted by the current knowledge of the direction the Court is heading with relation to the Mojave River Basin. However, this does assume 0% conservation which is an option. Mr. Bell clarified that this also assumes that there will be no transfer from Agriculture to Municipal & Industrial production. Mr. Kirby stated that this scenario was used to determine if it would even be possible. It was determined that it is not possible. Mr. Brill clarified that these issues are related sub-basin by sub-basin, specifically when referring to agricultural remaining and the burden taken upon by others not overall.

**Alternative D0 Summary –**

- 29% of total demand met in Alto and Oeste
- 51% of total demand met in Baja
- 74% of total demand met in Este
- 26% of municipal demands met in Alto
- 100% of agricultural demands met without import water

Mr. Williamson pointed out that 100% of all agricultural demands are met in all the "D" alternatives, using existing base annual production credits and no State Project water.

**Alternative D2 Summary –**

- 95% of total MWA demand met
- Less than 80% of municipal demands met in Baja, Este, and Oeste
- Although Alto is in balance overall, there is not enough flexibility to balance all sub-aquifers

This alternative is a variant of Alternative B2. Mr. Williamson did confirm during a break at this meeting that the recharge facilities south of the Rock Springs turn-out does recharge to the floodplain aquifer. Mr. Davis asked for clarification of the reference to "less than 80%". Mr. Williamson replied that it is within the 70% - 80% band.

**Alternative D3 Summary –**

- 96% of total MWA demand met
- Between 93% and 96% of municipal demands met in Alto, Este, and Oeste
- No sub-aquifers are significantly declining

Variation of Alternative B3. Mr. Williamson noted that Baja was modeled using two aquifers for the entire subarea, floodplain and regional aquifers. It was

recognized that there are two significant faults within this area that further sub-divides the basin. Taking this into consideration, it may make sense to perform smaller projects in these areas that are divided by the faults. For the purpose of this assessment, the entire regional and floodplain aquifer were aggregated.

**Alternative D5 Summary –**

- 98% of total MWA demand met
- 96% of municipal demands met in Oeste and 98% met in Este
- No sub-aquifers are significantly declining

This alternative is different from the other 20% conservations alternatives due to the inclusion of a regional water treatment plant which possess a 26,000 acre-feet per year capacity.

**Alternative D6 Summary –**

- 100% of total MWA demand met
- No sub-aquifers are significantly declining
- 1000 AF unused SWP supply

This alternative does not include a regional water treatment plant.

**Alternative D7 Summary –**

- 100% of total MWA demand met
- There are significant declines in groundwater elevations in the Alto Floodplain and Regional Aquifers
- 1700 AF unused SWP supply

The significant difference in this alternative is that a large release from the Rock Springs turn-out into the Mojave River would result in some effect downstream. Mr. Williams provided additional information that on average, releasing 40,000 acre-feet per year of State Water Project supply in addition to natural flow, there is an increase of the water which travels downstream.

**Key Findings –**

- When Agricultural demand is at 80% Rampdown levels, there are significant shortages even at full SWP allocation
    - Baja Regional Aquifer declines 24 feet
    - Baja Floodplain Aquifer declines 28 feet
- Possible to meet demands under Agricultural Scenario 2 with 20% municipal conservation
- Large Regional Surface Water Treatment Plant limits operational flexibility
- High Rock Springs Outlet release does not balance Alto groundwater levels

Mr. Kirby stated that it is not possible to meet more than agricultural scenario 2 and a projected urban level of development in 2020 with the available water. Considering aggressive conservation, lowering the level of agricultural demand and projection of growth in 2020 will allow full utilization of available water.

The regional aquifer in the Transition Zone indicates an increase in elevations over time due to the fact that there is not significant production in this area and return flow exists. Wastewater return flow exists in the floodplain aquifer which provides water to the regional aquifer. Even under the no action alternative, an increase in elevations can be expected in the regional aquifer in 2020. Mr. Kirby added that a no action alternative does consider implementation of the Judgment.

**Alto Regional Water Levels –**

- Alternatives that reasonably balance the Alto subarea typically demand at least 80% of MWA's current State Water Project water.
- Balance can be achieved in the Alto regional aquifer with or without a large capacity (46,000 acre-feet per year) Surface Water Treatment Plant.
- Large releases (40,000 acre-feet per year) from Rock Springs does not balance Alto groundwater levels.

Mr. Williamson clarified for Mr. Davis that when referring to 20% municipal conservation assumes that a 20% conservation is reached by 2020, not an immediate reduction. Mr. Williams also noted that the best performing alternatives have the 20% municipal conservation assumption.

Referring to the subarea interaction of the Mojave River, Mr. Williamson stated that with exception of the case of a large Rock Springs release, river flow between Centro and Baja does not significantly change between the alternatives.

Mr. Kirby noted that the numbers that are referred to in the Water Supply Performance relate to average performance not the capacity of the recharge facilities which would be larger. Mr. Williamson also mentioned that the supply to the AVEK Power Plant, make-up water to Hodge, Lenwood and Warren Valley are common to Alternatives C0 and D0.

Alternatives D2 and D5 have a larger capital cost due to the inclusion of large treatment plants. Mr. Kirby added that the costs do not include conservation costs and presumes that there will be very aggressive recharge into the regional aquifers. The costs are to be lightly considered; since, it may be required to implement well injections rather than ponds which will increase the costs. These costs do not reflect the fact that 20% conservation will impose additional costs. Mr. Kirby added that the graph depicts that there is no one alternative which clearly stands out as superior in terms of cost.

Mr. Kirby stated that his involvement with CalFed to determine the goals of the future. A large focus of the Delta is regarding water quality. Water quality is measured at various locations along the California Aqueduct. Water from the State Water Project has lower concentration levels of arsenic than the average native groundwater in the Mojave Basin. It is not expected that the arsenic levels of the State Water Project will increase in the years to come, however, native groundwater levels of arsenic are expected to rise. The Arsenic Index graph presented by Mr. Kirby indicates a variance in arsenic levels per subarea for each alternative. This variance is due to the volumetric difference. The higher number on the graph indicates a improvement in water quality by comparison. In terms of arsenic, the State Water Project water is better than the native water. Boron concentrations are mixed. In some cases native water is lower than State Water Project water. Fluoride levels are lower in State Water Project water than the native concentrations. Iron is mixed depending on the subarea. Manganese is lower in State Water Project water in all areas except for Alto and Oeste. Nitrate concentrations are also mixed. In terms of a change in the State Water Project water, it is expected that nitrate concentrations will increase. Lowering the TDS levels in the State Water Project water is one of the primary objectives of the Delta. It is likely that this level will decrease in the future, which it is already lower than the native groundwater except in Alto. Mr. Kirby noted that this is a very broad look which is based on averages and that there is much variance within the basins. There was some discussion on methods which can be used to inject water so as not to contaminate it with the existing water.

Mr. Kirby summarized the key findings stating:

- Cannot meet demand under Agricultural Scenario 1 with natural and State Water Project water
- State Project water supplies are variable – DWR predicts average 78% delivery of contract amount
- When subarea is in balance, portions of aquifer can still be in overdraft
- Numerous projects required in all alternatives
- River/groundwater flow into Baja does not change significantly in alternatives modeled
- Centro in surplus in all alternatives

Mr. Brill stated that this plan is designed to be from a system wide perspective and may include project which may not be fully implemented by Mojave Water Agency alone. Projects will be considered along these lines.

Mr. Davis stated that he would like the focus to be on Alternatives 5 and 6, which provide the greatest potential for long-term gain in storage and the most likely to meet the needs of the projected growth of 2020. Mr. Snively agreed and added that these project alternatives also meet the needs of all the basins. Ms. Gray stated that D6 is preferable due to the prudence of allowing a buffer of the extra water being available if for any reason state water is not available. Mr. Kirby

clarified that this is not actually a buffer due to the fact that this reflects an unbalance in Alto. It is an increased river flow with a surplus condition in some of the basins downstream and a continuing decline in the regional aquifers in Alto. Ms. Gray replied that this alternative is preferred. Mr. Hill asked for additional modeling of conservation. He does believe that 20% conservation is possible, but would like to have 10% illustrated. Also, an analysis of a water treatment plant included at 12 rather than 46 or 25. Mr. Hill feels that the in-lieu exchange for a treatment plant is extremely beneficial especially with the pending arsenic resolution. This may be extremely cost-effect when compared to the costs involved with building small treatment plants on each well. Victor Valley Water District wells would then be taken off-line when State Water Project water is available. Mr. Hill and Mr. Bilhorn would like more information on the Rock Springs recharge project.

Preferred Alternatives-

- D3
- D5 (with refinement)
- D6
- D7

Mr. Brill asked that a provision in the Judgment of a 21,000 acre-feet surface base flow be used as a performance objective. Mr. Kirby stated that this stipulation is a 21,000 or a balanced condition which is already being taken into account. Mr. Brill suggested that the surplus from Centro be used to help achieve balance. Mr. Kirby responded that he thinks that this is already being done, but he will verify with his staff.

Mr. Hill presented a long-term water supply operation of the possibility of “Entitlement Swapping” with other State Water Project Contractors. As an example, Mr. Hill stated that the Mojave Water Agency could enter into an agreement with the Metropolitan Water District to store water locally in order to allow them to meet their interim surface water requirements. This could generate addition revenue to purchase water or as Mr. Hill suggested a 2 for 1 trade. This is an option which can be considered in Phase 3.

## 6. EQUITY AND IMPLEMENTABILITY

As part of the initial objectives of this phase of the plan, the solutions were to be implementable and equitable.

Mr. Kirby presented a chart which rated the alternatives implementability due to the following criteria:

a) Utilized existing facilities
b) Number of permits required is minimized
c) Environmental impact is low

d) Solves more than one problem
e) No secondary or redirected impacts
f) Does not limit resources management flexibility
g) Does not significantly limit implementation of other solutions

Mr. Kirby clarified for Mr. Davis that the reference of “No secondary or redirected impacts” is relative to a project being beneficial to one area but harming another.

Everyone agreed that there is not a significant difference in implementability between Alternatives D3, D5, and D6.

Equity Chart Criteria-
a) Unbiased and objective, reasonable and consistent
b) Likely to result in few claims or grievances
c) Allows people to meet reasonable goals
d) Preserves a mix of livelihoods
e) Solution is in the best interests of all concerned
f) Magnitude of benefits provided is acceptable
g) Willingness to pay for the applied solution

Mr. Kirby stated that beginning this next fiscal year, Prop. 50 will be releasing quite a bit of money which may be available. The goal is for this report to be 100% in compliance with what the Department of Water Resources needs to see to qualify for grant funding.

There was some discussion among Mr. Brill, Mr. Kirby, Mr. Hill, and Mr. Davis with regard to “Swap” versus “Sales” of entitlement and other possible options.

Project Ranking Criteria-
a) Capital Cost
b) Operation Cost
c) Annualized Cost
d) Demands Met (total)
e) Demands Met (%)
f) Change in Storage
g) Water Quality
h) Implementability
i) Equity

Ms. Gray requested that it is necessary to review more detail of the costs involved with implementation of the different projects. Mr. Brill agreed and stated that this would occur more in the Phase 3 process.

Phasing will be looked at the next meeting now that the focus has been narrowed down to only a few alternatives.

Mr. Kirby stated that the large recharge facilities will most likely require utilizing perk-ponds and injection wells which will increase the cost of the recharge program. If the annualized cost of these alternatives is reviewed with the uncertainty and the cost of the conservation plan, a number of alternatives are indistinguishable at this point. The capital cost to build a treatment facility does not preclude it from being a viable alternative due to the flexibility of not counting on a very massive recharge project. It will also contribute a water quality issue. It may be a considerable expense, but when the annual cost given the uncertainty of the other issues, there really is not much difference. Especially, if a smaller size or in-lieu of pumping decided upon.

Ms. Cox concluded the meeting by requesting that any written comments be submitted by Wednesday, March 26, 2003. Ms. Cox stated that the Committee has determined that Alternatives D3, D5, D6 and what is being referred to as Randy's D5 Prime.

7. **OTHER BUSINESS**

Ms. Cox informed the Committee of the Rampdown Hearings taking place on Friday, March 21, 2003, at the Superior Court at 9:30 a.m. for anyone interested. In addition, noted were the Community Meetings on April 7, 8, and 9. Ms. Cox emphasized the importance of these meetings to involve others with encouraging their involvement with this process.

Mr. Brill stated that there is a Water Symposium scheduled for May 1 at Victor Valley College. This is somewhat related to the Regional Water Management Plan, but also includes the various different water issues. This will be geared primarily at the elected officials to give them the opportunity to receive relative information and provide a dialogue with them and other constituents.

8. **ADJOURNMENT –** 1:30 p.m.

_____

Kimberly Cox - Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

February 19, 2003
9:00 a.m.

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1. **CALL TO ORDER**: Chairman Cox called the meeting to order at 9:00 a.m.

2. **INTRODUCTIONS**: Introductions of 42 members in attendance were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **APPROVAL OF MINUTES FROM NOVEMBER 20, 2002, AND DECEMBER 18, 2002 MEETINGS**: The minutes were approved as submitted.

5. **APPOINTMENT OF REPRESENTATIVE FOR LOWER MOJAVE RIVER BASIN AREA 2003 TAC EXECUTIVE COMMITTEE -**

   Ms. Karen Gray and Mr. Wayne Snively were nominated to represent the Lower Mojave River Basin Area. Chairman Cox called for an oral vote in which Karen Gray received 12 votes and Wayne Snively received 2 votes. Therefore, Karen Gray will represent the Lower Mojave River Basin Area for 2003.

6. **PROMISING PROJECT COMBINATIONS –**

   Mr. Ken Kirby of Saracino-Kirby-Snow began by making note that the views expressed at this meeting are not necessarily the views of the Mojave Water Agency. The information presented is designed to provoke discussion in which to learn about the system. The decisions will ultimately be made by the Mojave Water Agency Board. Mr. Kirby stated that there will be two alternatives presented to the Board in April.

   The process of modeling was reviewed by Mr. Kirby. The modeling process is a tool designed to attempt to foresee the needs of 2020, based on information from the USGS modflow model in addition to understanding the physical system.

Mr. Kirby received comments from the following constituents (details to comments are included with the PowerPoint Presentation on file):

- **Patrick Lendway, City of Barstow**
- **Ginger Hancock, Newberry Springs-Harvard Real Property Owners Association** – Mr. Wayne Snively added that they would like to make sure that these comments are considered in the final model. Particularly, the concern that the water is to be spread once released in their area. There are also the concerns that this basin is going to be used as a storage basin for other areas. Mr. Kirby stated that most of these issues are not going to have an impact on the current modeling due to the level of focus being taken at this time.
- **Terry Lyons, Joshua Basin Water District** – Mr. Terry Lyons stated that, as with most of the area, overdraft conditions exist; however, a pipeline exists in this district which needs to be extended to deliver water into their district.
- **Lee Pearl, Hi-Desert Water District** - Mr. Lee Pearl added that there are other agencies that would like to see the Ames/Means recharge project constructed and that Hi-Desert Water District is not alone in this endeavor.
- **Daniel Gallagher, Victor Valley Wastewater Reclamation Authority** – Mr. Kirby commented in response to one of the comments from Mr. Gallagher that the reason for the aggressive schedule is due to the funding requirements and scheduling from mandated by the Department of Water Resources.
- **Michael Duane Davis, Silver Lake Association** – Mr. Kirby stated that the project which was presented looks promising, however, is not in the current round of alternatives. More details are needed and the project may be considered for the next phase.

Mr. Kirby continued stating that the modeling process is based on the full implementation of the Judgment; therefore, each subarea needs to be in balance. Mr. Kirby stated that the key findings of the model determined that it was not possible to meet the agricultural demands of 2020 with only the natural recharge and State Water Project water. The State Water supplies are variable. Department of Water Resources has determined that delivery of an annual average of 78% of the contract right can be anticipated.

All alternatives require at least 10 projects and management actions to meet the needs of 2020. Mr. Kirby stated another notable determination which the model indicated was that the river and groundwater flow into Baja does not change significantly in any of the alternatives that were modeled. It is apparent that the only means in which to get water to this area is through recharge as opposed to naturally. In all the alternatives modeled, Centro had more water than was needed.

**No-Action Alternatives -**
Mr. Mark Williamson of Saracino-Kirby-Snow reviewed the no-action alternatives, specifically, future conditions which may have continuation of trends and reasonably foreseeable projects. This will include projects which are currently under construction.

The key assumptions being made in this process are that the Judgment is fully implemented including ramp-down to achieve balance of each subarea. Two alternatives were used in the modeling process. Scenario 1, Agriculture, which is a continuation of 2000 evels of agricultural water use, and Scenario 2, Agriculture, which reduces agricultural production by 36,000 acre-feet (60% reduction). This includes State Water imported water to the Antelope Valley/East Kern, power plant, make-up water at the Hodge and Lenwood recharge facilities, and to Hi-Desert Water District. These activities are currently taking 6,500 acre-feet per year. (Refer to PowerPoint presentation on file for more detail)

Each individual sector has been tracked to determine availability based on Base Annual Production (BAP). Transferring water from sector to sector assuming a surplus exists was reviewed. Mr. Williamson stated that an acre-foot of water applied to an agricultural operation will generally produce less economic output than that applied to an industrial operation. Therefore, transfers are moving from agricultural to industrial and municipal uses.

Production allowances were reviewed based on a no-action scenario. Transfers of BAP are estimated to be 58,000 acre feet in Scenario 1 and 116,000 in Scenario 2. Mr. Williamson added that from 1984 through September 2002 there has been 82,000 acre feet of water transferred. Mr. Kirby reminded that this is a prediction of the 2020 result of not taking any other actions other than ramp-down to balance the subareas. Transfers only occur within the subarea. Subarea boundaries are never crossed.

An unidentified individual commented that there is another adjudication and judgment stipulation involved with the Morongo Valley area. Mr. Williamson stated the alternatives for this area are designed to bring the basin in balance in the same way the Mojave River Basin Area is being considered. Any water available up to 7,200 acre feet is to be transmitted through the Morongo Basin Pipeline as a priority. Mr. Lee Pearl made clarification that the numbers which represent the natural recharge need to be updated on the chart. Also, there are various entities involved with this area namely County of San Bernardino and Bighorn Desert View not only Hi-Desert Water District. Mr. Williamson added that based on USGS estimation, the natural supply is considerably lower than that which was previously estimated.

In addition to consideration of imported water, also being considered in alternatives is the reduction of demand. Mr. Tom Bilhorn asked for a more detailed explanation of the storm flow capture in Baja which was mentioned in the

slide titled “Supply Enhancement”. Mr. Williamson responded that there will be a technical memorandum to describe all the alternatives, which is not yet available. The reality of the over-taxed State Water Project systems is that there are more demands than supply and increasing environmental concerns through the Delta and other factors which will limit the delivery of the full contract amount in future years. This was illustrated with a series of slides (see PowerPoint presentation on file). A question was presented as to the possibility of loosing an entitlement of State Water Project water through non-use. Mr. Kirby stated that through his involvement at the state and federal level, there is no threat of contract right based on lack of use. Another consideration for use of State Water Project water is a regional water treatment plant in the jurisdiction of the Victor Valley Water District. This will need to be considered if such a plant could be operated with the amount of variability and supply.

Mr. Williamson reminded that there are six key water management issues to be addressed when considering the alternatives:

1. Demand Exceeding Supply
2. Water Quality Degradation
3. Groundwater Overdraft
4. Maintain Riparian Ecosystems
5. Address Issues of Wastewater Discharge and Infrastructure
6. Maintain Healthy Interaction Between Subareas

The eight basic management actions which can be taken to address these issues are:

1. Recharge Groundwater
2. Blend Supplies from Different Sources
3. Change Source of Groundwater Production
4. Change Demand
5. Use Surface Supplies
6. Develop Groundwater Banking Programs
7. Change Wastewater Infrastructure
8. Treat Source Water

Mr. Williamson reiterated that some of the aquifer units were divided to allow for more detail in the model. (Refer to the PowerPoint presentation included with the minutes on file for detailed divisions of aquifers.)

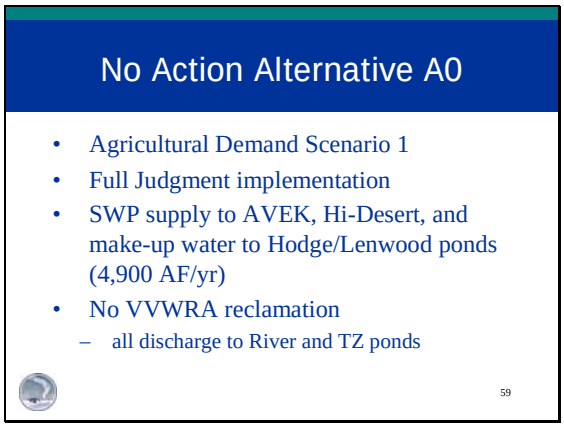
There were eight alternatives presented at this meeting. Three of which use the Agricultural Scenario 1 and five of which include Agricultural Scenario 2. Significant differences between the projects are the location of the recharge projects and whether a regional surface water treatment plant is included. Most alternatives include the assumption of reclamation of the Victor Valley Reclamation supply. Two of the alternatives include an assumption of 5% urban conservation and another two include storm-flow retention in the Baja area.

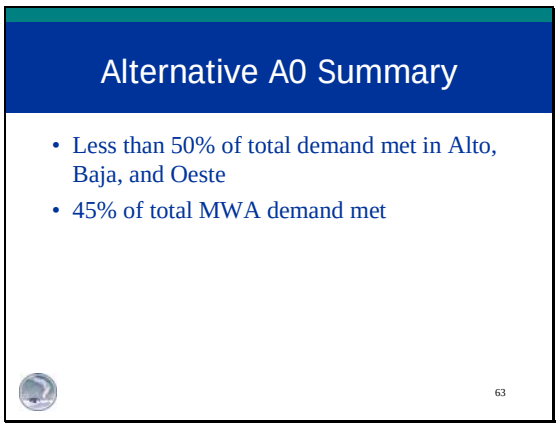
Mr. Kirby Brill asked if there was a more aggressive approach to the conservation management action assumption of 5% applied to reduce municipal demand. Mr. Brill's view is based on studies which indicate 40%-60% of urban use being outdoor use. Mr. Williamson replied that this was considered and due to the level of best management practice implementation that which made economic sense. There are more aggressive conservation measures which can be performed; however, 5% appeared to be most achievable. Mr. Brill would like response from the individual purveyors to determine where the goals can be set higher.

Lists of project alternatives were distributed at this meeting and are attached to the minutes of record and summarized as follows:

A0 alternative signifies the no-action alternative under Agricultural Scenario 1. B0 alternative is the no-action alternative for Agricultural Scenario 2. Under the no-action alternatives, less than 50% of the 2020 demands are capable of being met in Baja, Alto, and Oeste. In the Johnson Valley/Morongo Basin area, 80%-90% of demands are capable of being met. Centro is in surplus in all of the scenarios. Mr. Kirby clarified that whenever an alternative is illustrated with an "A", it is representative of the consumptive use for agricultural demands in the year 2000. The assumption is that they will remain constant from now until 2020. Urban demands are primarily based on expected population growth by region. Mr. Kirby added clarification to the no-action alternatives reflecting only the implementation of the terms of the Judgment with no additional facilities or additional State Water Project water.

***"A" Alternatives reflect Agricultural demand Scenario #1.***



## Alternative A1

- Agricultural Demand Scenario 1
- 14 projects including:
  - Rock Springs release (40,000 AF/yr capacity)
  - Daggett recharge ponds (16,800 AF/yr capacity)
  - VVWRA treatment (15,400 AF/yr)
    - reclamation (5,700 AF/yr)
    - discharge to River and TZ ponds (9,700 AF/yr)

64

## Alternative A1 Summary

- Designed to fully meet 2020 demand, but limited by SWP import availability
- 82% of total MWA demand met
- Most shortage in Alto & Baja
- While meeting balanced conditions, some portions of Alto aquifer are overdrafted

4

Mr. Chuck Bell asked whether the Cushenbury recharge ponds would be considered in the project alternatives. Mr. Williamson stated that it has not been included due to the lack of information with relation to the capacity of this facility. Mr. Kirby added that this does not mean that it has been excluded from the list. However, the projects about which we have the most information will be considered before those projects that are still in the developmental phase.

## Alternative A2

- Agricultural Demand Scenario 1
- 11 projects including:
  - Regional water treatment plant (56,000 AF/yr capacity)
  - VVWRA treatment (20,700 AF/yr)
    - reclamation (11,000 AF/yr)
    - discharge to River and TZ ponds (9,700 AF/yr)

5

## Alternative A2 Summary

- Designed to fully meet 2020 demand, but limited by SWP import availability
- 83% of total MWA demand met
- 100% of Alto & Centro urban demands met
- Less than 50% of municipal demands met in Baja, Este, Oeste
- While meeting balanced conditions, some portions of Alto aquifer are overdrafted

6

***"B" Alternatives reflect Agricultural demand Scenario #2***

## No Action Alternative B0

- Agricultural Demand Scenario 2
- Full Judgment implementation
- SWP supply to AVEK, Hi-Desert, and make-up water to Hodge/Lenwood ponds (4,900 AF/yr)
- No VVWRA reclamation
  - all discharge to River and TZ ponds

8

## Alternative B0 Summary

- Less than 50% of total demand met in Alto, Baja, and Oeste
- 100% of agricultural demands met without import water
- 51% of total MWA demand met

9

Mr. Kirby compared the difference between A0 and B0, stating that if agriculture is reduced by 60% from 2000 to 2020, 50% of the demands are still not being met in Alto and Baja. In essence, removing agriculture out of production does not solve the problem.

## Alternative B1

- Agricultural Demand Scenario 2
- 14 projects including:
  - Rock Springs release (40,000 AF/yr capacity)
  - VVWRA treatment (19,100 AF/yr)
    - reclamation (9,400 AF/yr)
    - discharge to River and TZ ponds (9,700 AF/yr)

10

## Alternative B1 Summary

- 100% agricultural demands met
- 95% of total MWA demand met
- 92% of Alto municipal demand met
- 100% of Baja municipal demand met

11

## Alternative B2

- Agricultural Demand Scenario 2
- 11 projects including:
  - Regional water treatment plant (56,000 AF/yr capacity)
  - VVWRA treatment (20,700 AF/yr)
    - reclamation (11,000 AF/yr)
    - discharge to River and TZ ponds (9,700 AF/yr)

12

## Alternative B2 Summary

- 100% agricultural demands met
- 93% of total MWA demand met
- 100% of Alto municipal demand met
- 96% of total Alto demands met w/shortages to Golf Courses and Recreational
- Groundwater levels continue to decline in some portions of Alto
- 50% of Baja municipal demands met

13

Mr. Kirby added that from a water-balance stand point, modeling of the above scenario indicates that there is more water being placed in the Transition Zone and not enough in the Alto and mid-regional floodplain aquifers.

## Alternative B3

- Agricultural Demand Scenario 2
- 14 projects including:
  - VVWRA treatment (19,000 AF/yr)
    - reclamation (9,300 AF/yr)
    - discharge to River and TZ ponds (9,700 AF/yr)
- 5% municipal conservation (8,100 AF/yr)

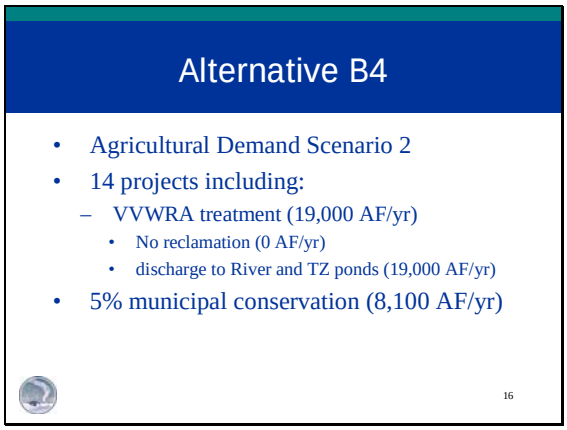
14

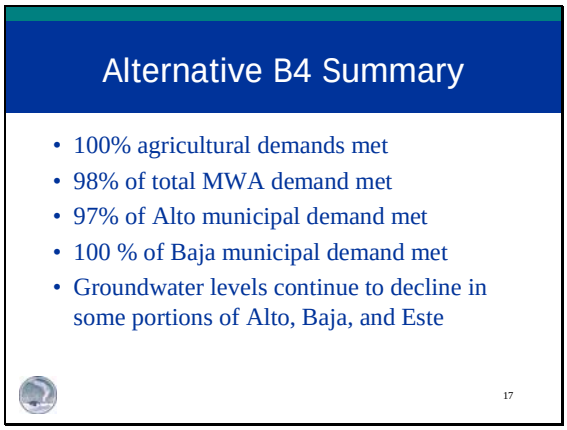
## Alternative B3 Summary

- 100% agricultural demands met
- 97% of total MWA demand met
- 97% of Alto municipal demand met
- 100% of Baja municipal demands met
- Groundwater levels continue to decline in some portions of Alto, Este, & Baja

15

Mr. Williamson added that Alternative B3 also includes the capture of Baja storm flow average of about 2,000 acre-feet per year.




Mr. Williamson would be interested in comments on whether an increase in municipal conservation is possible. Alternative B4 also includes storm flow retention in Baja.

Mr. Snively asked if the above alternatives included the planned recharge facility in Newberry Springs. Mr. Kirby replied that if the project is planned in the next couple of years, than it has already been included in the base-case. Mr. Williamson stated that he will confirm that this has been included.

Mr. Williamson clarified that the B3 and B4 alternatives includes the assumption that the first 9,700 acre-feet of treated water would be supplied to the river or Transition Zone recharge ponds. If the plant produces more, then the excess water would be the available to reclaim. There are other possibilities but, at this time, this is what is being considered.

Mr. Williamson summarized the presentation by stating that the B alternatives seem to best meet the total demands by subarea. Most specifically, Alternatives B1, B3 and B4 are nearly meeting all of the demands with the exception of the Alto demand. Alternative B2 results in shortage in Baja and Oeste.

Mr. Williams presented an observation that the alternatives which reduce groundwater production in Alto appear to show the least drawdown in the Alto groundwater aquifers. Alternative B2 results in the most addition to groundwater storage. Alternative B1 results in the least addition to groundwater storage.

Minimum water elevations were reviewed in this process in order to determine that an area's wells did not suffer dewatering. It was determined that this was not an issue.

Mr. Williamson stated a key point demonstrated was that regardless of the actions that were modeled in the upstream areas, the amount of surface and subsurface flows did not reflect a significant change to the Baja subarea.

The Alto subarea is the area which has demonstrated the most growth and will require most of the State Water Project water.

Alternatives A2 and B2 which include the treatment plant show a significantly higher cost. Costs on the more favorable alternatives will be covered in more detail once this list is determined.

Mr. Kirby stated that the purpose of today's meeting was to present a wide list of alternatives based on the previously-determined problems developed by the TAC. Alternative A0 is a point of reference as to what can be expected to occur if nothing was done to plan for future needs. Mr. Kirby asked the attendees if any of the A alternatives could be implemented and the needs of 2020 met. It was agreed that these would not be feasible alternatives. Therefore, "A" alternatives would no longer need to be considered. Alternatives B1, B2, and B3 appear to be the most promising alternatives. An unidentified individual suggested B3 as the most promising alternative (refer to summary above). Mr. Davis clarified with Mr. Kirby that these alternatives still can be refined to best meet the needs of the area.

Mr. Kirby requested that all comments and/or ideas be presented in writing either by email, mail or fax before February 26, 2003. The TAC was asked if the goal of presenting two projects to the Mojave Water Agency Board would be accomplished. This effort would be accomplished by the focus being on alternatives B, Agricultural demand Scenario 2. Mr. Kirby asked if the focus needed to be in between Scenario 1 and 2. There was a concern that Scenario 2 did not include enough agriculture. Mr. Kirby stated that the concept detailed in the Phase 1 RWMP report is that, with implementation of the Judgment, presuming that most of the agriculture in operation today cannot afford to buy make-up water, a level will be reached to sustain their operation. Mr. Brill suggested an alternative of mining rather than balancing supply with demand. Mr. Kirby stated that the Judgment alone will not be the answer and more is needed to meet the future needs of the fundamental objectives. There was much discussion of possible alternatives which were requested in writing for consideration.

The next meeting will be held on March 19, 2003 from 9:00 a.m. to 1:30 p.m.

Ms. Cox emphasized the importance of this process to map the direction of the next 20 years. There was much information provided at this meeting which was made available on CD as requested also for review on the Mojave Water Agency's website. Responses due by February 26. Ms. Cox suggested email

transmittal of comments to Joanne Lowrance (jlowrance@mojavewater.org) in order to expedite the process.

7. **OTHER BUSINESS** – None noted.

8. **ADJOURNMENT** at 12:05 p.m.

_____

Kimberly Cox - Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

December 18, 2002
9:00 a.m.

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1. **CALL TO ORDER**: Kirby Brill chaired the meeting in Jack Clarke's absence.

2. **INTRODUCTIONS**: Introductions of 44 members in attendance were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **PRESENTATION OF EVALUATION MODEL FOR PHASE 2 OF THE REGIONAL WATER MANAGEMENT PLAN UPDATE**

   Ken Kirby of Saracino-Kirby-Snow reviewed the phasing of the development of the plan. Alternatives must be selected in March and April which will require an aggressive schedule. There will be two alternatives presented. An alternative was described as a combination of management actions and projects that are determined to be the most promising approach to meeting the fundamental objectives i.e. balance long-term water quantity in basin in an affordable and equitable manner. The model will illustrate the "what-ifs" that are presented in order to evaluate the impact. The Technical Advisory Committee will make a recommendation to the Mojave Water Agency Board of Directors to proceed with these alternatives into Phase 3. The concept of a model is the ability to represent the things that are important about the system. The importance of the system is the physical geology and the actions of how the water moves from within the system. The framework using mathematics will allow the representation of the actions of the system. Some actions that will be incorporated into the model will not change such as implementation of the Judgment. Another is the hydrology of the system. The variables that can change are assumptions such as where the water enters the system. The model will have the ability to demonstrate the change that can be expected. A systems model will take into consideration possible system changes in use and availability of water within Mojave Water Agency area. It will not have the ability to model consumer behavior. There will be some illustration of economics and other methods of cost allocations included.

The Mojave Water Agency service area encompasses a very large area. Therefore, Floodplain and Regional Aquifers have been divided into subareas and in some cases they have been subdivided when necessary. Based on what is understood of the system, the Morongo Basin/Johnson Valley area includes four aquifers since none of these aquifers communicate with each other. Chuck Bell asked if it is known that the aquifers do not affect each other. Mr. Kirby responded that as much as we have been to determine with previous reports from the USGS, they do not. In other words, they are self contained in that if the conditions are changed in one, another is not affected.

The model was demonstrated by Brian _____ or Saracino-Kirby-Snow. Mr. Kirby added to the presentation that this model is intended for a long-term planning not day to day. The model that will be used is the same conceptual model as is being used by the USGS with the exception of the further subdivision of the one of the Alto regional aquifers. The demonstration of the model included different scenarios in which changes were made to illustrate how the model was affected. Mr. Kirby stated that these are simply examples not meant to imply policy. In response to a question by Chuck Bell, Mr. Kirby stated that this is not a Watermaster operations model and would not be recommended for this use.

5. **DEVELOPMENT OF PRELIMINARY ALTERNATIVES**

Mark Williamson from Saracino-Kirby-Snow reviewed the sample alternatives being presented to the committee for consideration.

The following information was gathered during an open-forum discussion conducted by Ken Kirby and documented on flip charts by Mark Williamson:

6. **OTHER BUSINESS** - None

7. **ADJOURNMENT** at p.m.

_____
Kirby Brill - Secretary

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

November 20, 2002
10:00 a.m.

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1. **CALL TO ORDER**: Chairman Clarke called the meeting to order at 10:05 a.m.

2. **INTRODUCTIONS**: Introductions of 52 members in attendance were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **APPROVAL OF MINUTES FROM AUGUST 29, 2002 MEETING**: The minutes were approved as submitted.

5. **SELECTION OF OFFICERS FOR 2003 -**

- **Chairman** - John Leveillee from the City of Hesperia nominated Kimberly Cox from the City of Victorville for Chairman. Chuck Bell nominated Jack Clarke however, Mr. Clarke declined the nomination. There were no other nominations therefore **Kimberly Cox** will preside in the capacity of Chairman of the Technical Advisory Committee for 2003.
- **Vice Chairman** – Chuck Bell nominated Jack Clarke for Vice Chairman. Mr. Clarke did accept this nomination. There were no other nominations therefore **Jack Clarke** will preside in the capacity of Vice Chairman of the Technical Advisory Committee for 2003.
- **Secretary** – **Kirby Brill** (MWA General Manager as stipulated in the Bylaws)

**6. APPOINTMENTS TO TAC EXECUTIVE COMMITTEE FOR 2003 –**

Following are the results of nominations for the TAC Executive Committee for 2003:

- Morongo Basin: Terry Lyons
- Upper Mojave River Basin: Paul Johnson
- Middle Mojave River Basin: Wayne Soppeland

- Lower Mojave River Basin: Karen Gray was nominated but not present at this meeting to accept the nomination. Wayne Snively nominated himself. This appointment will be reconsidered once Karen Gray has been contacted.
- El Mirage: Paul Davis, Jr.
- Lucerne Valley: Chuck Bell
- Committee at Large: Harold Singer (Hisam Baqai - alternate)

Mr. Clarke commended the Mojave Water Agency staff and Board of Directors for their efforts to resolve some of the important issues in which the Committee has been involved.

7. **REVIEW DRAFT PERFORMANCE MEASURES –** Mr. Brill expressed his appreciation to those in attendance for their participation in the success of this process.

8. **DISCUSS DEVELOPMENT OF THE ALTERNATIVES SCREENING MODEL -** Mr. Ken Kirby from Saracino-Kirby-Snow gave an overview of the Phase 2 process with the aid of a PowerPoint presentation (attached to the minutes on file). Mr. Kirby stressed that the selection of alternatives to implement needs to be completed by April 2003. There will be two alternatives of projects and management actions that will be carried forward to the next phase with a priority list of implementation on the projects. The modeling process is useful to provide a comprehensive view of the projects which are being considered. This method will be used to find the most promising projects and management actions which are most likely to accomplish the fundamental objectives. Mr. Kirby commented that the desert climates have extreme variability in the quantity of water that is introduced into the basin. The use of historic traits and statistics of the outcome will be analyzed to give a reasonable representation of what might be faced in the future. Mr. Kirby responded to a concern of an un-identified individual that although the future supply and demands are unknown, using the 71 years of historical data (provided by the USGS) will provide enough information for the committee to base its decision. The screening model is not a physical groundwater model that doesn't really model the dynamics of water flow through the ground. It is more of a water budgeting model that illustrates statistics to meet 2020 demands. In an effort to simplify the representation of the system, the floodplains and aquifers have been divided by subarea and then the regional aquifers have been further been subdivided in some areas if needed. The Morongo Basin/Johnson Valley area has been divided into four aquifers all distinct from one another. Mr. Kirby presented a preliminary illustration of the mudflow model using a mathematical predictor. This model reports annual results (annual basis). The model will consider many aspects of water use such as: which aquifer unit is being pumped; where the return flow goes; and what are the different sectors demanding water. An unidentified individual asked if the aquifers are connected. Mr. Brill responded that based on the information provided from the USGS, the aquifers are interconnected systems. Mr. Kirby has

incorporated this concept into the model. Mr. Kirby demonstrated various sample results of the model.

Mr. Kirby reviewed the comments received on the Performance Measures (i.e., storage levels, supply-demand, economics, water quality, equity, and implementability). The Performance Measures address the objectives that were adopted at the previous meeting, namely to: stabilize the groundwater basin over long-term storage cycles; and limit the potential for well dewatering, land subsidence, and migration of poor quality water. This report is detailed in the PowerPoint presentation attached to the minutes on file. An unidentified individual questioned the user-friendliness of the model. Mr. Kirby clarified that the model would be easy to use for someone who is familiar with the modeling concept.

Comments received and responded to from the following:

- **Allen Dale Watson, President, Mariana Ranchos CWD –**

Many of Mr. Watson's comments were related to dissatisfaction to the way the Judgment is being applied. SKS feels that since the Judgment is in place and most-likely will be in place in 2020, the model will take the terms of the Judgment into consideration. Mr. Kirby disagrees with the comment that there is not proof that recharge measures work. At this meeting alone there were some examples where it can work in addition to other areas of the world where it has worked. The details can have a big effect on how it can work. The costs of recharge alternatives to the cost of supplying treated surface water will be compared.

- **Patrick Lendway, City of Barstow**

Explanation of Performance Measures was given in today's presentation. Mr. Lendway stated that he does not need any further explanation. Mr. Kirby gave a simple definition of "project" as something that requires physical construction and infrastructure. A "management action" is something that you can do without construction and capital costs such as conservation, pricing changes, and operational strategies. "Management alternative" is a mix of the above. Performance measures will not be applied to projects. Performance measures will be applied to alternatives. Not all projects will be modeled, only those which the Committee determines are the most promising. State Water Project water is to meet the needs of the basin. The ranking of Measures is determined by the variability of storage. Less variability will rank higher and greater fluctuations will be lower. Performance measures are required to be subjective.

- **Michael Davis, Silver Lakes Association**

Draft model of screening model was presented at today's meeting. It is currently a running model but not a working model. A working model of the base case conditions and a few alternatives will be presented at the next TAC meeting in December. Land fallowing and conservation can be modeled. There is not a problem with Measure E1 evaluating costs by sub-area. Energy costs are very volatile and the year 2000 may not have been the best choice. This issue will be

reviewed for its accuracy. The wording change of EQ1(d) was agreed to by Mr. Kirby. Measure I1 will be re-evaluated for an estimate of whether it is a high, low or medium impact and use this for its ranking. Performance measures are a way to communicate that the concerns of the Committee are being heard by the Consultant. It is not a contract.

- **Randy Hill, Victor Valley Water District**

  Benefit/cost ratios will be calculated but not with the overall view.

  Costs will be evaluated based on multiple perspectives such as cost to the Mojave Water Agency and also from the overall regions.

  Life cycle costs will be considered as well as can be predicted using standard methods.

  Mr. Kirby disagreed that conservation should be categorized as a source rather than a management action. It is an action that it taken to adjust demand which also has implications on return flows.

  In-lieu recharge is defined as in efficient way to recharge groundwater by providing surface water to those who primarily pump groundwater to meet their needs. This is beneficial in that the water is not being taken out and then natural recharge is still occurring to add to the groundwater. In other words, to supply surface water in place of groundwater to let the natural recharge accumulate.

  Non-physical solutions will appear in the model as the impact to the hydrologic cycle.

- **Hisam A. Baqai, Lahontan RWQCB**

  This model is not going to have the capability to give project specific sites as to quality migration issues. This issue will not be ignored and is covered in the previously-adopted Fundamental Objective.

  This is not a water quality model which is a separate issue.

  At this point, there are no recommendations being proposed as to the suggestion of arsenic removal.

9. **DISCUSS PROJECT ALTERNATIVES CHARACTERIZATION**

Sample projects were distributed at this meeting and Mr. Kirby requested that comments be returned within two weeks. It is imperative that these comments be submitted in a timely manner to allow time to review. There are only two more scheduled meetings to review these projects in order to meet the April deadline. The term “Recharge Capacity” refers annual capacity. Mr. Kirby requested that the committee members prioritize these projects individually.

Antelope Wash and Cedar Street were unintentionally omitted from the list. These projects are still being considered. Mr. Kirby reminded the committee that if a project is eliminated it simply means that it was not determined to be the most promising, short term actions to meet the needs in 2020.

Model will be presented in December.

10. **OTHER BUSINESS** – None noted.

11. **ADJOURNMENT** at 12:05 p.m.

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Jack Clarke - Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

August 29, 2002
9:00 a.m.

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1. **CALL TO ORDER**: Chairman Clarke was absent at this meeting, therefore, Vice Chairman Bill Betterley called the meeting to order at 9:00 a.m.

2. **INTRODUCTIONS**: Introductions of 42 members in attendance were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **APPROVAL OF MINUTES FROM JULY 31, 2002 MEETING**: The minutes were approved as submitted.

5. **REVIEW RWMP UPDATE FUNDAMENTAL OJECTIVES DRAFT AND COMMENTS**: Mr. Ken Kirby with Sacacino-Kirby-Snow gave a brief explanation of what the Agency is attempting to accomplish with the establishment of a Regional Water Management Plan (RWMP) and the 3 phases that are involved with this process. Currently, we are in Phase 2 of the process which involves screening and selecting of possible projects to determine which are the most promising and effective in order to meet the objectives of the Agency. Fundamental Objectives of long-term water use was distributed to all TAC members on August 13, 2002. A number of comments were received and addressed at this meeting. (Copy of PowerPoint presentation in file with these minutes) Comment from Paul Warner, City of Barstow, to add "implementing projects" into the objectives was approved. Clarification was made on the definition of benefits as they can be provided to be limited to water and the money associated with water that MWA has jurisdiction over. Many of the comments which were received will be useful in preparing the alternatives to be determined at a later date. Objective statement was approved.

6. **ESTABLISH RWMP UPDATE PERFORMANCE MEASURES**: Mr. Kirby stated that the next step in the process is to predict the relative likelihood of success of the RWMP. There was much discussion on the method in which Saracino-Kirby-Snow used to determine the performance measures. Performance Measures were defined as a comparison of an indicator to some desired standard.

   Mr. Kirby clarified that this process is to evaluate and make a recommendation to the Mojave Water Agency Board of Directors.

The following information was gathered during an open-forum discussion conducted by Ken Kirby and documented on flip charts by Mark Williamson:

OBJECTIVES - - COMMENTS
- BENEFITS =WATER-RELATED SUPPLY + $
- AT THIS TIME, NO RELATIVE RANKING OF OBJECTIVES
- ADD "PROTECT IMPLEMENTABILITY"
- TODAY'S FOCUS ON OBJECTIVES (SOLUTIONS LATER)
- CONSIDER AT LEAST TABLE 7-1 ISSUES, ALLOW OTHERS

AUTO PURCHASE INDICATORS (EXAMPLE)
- PRICE, COST
- SIZE, COMFORT
- MAINTENANCE COST (LONG-TERM COST) OPERATING COST
- BRAND LOYALTY

SCALE
- INVITE UPLANDS TO PARTICIPATE (SAN BERNARDINO & SAN GABRIEL MOUNTAIN RANGES)
- UNDERSTAND PLANS
- WASTEWATER FLOWS
- COUNTY DWSAP (DRINKING WATER _____)

TIMING
- DROUGHT FREQUENCY
- TREND
- HISTORICAL HYDROLOGY AS INDICATOR OF FUTURE (PERIOD OF RECORD)

BALANCE SUPPORT & DEMAND
- CONSERVATION (DEMAND REDUCTION)
- ACCESSIBILITY OF SUPPLY (AVAILABLE FOR USE) -- QUALITY
- VARIABILITY
- HISTORIC TRACE
- 10-YEAR AVERAGE?
- SENSITIVITY ANALYSIS

STABILIZE GROUDWATER STORAGE
- AVERAGES
- 10-YEAR MOVING
- ARITHMETIC
- GEOMETRIC
- PROBABILITY
- EXCEDENCE
- PROXIMITY OF STORAGE & USE
- SUB-BASIN OUTFLOW

QUALITY STANDARDS
- DRINKING WATER
- BASIN MANAGEMENT

BENEFICIAL USE
- DELIVERY
- PRODUCTION
- ECONOMICS
- SUBJECTIVE OPINION

FAIR (PUBLIC GOOD DOCTRINE)
- # RECALL PETITIONS
- AVAILABLE RESOURCES FOR GROWTH
- # ATTORNEYS
- # CLAIMS & GRIEVENCES
- # PEOPLE WITH REDUCED BENEFIT
- MAGNITUDE IN BENEFIT CHANGE
- DISTRIBUTION OF BENEFITS
- BASED ON PAYMENTS (ON MONIES AREADY PAID)
- RELATIVE DISTRIBUTION OF WATER COSTS TO FINAL CUSTOMER

EQUITY
- MIX OF LIFESTYLES/LIVELIHOODS
- PRESERVE MIX
- PRICE OF WATER
- BY SECTOR
- BALANCING PEOPLE'S ABILITY TO MEET THEIR GOALS
- WEIGHING VALUE

JUSTICE
- CONFLICT OF INDIVIDUAL VS. SOCIETAL GOALS
- COMPAIRED TO HISTORIC DISTRIBUTION

POLITICAL DECISIONS MADE BY POLICY BOARDS

FUNDING/COST
- WILLING PARTICIPATION (WILLINGNESS TO PAY)

**TAC WORKSHOPS**

- November 13, 2002 – Characterize Projects
- December 18, 2002 – Present Screening Model & Initial Alternatives
- February, 2003 - Explore Promising Project Combinations
- March, 2003 – Present Final Screening Results
- April, 2003 – Recommended Steps to Comprehensive Water Management Strategy

In addition to the above, there will be three community meetings in April, 2003. Meeting dates are subject to change.

7. **OTHER BUSINESS** - None

8. **ADJOURNMENT** at 11:50 p.m.

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Bill Betterley - Vice Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

July 31, 2002
10:00 a.m.

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1. **CALL TO ORDER**: Chairman Clarke called the meeting to order at 10:00 a.m.

2. **INTRODUCTIONS**: Introductions of 60 members in attendance were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **APPROVAL OF MINUTES FROM JUNE 27, 2002 MEETING**: The minutes were approved.

5. **REVIEW PHASE 1 CONCLUSIONS:**

Mr. Glenn Mc Pherson of Saracino-Kirby-Snow ("SKS") reviewed the chain of events leading up to the current development of Phase 2 of the Regional Water Management Plan. The Regional Water Management Plan was first developed in 1994 and a programmatic Environmental Impact Report ("EIR") was adopted. Last year Phase 1 of the Regional Water Management Plan Update began which has lead into what now is being developed as Phase 2. Phase 1 identified the problems in the region by collecting background data. Phase 2 is more of a selection and screening process of alternatives to accomplish meeting the needs of the issues and problems. Phase 3 which will begin next summer will address implementing the alternatives and going through an environmental process to adopt another programmatic EIR and move toward implementation.

Phase 1 identified six key water management issues:

1. Demand Exceeds Supply
2. Water Quality Degradation
3. Overdraft of the Groundwater Basins
4. Riparian Ecosystem Maintenance
5. Wastewater Infrastructure
6. Subarea Interaction

6. **OVERVIEW OF SCREENING PROCESS FOR PHASE 2 OF THE REGIONAL WATER MANAGEMENT PLAN UPDATE:**

Mr. Mc Pherson encouraged the committee's participation in the development of Phase 2. This meeting and the upcoming meetings will be an open forum in which everyone's ideas and concerns can be expressed.

Mr. Ken Kirby of SKS continued the presentation. Phase 2 consists of the review of the 29 potential projects which were identified in Phase 1 and determinations of those projects which best meet the needs of the Mojave Water Agency Area. Also included in Phase 2 is the development of a priority list for implementation that can then move the process forward into Phase 3. Phase 2 needs to be completed by April, 2003.

TAC workshops will be as follows:

1. Articulate fundamental objectives (July 31)
2. Establish performance measures (August 29)
3. Characterize projects (November 13)
4. Present screening model & initial alternatives (December 18)
5. Explore promising project combinations (February, 2003)
6. Present final screening results (March, 2003)
7. Recommended steps to Comprehensive Water Management Strategy (April, 2003)

7. **INTERACTIVE DEVELOPMENT OF FUNDAMENTAL OBJECTIVES FOR PHASE 2**

Mr. Kirby conducted an interactive discussion with the TAC members in attendance. Mr. Mark Nichols of SKS summarized the conclusions of the discussions on flip charts as follows:

SHEET #1

<u>OBJECTIVES</u>

- DEMAND EXCEEDS SUPPLY
- SUFFICIENT WATER FOR PRESENT & FUTURE NEEDS
- DENTIFY AVAILIBILE SOURCES
- RESTRICT USE
- IMBALANCE BETWEEN SUPPLY & DAMAND
- ADEQUACY FOR PARTICULAR USE

SHEET #2

<u>AFFORDABILITY/ FINANCIAL</u>

- AFFORDABLE/FAIR/EQUITABLE
- COST VS BENEFIT
- BASELINE

- WHO BENEFITS? FUNDING SOURCES
- WHO PAYS?
- COMPENSATION FOR DAMAGE
- EQUITY - EQUITABLE APPORTIONMENT
- DISTRUBUTION OF BENEFITS
- COLLECTION & ALLOCATION OF ASSETS
- FAIRNESS
- ALLOCATE TO HIGHEST BENEFIT
- MAXIMIZE AGREEMENT

SHEET #3

ECONOMY/GROWTH

- PRESENT USES
- PROTECT EXISTING USES
- ECONOMIC BASE
- GROWTH
- SUPPLY BENEFICIAL USES

SHEET #4

OVERDRAFT

- STABILIZE GROUNDWATER
- BRING IN SWP WATER
- WATER BANKING (STORAGE) TO SUPPLY FUTURE NEEDS

SHEET #5

ACCOUNTABILITY

- HOW WILL PROJECTS BE FUNDED?
- SUSTAINABLE WATER RESOURCES AT LEAST COST IDENTIFYING FUNDING

SHEET #6

ECOSYSTEM

- RESTORE WATER TO 1985 LEVELS
- RESTORE EXHIBIT H HABITAT LEVELS

SHEET #7

ADDRESS ISSUES IN ALL SUBAREAS

- OBJECTIVES BY AREA
- MAP
- TABLE 7-1
- MINIMAL USERS PROGRAM
- EXAMINE SOLUTION FROM OTHER AREAS
- PHASE 1 INPUT WILL BE INCLUDED

The above information will be used to develop an objective statement that will be presented at the next TAC meeting on August 29th from 9:00 a.m. to noon.

Mr. Brill pointed out that going forward in this process will not be primarily based upon the information gathered in this meeting. He mentioned that there were several key entities that were not able to attend this meeting but that there would be additional opportunities for all parties to provide their input. This meeting is only one of the necessary tools that the Agency will use in order to develop the overall plan.

8. **ADJOURNMENT** at 12:00 p.m.

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Jack Clarke - Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

June 27, 2002
10:00 a.m.

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1. **CALL TO ORDER**: Chairman Clarke called the meeting to order at 10:05 a.m.

2. **INTRODUCTIONS**: Introductions of 21 members in attendance were made. Comment was made as to the decreased participation in attendance of TAC members.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **APPROVAL OF MINUTES FROM APRIL 24, 2002 MEETING**: The minutes were approved.

5. **REVIEW COMMENT LETTERS ON THE PHASE 1 DRAFT AND RESPONSES**:

   Mr. Kirby Brill, General Manager of Mojave Water Agency, began the meeting by thanking the TAC members for their participation in Phase 1 of the development of the Regional Water Management Plan. Mr. Brill also reaffirmed the agency's commitment to communicate to TAC members the importance of their participation in this process. The Agency plans to reach out to other members of the TAC for participation in Phase 2.

   Mr. Ken Kirby of Saracino-Kirby-Snow presented the comments received on the Phase 1 Draft report. Comments were received from the City of Barstow; City of Hesperia; California Department of Fish & Game; Hi-Desert Water District; Lahontan Region, Regional Water Quality Control Board; and a number of individuals from Lucerne Valley. Each comment was reviewed and a summary of the responses was prepared by Saracino-Kirby-Snow and distributed to members in attendance. Each response received was replied to by MWA and Saracino-Kirby-Snow. When appropriate, responses were incorporated into the Regional Water Management Plan update for Phase 1. If there were other issues that were not deemed appropriate for Phase 1, each issue was addressed as to how the comments would be addressed. This was also included in the

summary packet distributed at the meeting. There were a number of water quality issues raised. Mr. Kirby stated that this is a very important area of concern and will be addressed in Phase 2 and through the environmental documentation process that follows.

Mr. Matthew Woods, resident of Lucerne Valley, approached the committee regarding Mr. Brill's comment to try to increase involvement from the community in this process. Mr. Woods asked what was meant by this comment. Mr. Brill explained that when this committee began there were approximately 30-40 attendees at each meeting, which has now decreased. Mr. Woods feels that a community seminar should be held to inform the community of the Regional Water Management Plan. Mr. Brill stated that the plan is to make contact with original list of approximately 100 TAC members and anyone else who has expressed interest in the plan. Notices of upcoming TAC meetings will be distributed with an emphasis on the importance of participation. In the later development of Phase 2 there are some community meetings planned in the various areas. Mr. Woods requested a meeting for Lucerne Valley be held. Mr. Brill stated that the request would be considered. Mr. Brill mentioned that he has been out to Lucerne Valley on four occasions in the last couple months to attempt to inform the community of the Regional Water Management Plan. Mr. Woods is concerned specifically with relation to the recharge basin in Lucerne Valley. Mr. Brill stated that he feels that the Agency has made a considerable attempt to inform the community of Lucerne Valley.

Mr. Randy Hill with Victor Valley Water District addressed the committee with concerns with the timing of the request for comments. Victor Valley Water District was not able to make written comments due to time restraints. Mr. Hill feels that there were other entities that were unable to provide comments for this same reason, but noted that it is not to be taken as though there were none. Mr. Hill also requested that the next phase allow for continued input from these entities. Mr. Hill questioned the in lieu reference of ground water recharge. He asked if in lieu included the direct treatment of State Water Project water for direct consumption as a method for in lieu. Mr. Kirby of Saracino-Kirby-Snow responded by affirming that it is a method of in lieu but much more specific than in general in lieu. Mr. Kirby acknowledged the benefit of doing direct surface treatment. Mr. Hill feels that there are other projects currently being constructed by a joint-effort of Victor Valley Water District and Baldy Mesa Water District that should be included in the Regional Water Management Plan. Mr. Caouette, Assistant General Manager Mojave Water Agency, stated that the intent of the document is to reflect the projects that the Agency plans to accomplish. This doesn't mean that there will not be benefits from projects performed by other entities. These projects were not included to avoid confusion. Mr. Hill feels that all stakeholders should work together in doing projects jointly.

Mr. Jehiel Cass from the Regional Water Quality Control Board (RWQCB) approached the board. He stated that he appreciated the response received regarding their comments. He would like to emphasize the continued

involvement with the headwater stakeholders in the mountainous areas. Mr. Cass added that it is important to keep them involved due to the actions that they are proposing and issues they're dealing with will directly impact the basin area. Mr. Cass had a question regarding the response to one of their comments on the plan. The response in question was that the actions might be at odds with the provisions of the Judgment. Mr. Caouette stated that the point that was intended was that there is very specific language in the Judgment that prohibits the interference with storm flows. Mr. Cass feels that the fact that urbanization has increased, the natural storm water runoff patterns are being changed. Mr. Brill complimented the RWQCB in their thought-provoking comments.

Mr. Chuck Bell from the Este Sub-area Advisory Committee had a question regarding the mention of elevated nitrate levels reported in Lucerne Valley. Mr. Kirby stated that by looking at the data, there are some elevated nitrates in the region. This is meant to be a conceptual inventory of the situation. There are several possible treatments available if necessary. Mr. Bell thanked Mr. Brill for his attendance in Lucerne Valley over the few months. Mr. Bell feels that Mr. Brill explained the situation well and the people of Lucerne Valley need to understand that the Sub-area Advisory Committees are a product of the Judgment not necessarily responsible to represent the entire community. The responsibility of these committees is to represent those who have been stipulated.

6. **REVIEW OF THE COMPLETED PHASE 1, REGIONAL WATER MANAGEMENT PLAN UPDATE DOCUMENT** - Mr. Ken Kirby presented the approach in Phase 2 that will be proposed to the Mojave Water Agency Board this evening. Mr. Kirby then reviewed the different phases of developing a water management plan, which was illustrated in a PowerPoint presentation (attached to the minutes). Phase 2 needs to be completed by April 2003 in order to receive grant funds. Active participation is needed from the TAC and other interested stakeholders. There are seven meetings scheduled from July through April of 2003. The details of the meetings are outlined in the attached presentation.

   Mr. Jack Clarke, TAC Chair, requested that committee members assist in communicating the importance of participation to their colleagues in an effort to increase involvement.

7. **OTHER BUSINESS** – No other business was addressed.

8. **ADJOURNMENT** at 10:45 a.m.

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Jack Clarke - Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

April 24, 2002
2:00 p.m.

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1. **CALL TO ORDER**: Chairman Clarke called the meeting to order at 2:00 p.m.

2. **INTRODUCTIONS**: Introductions of 25 members in attendance were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **APPROVAL OF MINUTES FROM FEBRUARY 13, 2002 MEETING**: The minutes were approved.

   Public comments were addressed at this time:

   Mr. Spike Lynch president of Newberry Springs Property Association expressed concern with water being sold and transported out of the basin. He stated that the property owners in the area are concerned with the fees that are being collected by Mojave Water Agency ("Agency") to purchase water to recharge the basin since there currently is not a recharge facility in the area. He would like to see the Kane Wash discharge facility added to the Mojave River Pipeline project. Mr. Brill would like to have the Technical Advisory Committee ("Committee") review this issue to help guide the Agency in identifying the needs and prioritize this project.

   Mr. Matthew Woods addressed the Committee as an individual also as a member of the Lucerne Valley Association. Mr. Woods asked how to best communicate the desires of the people in Lucerne Valley regarding the planned recharge facility from the Morongo Basin Pipeline. Mr. Brill explained that this Committee is the forum in which members of each area can gather and express the needs of the people in their area and welcomed Mr. Woods to continue to attend the meetings to represent his community.

5. **UPDATE ON THE REGIONAL WATER MANAGEMENT PLAN**: Mr. Kirby Brill, General Manager Mojave Water Agency, gave an overview of the1994 Regional Water Management Plan. This plan was the Agency's first attempt to review the projects necessary to the basin and identify and prioritize the necessary projects to be accomplished within a five-year period. During the time that this plan was being developed, the Adjudication was in the process of being implemented. Therefore, they worked hand-in-hand with each other. The 1994 Regional Water Management Plan was intended to be updated every five years as new information became available and also as the water supply issues changed. Mr. Brill stated that there have been many changes since 1994. We are looking more toward the supply of water from the California Aqueduct than ever before. The development of a Regional Water Management Plan is a three-phase process in which we are currently in the first phase. Phase one involves identifying the issues and needs of the community and addressing potential projects. The Department of Water Resources is providing technical and fiscal assistance in this process. Mr. Brill reported that the last several months have been spent collecting information from various stakeholders to determine the issues and we now have a draft document that is close to completing phase one of the process.

Glenn McPherson, Ken Kirby and Anthony Saracino of Saracino, Kirby, Snow summarized the latest draft of the Regional Water Management Plan with a Power Point presentation a copy of which is attached. Various discussions involving clarification of issues such as average versus median flow; production versus consumptive use; and population projections, ensued during this presentation.

An unidentified individual requested clarification of the numbers representing the amount of net average annual supply being reported for the Means Valley. Mr. Brill confirmed that the amounts will be verified to determine that the most current data is being reported.

It was requested that the Hanson Report be used to gather the appropriate information in preparing the Regional Water Management Plan. Mr. Norm Caouette, Assistant General Manager Mojave Water Agency, confirmed that Bob Wagner, Consulting Engineer for Wagner & Bonsignore, reviewed the information in the Hanson Report and the that which was relative had been incorporated into the plan.

Mr. Brill responded to a question regarding the process of integrating comments from various stakeholders. Mr. Brill stated that all comments will be reviewed for potential integration into the final plan. The intent of this phase of the process is to gather information from the various area stakeholders and incorporate them into the plan as seen fit.

Copies of the latest Regional Water Management Plan were distributed for stakeholder review and comment. It was requested that written comments be returned to the Agency by May 23, 2002 for review and implementation into the plan prior to the next TAC meeting.

6. **OTHER BUSINESS** – No other business was addressed.

7. **ADJOURNMENT** at 4:00 p.m.

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Jack Clarke - Chairman

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

February 13, 2002
10:00 a.m.

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1. **CALL TO ORDER**: The meeting was called to order at 10:05 a.m. Secretary Brill chaired this meeting in Chairman Clarke's absence.

2. **INTRODUCTIONS**: Introductions were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **APPROVAL OF MINUTES FROM OCTOBER 24, 2001 AND DECEMBER 13, 2001 MEETINGS**: The minutes were approved.

5. **UPDATE ON THE REGIONAL WATER MANAGEMENT PLAN**: Anthony Saracino and Glenn McPherson of Saracino-Kirby-Snow gave a PowerPoint presentation (hereinafter referred to as PPP) to illustrate the purpose, approach and scope of work of the plan, a copy of which is attached to the minutes. Saracino began with a brief discussion of the purpose of the plan which he stated is to update data on supply and demand; update geology and physical characteristics in recent studies; identify key water management issues by stakeholder outreach questionnaire and meetings; and to develop plan alternatives. Mr. Saracino also reviewed the purpose of the Mojave Water Agency, the Adjudication, the current Regional Water Management Plan, and who all the major stakeholders are.

Mr. Saracino then described the physical setting relative to geology and groundwater. There are two main areas of surface water drainage -- the Mojave River area, which is about 3,800 square miles, and the Morongo Basin/Johnson Valley area which is much less studied than the Mojave River area. There are groundwater basins in each of these surface water drainage areas. The Mojave River basin is comprised of about 1,400 square miles now being divided into a Floodplain Aquifer and a Regional Aquifer. The Morongo Basin of about 1,000 square miles and divided up into about 17

sub basins. The geology in this area is comprised of rocks and sediments derived from water and wind erosion deposited in the area and bordered by igneous metamorphic rocks. He stated that the Mojave River Basin has been found to have a zone called the Floodplain Aquifer, which has a greater permeable area. Water in this area flows more quickly than in the Regional Aquifer by about 10 and 1,000 times. He indicated that it is very important to understand that this area is also more transmissive from the Floodplain versus the Regional Aquifer. Reference was made to the Geologic Cross-Section (PPP page 8). Mr. Saracino pointed out that the clay lenses would influence the recharge methods and there is a high degree of separation between the water table and the ground surface. If recharge basins are developed within the Regional Aquifer, it could take a considerably long time for the water to percolate down into the water table and it may not even reach there for hundreds of years because of the clay lenses. Mr. Saracino said that injection wells might be a more efficient method to recharge in some areas because of this situation. Reference was directed to the illustration of "Groundwater Movement" (PPP page 9). This illustrates that water flow is very complex within the aquifers and between the aquifers. This also shows a decline in groundwater levels in the Regional Aquifer as well as in the Floodplain Aquifer (see attached “Decline in Groundwater Levels”, PPP page 9). Mr. Saracino pointed out that groundwater flows along with the river system. However, it flows more quickly in the Floodplain than in the Regional Aquifer ("Groundwater Flow Direction" and "Time of Travel", PPP page10). Time of travel on this illustration is particularly relative to the Morongo Basin/Johnson Valley area. The final report will include many different contour maps, which will illustrate travel in the Floodplain and Regional Aquifer direction of flow. Also included in the final report will be maps on geology, physical setting and groundwater.

Glenn McPherson continued the presentation with the subject of water supply, in particular the amount of water that is coming into the region off the mountains and how much is being absorbed into the groundwater system within the basin area. The water that has entered the basin for the last 10 years was illustrated using Figure 4-2 (PPP page 13). This report indicates that between 1991 through 2001 significant wet periods were experienced. Mr. McPherson pointed out the extreme high and low periods of precipitation. Figure 4-2 also indicates that the bulk of the water that comes in at the Forks is absorbed into the groundwater system within Alto, Centro, and Baja and a relatively small percentage of it makes its way out of Baja by the Afton Gage. Mr. McPherson mentioned one alternative to be considered in more detail is to slow the water down in Baja so that there is additional recharge possibility. However, this method may not be cost-effective and needs to be reviewed further. Mr. McPherson reviewed average versus median flow. Average is the total flow divided by the number of years and Median is flow at which 50% of flows are greater and 50% are lower. A wide range of variation exists between average and median flow. At the Forks, the Annual Average Flow is 71,300 acre-feet whereas the Median Flow is 27,200 acre-feet. Mr. McPherson stated that over a 40-year period, this might be acceptable but when looking at certain riparian issues and other demands that may not be able to weather a 30-year decline in water supply. He stated that for specific projects, the median values will be used to set criteria and for others the average values will be used.

Mr. McPherson then proceeded to discuss the State Water Project (SWP). Mojave Water Agency's entitlement of SWP water is 75,800 acre-feet per year. There has been 149,000 acre-feet of water brought into the area from 1972 through 2001. Illustration of the deliveries was presented on the attached graph of "Deliveries of State Water Project Water to the MWA, 1978-2000" (PPP page 17). This is an indication that the need for SWP water delivery is expected to increase. There are more facilities available to deliver water now, and it is just a matter of figuring out how to pay for water to maximize the use of these facilities. Mr. McPherson stated that the system has been able to meet the requirements of what has been needed. There has been a series of years recently where the ability to meet the requested demands has been down, and it is anticipated that this will occur more in the future as the facilities reach their limits. Mr. McPherson expects the next report from the Department of Water Resources in 2003. This report should reflect about 60% on the short-term of the entitlement that would be accessible out of the State Water Project system.

Mr. McPherson next addressed the issue of water demand, particularly production versus consumptive use. Consumptive use rates are taken form the Webb Study (2000) as follows: Industrial, 100%; Municipal, 50%; Agricultural, 60% (varies by Subarea); Golf Course, 60% (varies by Subarea); Recreational (i.e. lakes), 100% (PPP page 19). Mr. McPherson mentioned that this does not include the water that is replacement water for the lakes, which goes back into the ground (zero consumptive use). A comparison of projected versus actual consumptive use was reviewed by Mr. McPherson and demonstrated with the attached line graph on page 21 of the PPP. Mr. Don Songer questioned whether the groundwater in the Morongo Basin/Johnson Valley area has increased. Mr. McPherson stated that the groundwater definitely has increased in this area due to the introduction of the water from the Morongo Basin Pipeline and a lesser than projected economic growth. The attached bar charts (PPP pages 22–25) were reviewed for each Subarea. The bar charts illustrate that the agricultural areas are where the most significant change has occurred.

Mr. McPherson addressed the issues related to water balance. Water balance for 2000 indicates that the basin is out of balance by the following acre feet: -17,200 in Alto; -22,600 in Baja; +1,200 in Centro; -1,500 in Este; -1,600 in Oeste. This information is based on only the year 2000 demands. Ms. Patricia Moser from the City of Barstow asked if these figures were annual averages over the period examined. Mr. Saracino replied that this is not an average, but considers the year 2000 demands for the consumptive use demands. Mr. Brill clarified that the average water supply was taken over a period from 1931 to 2001. This figure is an average; however, the other two figures are not only the condition in 2000. Mr. Brill added that the latest data is intended to be incorporated, but it is also important to be aware of what is meant by the numbers. Mr. McPherson stated that future consumptive use is expected to remain proportionate with the population with exception of Industrial Use, which should increase by 4,000 acre-feet in the Alto Subarea due to the High Desert Power Plant project. Population projections were demonstrated using the chart on page 27 of the PPP. This data indicates that from 2000 to 2020 the population in Alto is anticipated to increase by 67%; Baja, 113%; Centro, 59%; Este, 84%; and in Oeste, 109%. The total population in the Mojave Basin is projected to increase by 71%. The Morongo

Basin/Johnson Valley area should experience a 53% increase in population. The total population within the Mojave Water Agency jurisdiction is anticipated to increase by 69% within this time frame.

Mr. McPherson stated that attempting to project agricultural assimilations within the next 20 years tends to be a little more difficult. He then reviewed two scenarios for bringing the water in balance by 2020, indicating that the reality lies somewhere in between. Scenario #1 illustrated that consumptive use will remain the same, with the end-result being -76,800 acre-feet total deficit in the basin. Mr. Gary Ledford with Jess Ranch asked how this issue addresses replacement water by an over-producer as called for in the adjudication. Considerable discussion ensued between Mr. Ledford, Ms. Moser, Mr. Brill, and the consultants. Mr. Brill confirmed that for new producers water is to be replaced based on a production-for-production basis. Mr. Saracino stated that bringing the basin in balance from a purely technical standpoint and compliance with the adjudication, is two entirely different issues under this scenario. Scenario #2 reflects a 5% rampdown beginning in 2002 with the end-result by 2020 being -54,700 acre-feet water balance in the basin. Mr. Saracino confirmed that the more realistic projection lies somewhere in between these two scenarios. Director Weldy requested clarification on the 5% rampdown being yearly and still indicating a negative water balance reflected in 2020. Mr. Saracino confirmed that the rampdown is to a Production Safe Yield. Mr. Brill stated that these scenarios illustrate that there is clearly a potential demand that the Agency's entitlement has to fulfill. Patricia Moser from City of Barstow expressed concern with the amount needed to bring the basin into balance being higher that the Mojave Water Agency’s entitlement from the State Water Project.

Mr. McPherson mentioned that the importance of the questionnaire that was completed by all of the TAC Members was to determine what direction we go from here. One of the questions asked was if it was important to remain the same or recover from the overdraft. The responses were mixed in this area. At this point, it is not being recommended what direction to follow, only to gather information. Mr. Brill stated that one main concern is that if we do have enough entitlement, how it is displaced. The assumption is that the basin is being overdrafted 70,000 acre-feet and that we need entitlement to buy it down. Mr. Brill stated that he is not sure that this is a valid assumption looking out 10 to 20 years, since there are no definitives that the demand will be there. Everyone will benefit if we give the judgement a chance to work by buying replacement water. Thus far, we have not been bringing in water because the market has not allowed it yet. As the amount of agricultural water decreases, there will be less to sell and State Water Project water can then be purchased.

A suggestion was made by an unidentified individual to provide an illustration of how the Judgment can really work rather than looking at just the hydrologic balance.

Mr. Brill replied that this data is needed to then determine where to go from here. It is important to know whether to bring the level back up and to what levels or whether we want to achieve a long-term balance.

Mr. McPherson said that the next phase of the report will be to see how the adjudication fits in to the needs of each of the Subareas. This phase requires identifying key issues in local areas, Subareas, and for the entire basin. Other issues to take into account are the demand exceeding the supply, quality problems, overdraft,

maintenance of riparian ecosystem, wastewater infrastructure, and the interaction between Subareas. These issues need to be taken into consideration in an ultimate plan. Recharging of groundwater, blending supplies from different sources, changing location of groundwater production, changing demand use surface supplies, banking of groundwater, regional waste water treatment, local recycling, and source treatment are some of the possible solutions.

Committee members were given copies of tables for each Subarea, which illustrate the specific issues of each region. The members were requested to indicate additions and/or revisions on the tables for their specific Subarea and to return it by February 22nd. The more specific the issues can be defined within the Subareas, the more assistance there is in determining the types of alternatives that are needed for each Subarea. This will be used to determine problems within each Subarea and then each area will be evaluated to focus on solutions both localized and regional in Phase 2.

Mr. McPherson stated that Phase 1 will be completed in March or April of 2002, and Phase 2 will probably be a yearlong effort. The next presentation from Saracino-Kirby-Snow will include Regional Water Management Plan alternatives and financing options.

6. **OTHER BUSINESS** – No other business was addressed.

7. **ADJOURNMENT** at 12:00 p.m.

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Kirby Brill, Secretary

SCANNED
3-7-02
D TAC
F minutes

# TECHNICAL ADVISORY COMMITTEE TO THE MOJAVE WATER AGENCY

## MINUTES

**Mojave Water Agency**
**Board Room**
**22450 Headquarters Drive**
**Apple Valley, CA 92307**

**October 24, 2001**
**10:00 a.m.**

1. **CALL TO ORDER:** The meeting was called to order at 10:06 a.m.

2. **INTRODUCTIONS:** Introductions were made.

3. **APPROVAL OF AGENDA:** The agenda was approved.

4. **APPROVAL OF MINUTES FROM APRIL 4, 2001, JUNE 20, 2001 AND JULY 25, 2001 MEETINGS:** The minutes were approved.

5. **REVIEW OF RESPONSES TO STAKEHOLDER QUESTIONNAIRES:** Mr. Brill thanked everyone who took the time to complete the questionnaires, adding that responses will be helpful as the Plan is updated. He stated that this item is a summary of the questionnaire responses and the results of the individual interviews that took place.

Glenn McPherson, consultant with Saracino Kirby Snow, the firm working with the Agency on the Plan update, provided an overview through a Power Point presentation. He stated that topics for discussion today include ongoing activities, an overview of stakeholder issues assessment activities, projects mentioned during meetings with stakeholders and through the questionnaire process, and the next steps in the process.

Ongoing activities include the following:

- Data collection, review and organization
- Updated assessments of current and projected demand and supply
- Stakeholder issues assessments
- Plan alternatives
- Report preparation

In summarizing stakeholder issues assessments, staff and Mr. McPherson gained information through interaction at TAC meetings, through individual and group meetings, and by way of written questionnaires. Questionnaires were mailed to 26 entities, and others were sent to members of the TAC and distributed at other

meetings. A total of 19 questionnaires were completed and returned. The majority of responses came from the Alto Subarea, with a total of seven. Responses were provided by each Subarea, with the exception of Baja. The responses to the questions were varied; however, they included some consistent themes. The questions were reviewed as follows:

1. How important is it to reverse the trend and recover from the current groundwater overdraft?

Everyone indicated that stopping the overdraft is very important to critical. Also, it was felt that it was crucial to maintaining economic vitality of the region and to prevent degradation of water quality. Recovering from the overdraft received varied response, including that it was impossible to recover from it, and that recovery is very important to critical.

2. If the current Water Management Plan were fully implemented, how effectively would it meet your current and future needs? How would you improve the Plan?

There was a general sense that the current plan is a good start, but that a greater focus needs to be placed on the unique needs in the individual Subareas. There was a feeling that water quality is of prime concern and that it needs to be monitored on a continual basis. Also, as to concerns on how things might be improved, there was an indication that water conservation has not been adequately addressed, that water reclamation was not concentrated on adequately, and that there needs to be a very specific plan for updating what's going on as a part of the Plan development.

3. Do you think the current adjudication will solve the region's water supply problems in the short-term (1-5 years) and the long-term (6-20 years)? Why?

This carried a varied response, including a statement that the adjudication does not match the physical solution and that individual recharge basins should be established as a critical element. A consistent response was that over the short-term the adjudication will not solve short-term problems. The responses as to solving long-term problems ranged from no, to maybe, to yes. As to the second part of the question regarding the adjudication matching the physical solution, it was stated that individual recharge basins need to be established in particular areas for particular needs more than on a regional basis. Another response was that it could work if the adjudication is allowed to be fully implemented.

4. How will you measure the success of this Plan update process? (a) From your perspective? (b) From a basin-wide perspective? (c) For the short-term (1-5 years)? (d) For the long-term (6-20 years)?

Responses received included that it could be successful if there is a sustainable and reliable water supply for the entire Agency, if there is stakeholder consensus for major water issues, if recycled wastewater and conservation are included in the strategies, and if everyone shares the pain.

5. What is your confidence level that your expectations will be met in the short-term (1-5 years) and the long-term (6-20 years)? Why?

Reponses included that the confidence level was low in the short term, but there was high confidence this would be accomplished in the long term. It was also stated that the expectations would be met only if the parties work together for the good of the basin rather than focusing solely on their own interests.

6. What potential barriers or key issues do you see that will need to be addressed in order for this Plan update process to be a success?

There was diversity of opinion. Some stated that lawyers and politics are possible barriers. Stakeholder commitment was listed as a critical element. Adequate consideration of farming interests was listed as crucial, as well as allocation of State Water Project (SWP) water and who pays for it, and the lack of ability to update and improve the "physical solution".

7. If the update doesn't address your water supply needs, what do you think is the most likely way that you will be able to meet your water needs?

A basic response was that this is an unacceptable scenario and that there needs to be some type of regional plan that everyone can work with. Other responses included seeking independence by seeking supply from multiple sources, reliance on recycling water programs and water conservation, expanded exploration and continued pumping, and moving to where more water is available.

8. What do you think are the primary interests of the other stakeholders?

Quantity, quality and cost were consistent responses. Being treated equitably under the Plan criteria, new sources of affordable water, failure to recognize constraints of the arid region, and political and financial benefits were listed as areas of concern.

9. What is your confidence level that the region's water resources can be managed to meet the region's anticipated water needs?

One specific concern is that the rapid growth and increased population is something that will not be able to be sustained within the Agency's ability to provide water. Some do not believe in either the short-term or the long-term that there will be adequate distribution of the supply or the Agency's allocation. Some were encouraged that this would be achieved if the public can be brought along to accept responsibility for decisions that need to be made.

10. If you represent a water utility, what land use planning data do you use for your future water demand projections?

Responses included using County and City planning documents and land use, zoning, historic and projected growth rates from various places.

11. If you represent a water utility, what are your current and projected (five year increments through the Year 2020) water supply needs?

For the entities responding, the growth rates identified were anywhere from 0.5% to just over 4%.

12. Do you gather and maintain groundwater level or groundwater quality data? What data do you have and in what format (manual tabulations, electronic) is it in?

There was a wide range of answers to this question, including sporadic and localized monitoring. Some data is available on water quality and water quantity, and records are in manual and electronic form. If some have electronic data, he suggested that this information be provided to the Agency so that it can be included in the Agency's database.

13. To what extent should the MWA be involved in regional use of recycled water?

Some said it should be considered as a beneficial resource to the region and that it should be considered in the context of the Plan update. As to the responses the Agency plays in the recycling arena, they ranged from no involvement at all, to the Agency providing a regional leadership role. Others felt that MWA should provide guidance for the groundwater basin.

14. To what extent should the MWA be involved in water conservation efforts?

Some felt this is extremely important and that MWA should actively promote this to extend the usefulness of SWP entitlements. Some felt that MWA should undertake a public education program, and that water purveyors have the responsibility as water producers to individually and collectively enforce water conservation efforts.

15. Do you have any specific water quality concerns?

Arsenic, nitrates, chromium, uranium, and MTBE were of concern. There was also a concern that water in spreading basins will degrade the existing water quality by leaching contaminants. There was encouragement to study the long-term impact of TDS from SWP water.

16. Introduction of imported water into our groundwater basins may result in some changes to the native groundwater quality. Assuming that changes will not exceed State or Federal health standards, should the maintenance of existing water quality take precedence over measures to reverse the existing overdraft and enhance long-term water supply reliability?

A consistent theme was that recharge and reversal of the overdraft should take precedence as long as current health standards are met. Responses also included an opinion that continued overdraft will deteriorate water quality on its own, and that increasing TDS is acceptable if below drinking water standards. There was some concern regarding long-term impacts to water quality.

17. What are your thoughts about MWA entering into groundwater storage agreements with outside agencies?

Many felt that it was acceptable, providing that terms of the agreement do not adversely impact local solutions. There was a feeling that the benefits must be equitably distributed throughout the entire Agency, and that local entities must have priority for use of the MWA facilities and groundwater storage.

18. What are your thoughts about the MWA and/or the Mojave Basin Area Watermaster entering into groundwater storage agreements with water users within MWA?

Many believe this is an essential part of the existing plan and the adjudication, and that the benefit of storage locations should be fair to all users and of benefit to the basin.

19. Should the MWA consider purchasing new SWP entitlement whenever it might become available?

Some said this should occur as long as it is needed and affordable, others believe that MWA should do everything possible to acquire all possible entitlement, and yet others believe that there should be no expansion in entitlement until we are making full use of what is already there.

20. Do you think there is potential for regional projects that would delay or offset proposed local projects?

Some felt it should be considered on an individual basis, and others expressed interest in how regional projects may integrate with individual plans. Some did not understand the question.

21. Are you willing to consider delaying local projects in order to develop the regional projects?

Some respondents felt this was necessary for short-term goals, but that it was definitely needed for long-term goals. There was a feeling that projects should be evaluated on their own merit. One felt that this should not occur unless approved in the Regional Plan and with a prior CEQA process in place for a particular regional project.

22. Are you willing to work with MWA to jointly finance regional capital facilities?

Some indicated that they are already doing this, and the overall view was that everyone was willing to consider this.

23. How should the purchase of groundwater and construction of facilities needed for the region to recover from current groundwater overdraft be financed?

Some said that those that pay should receive benefits proportional to payment. Some felt that municipal and industrial users should pay for all construction of regional facilities, and that alternatives should be considered, including user fees, connection fees, assessments, grants, loans and other types of mechanisms.

24. How should the purchase of water and the construction of facilities needed for future water supply reliability be financed?

Responses included the following:

- End user should be charged a fair price
- By State and Federal grants
- Grants, assessment districts, low interest loans, developer fees, etc.
- Good question
- Answers the same as question 23

25. Should the MWA offer "degrees of reliability" for wholesale imported water purchases with an attendant cost differential (i.e. higher water supply reliability at a higher cost)?

Some said this should be considered. Some said that if possible, it would make it a lot more flexible to make better water purchase decisions since it would be established by what people are willing to pay. Some disagreed, indicating that reliability must be fair and equitable to all water districts. Others expressed concern that it may favor particularly lucrative land use over others. There was also a feeling that there was a need for a feasibility and cost benefit study. One individual felt that the priority should be on domestic, agricultural and industrial uses, in that order.

26. Should MWA commit entitlement to SWP water by specific region or area and how should it be done?

Suggestions include ensuring adequate water for everyone, and allocation of entitlement in proportion of payments that have been made or are anticipated to be made in the future. Some indicated that locales with the worst overdraft or water quality problems should be given priority, and that priority should be issued based on need and not on ability to pay. Others believe that this should be accomplished by a free market setting, and that MWA should annually allocate based on local needs.

27. Should the Plan update consider a financing program where everyone pays for regional projects, but new development pays more than the established community?

Some agreed with this, stating that this method has been used effectively elsewhere, and others felt it should be dealt with on a case-by-case basis. Others felt this type of approach would inhibit a pro-growth philosophy.

28. What should be the guiding principle(s) of the MWA?

- Maximize wet water put in the basin
- Procure State aqueduct water for the High Desert
- Make sure the Regional Plan will meet the needs of the entire area
- Provide reliable, clean, cost-effective service to all constituents in an equitable manner
- Enabling legislation does a good job of specifying what the Agency should be doing
- Establish an unending water source

29. Do you believe there is input from individuals or groups that may be missed by this process? Please identify them.

Most felt that major interests have been represented. There was a suggestion that amendments to the Plan, once developed, should receive widespread publication in the newspapers. Some felt that minimal users should have input and pay their fair share. There was suggestion that community services districts and the building industry may not be fully addressed at this point.

30. Please provide any additional input you believe pertinent to the Plan update.

These responses included the following:

- Recharge the Transition Zone at the Lower Narrows
- MWA's role as Watermaster produces some inherent conflict of interest issues
- Provide evidence that the Plan is working
- The plan needs to be widely circulated
- It is time to stop studying the issues and get water in the ground
- Periodic schedule to assure that the Plan objectives and guidelines are being followed in response to the changing economy and population
- Put water back into the ground without putting farmers out of business, while supporting municipal users
- Need for an Urban Water Management Plan, hydrographs, and potential recharge locations highlighted on a water systems map

In summary, Mr. McPherson encouraged everyone to review the responses provided and to advise him if their response as listed is different from the intent.

Mr. Brill opened the issue for questions or suggestions now that the responses have been reviewed, and if the perception of the process is useful and value-added.

Roy Hampson questioned the definition of the Plan. Mr. Brill said that in large part, the Plan is to be what the stakeholders need. The TAC was to help provide this definition. All entities and stakeholders were included in the process so they could provide input.

Gary Ledford said he believes this update is necessary and that the existing plan is not well enough defined on issues such as consumptive use and return flows. There is also a need to address policy issues and how they will work, as well as a need to address those issues so that specific issues are addressed in the future.

Steve Older feels it needs to be a living document and items addressed need to be verifiable.

Don Songer said he believes that MWA should be the lead group, and it needs to address the issue of tax dollars being collected for the purchase of water, as well as the benefits to the basin as a result of that. Issues of fairness and equity need to be addressed as far as what has occurred in the past and for the future.

Lee Pearl said the process was good and the ultimate outcome is dependent on input received. The process was open and public.

Don Bartz said individuals with a lot of money should not influence the MWA Board and that preference should not be given to specific projects. There needs to be a guarantee that this does not occur.

Paul Davis said he didn't feel that MWA did enough public outreach in getting the word out on the update process. Everyone needs to know that water is a precious resource and that everyone needs to pay their fair share for this resource. MWA has a job to do and needs to do it.

Pat Feary said she feels the Agency has done a good job with this process and has gotten the information out in various formats on various issues. She said it is the responsibility of the constituents to be involved, and that the Agency has done what they need to do to get the information out. Responsibility needs to lie with the constituents.

Norman Nichols stated that MWA was established to take are of water in this region, and that's what they are doing. The Plan is working. He believes that everyone needs to work within established parameters, or deal with Sacramento.

Jack Clarke stated that update of the regional plan is a step in that direction. It's not perfect, but with input the Plan update will be developed in the best way it can

be done. It has to be dynamic and subject to change due to changing circumstances.

Mr. McPherson continued with his presentation. Some of the capital projects mentioned through meetings and through the questionnaire process are referred to on a map provided as a handout at the meeting, a copy of which is included as an attachment to these minutes. The Power Point presentation is also attached to these minutes. The following projects are identified by number below and correspond with the number identified on the map. These are proposed projects and may or may not come to fruition.

1. Oro Grande Recharge
2. Surface Water Treatment Plans for Victor Valley Water District, Baldy Mesa Water District, City of Adelanto and County of San Bernardino
3. Detention Basin Recharge
4. Antelope Wash Recharge
5. Upper Mojave River Wellfield and Distribution System
6. Mojave River Pipeline Extension - Transition Zone
7. Southern California Water Company Wellfield
8. Sheep Creek Recharge
9. Hi-Desert Water District Recharge Basin #3
10. Joshua Basin Water District Recharge and Pipeline
11. Ames Basin Recharge
12. Baja Storm Flow Retention (two locations)
13. Lucerne Valley Recharge
14. Land Purchase to Protection Riparian Habitat
15. Hesperia Lakes Recharge

Randy Hill noted that Victor Valley Water District injection wells are not noted on this map and should be included.

## 6. REGIONAL WATER MANAGEMENT PLAN UPDATE PROGRESS DISCUSSION

## 7. TENTATIVE SCHEDULE OF FUTURE ADVISORY COMMITTEE MEETINGS

Items #6 and #7 were addressed simultaneously. Mr. McPherson addressed the next steps in the update process. A list of critical issues to be addressed in the update Plan will be developed, as well as an expanded list of project and Plan alternatives. A finalized analysis on supply and demand and water management principles will be developed, culminating the process with a draft report, which should be completed by mid-December 2001. The next TAC meeting is targeted for December 19. The December 19 meeting will be to provide the draft document and to allow for review of it.

Mr. Brill once again encouraged suggestions on what has evolved to date on the update of the Plan. Input at this time is important so that suggestions can be considered and potentially incorporated into the draft update.

**8. QUARTERLY REPORT ON BUILDING ACTIVITY:** The report in the agenda packet was reviewed. Don Songer suggested a review of previous years, comparing projections and actuals on building report activity. Mr. Brill responded that this type of issue will be addressed in the update of the Regional Water Management Plan.

**9. OTHER BUSINESS:** None.

**10. ADJOURNMENT:** The meeting adjourned at 11:49 a.m.

Jack Clarke, Chairman

# Mojave Water Agency Water Management Plan Update

Technical Advisory Committee Update

October 24, 2001

Saracino·Kirby·Snow

## Discussion Topics for the Day

- Ongoing activities
- Overview of stakeholder issues assessment activities
- Projects mentioned by stakeholders
- Where we go from here

## Ongoing Activities

- Data collection, review, and organization
- Updated assessments of current and projected demand and supply
- Stakeholder issues assessments
- Plan alternatives
- Report preparation

## Summary of Stakeholder Issues Assessment Activities

- Interaction methods utilized
  - TAC meetings
  - Individual and group meetings
  - Written questionnaire

## Individual and Group Meetings

1. Victor Valley Water Reclamation Authority
2. Baldy Mesa Water District
3. City of Barstow & Southern California Water Company
4. Joint Subarea Advisory Committee
5. City of Adelanto
6. City of Hesperia
7. Victor Valley Water District
8. Lahontan RWQCB
9. Improvement District "M"
   - Joshua Basin Water District
   - Hi-Desert Water District
   - Bighorn Desert View Water Agency
   - San Bernardino County Special Districts
10. California Department of Fish and Game
11. San Bernardino County Special Districts

## Written Issues Questionnaire

- MWA mailed questionnaires to 26 entities
- Others received questionnaires from TAC members and at other meetings
- 19 completed questionnaires were submitted to MWA

## Questionnaires Submitted

1. City of Adelanto
2. City of Barstow
3. Chuck Bell/Este Subcommittee
4. Bighorn-Desert View WD
5. Ca. Dept. of Fish & Game
6. Paul Davis
7. City of Hesperia
8. Hi-Desert WD
9. Jess Ranch
10. Joshua Basin WD
11. Lahontan RWQCB
12. Joe Monroe
13. Norman Nichols
14. County of San Bernardino Special Districts
15. So. Calif. Water Co.
16. City of Victorville
17. Victor Valley WD
18. Victor Valley WRA
19. Unknown

## Number of Questionnaires Submitted by Each Region

- ID "M" -- 3
- Alto -- 7
- Este -- 2
- Oeste -- 1
- Centro -- 1
- Baja -- 0
- Regional/Multiple -- 5

## Questionnaire Responses

- Responses were varied, but included some consistent themes

1. How important is to reverse the trend and recover from current groundwater overdraft?

- All indicated stopping the overdraft is very important to critical
  - Crucial to maintaining economic vitality of the region
  - Crucial to prevent degradation of water quality

1. continued

- Recovering from overdraft received varied response
  - Impossible to recover
  - Very important to critical
  - Define "recover" – What condition, in what year, at what water table level, in what area, do we recover too?

2. If the current WMP were fully implemented, how effectively would it meet your current and future needs? How would you improve the plan?

- General sense is the that the current plan is a good start
- A greater focus needs to be placed on the unique needs in the individual sub-areas
- Water quality is of prime concern and needs to continue to be monitored
- Water conservation has not been addressed
- Update events and additional goals

3. Do you think the current adjudication will solve the region's water supply problems in the short-term (1-5 years) and the long-term (6-20 years)? Why?

- Short-term, no. Long-term ranges from no, to maybe, to yes.
- No, to both, increasing the cost of water does not motivate users to conserve, need for a public outreach program.
- Adjudication does not match the physical solution, establishment of recharge basins is critical
- Yes, IF the adjudication is allowed to be fully implemented

4. How will you measure the success of this plan update process? (a) From your perspective? (b) From a basin-wide perspective? (c) For the short-term (1-5 years)? (d) For the long-term (6-20 years)?

- Sustainable and reliable water supply for entire agency
- Stakeholder consensus for major issues
- Recycled wastewater and conservation included in strategies
- Everyone shares the pain

4. How will you measure the success of this plan update process? (a) From your perspective? (b) From a basin-wide perspective? (c) For the short-term (1-5 years)? (d) For the long-term (6-20 years)?

- "...How realistically it guides the agency to the ultimate solution. A successful process only gets us a plan update, which will mostly consist of 'feel good' words on a lot of paper that might look better as trees back in the forest."

5. What is your confidence level that your expectations will be met in the short-term (1-5 years) and the long-term (6-20 years)? Why?

- Short term – mostly low confidence
- Long term – mostly high confidence
- Only if the parties work together for the good of the basin rather than focusing solely on their own interests

6. What potential barriers or key issues do you see that will need to be addressed in order for this plan update process to be a success?

- Diversity of opinions, politics, and lawyers
- Stakeholder commitment
- Adequate consideration of farming interests
- Allocation of SWP water and who will pay for it
- Lack of ability to update and improve the "physical solution"

7. If the update doesn't address your water supply needs, what do you think is the most likely way that you will be able to meet your water needs?

- Unacceptable scenario
- Seeking independence by seeking supply from multiple sources
- Recycled water programs
- Exploration and continued pumping
- Move to where more water is available

8. What do you think are the primary interests of the other stakeholders?

- Quantity – Quality – Cost
- Being treated equitably under the plan criteria
- New sources of affordable water
- Failure to recognize constraints of the arid region
- Political and financial benefits

9. What is your confidence level that the region's water resources can be managed to meet the region's anticipated water needs?

- Ranged from not very high to very high
- Concerns
  - Rapid growth and increased population every year
  - Inadequate distribution of supply
- Very High, if MWA gets the public to except responsibility for proper decisions

10. If you represent a water utility, what land use planning data do you use for your future water demand projections?

- County and city planning documents
- Land use and zoning maps, historic and projected growth rates, per capita consumption
- Figures provided by County of San Bernardino Planning Department
- Derived from general plans

11. If you represent a water utility, what are your current and projected (5-year increments through the Year 2020) water supply needs?

*Projections in acre-feet*

| Region | Person or Agency | 2000 | 2005 | 2010 | 2015 | 2020 | % Growth |
|---|---|---|---|---|---|---|---|
| Alto | Randy Hill, Victor Valley Water | 18000 | | | | 28000 | 2.8 |
| City of Hesperia | City of Hesperia | 15835 | 17093 | 19815 | 22971 | 26630 | 3.5 |
| | Joshua Basin Water District | 1550 | 1839 | 1773 | 1905 | 2037 | 1.6 |
| CSA 70 L (Pinion Hills Phelan A | County of San Bernardino | | 3632 | 4272 | 5026 | | 3.8 |
| CSA 70 J (Oak Hills) | County of San Bernardino | | 3710 | 4512 | | | 4.3 |
| CSA 64 (Spring Valley) | County of San Bernardino | | 3488 | 3829 | 4191 | 4552 | 2.1 |
| | Hi-Desert Water Agency | | 2835 | 3484 | 3753 | 4043 | 2.8 |
| Centro (Barstow) | SCWC | | 10404 | 10720 | 11046 | 11381 | 0.6 |
| Alto (Apple Valley) | SCWC | | 1029 | 1101 | 1176 | 1259 | 1.5 |
| Este (Apple Valley) | SCWC | | 162 | 170 | 177 | 186 | 1.0 |

12. Do you gather and maintain groundwater level or groundwater quality data? What data do you have and what format (manual tabulation, electronic) is it in?

- Wide range of answers
- Sporadic and localized monitoring
- Some water quality, water quantity, or both
- Some records are manual, some are electronic

13. To what extent should the MWA be involved in regional use of recycled water?

- Should be considered as beneficial resource to the region in the plan update
- No role, jurisdiction belongs to sewer agencies and water retailers
- Should provide regional leadership and incentives for appropriate uses
- Provide guidance considering it is the entity responsible for the groundwater basin

14. To what extent should the MWA be involved in water conservation efforts?

- Extremely important the MWA take a leadership role in regional effort
- MWA should actively promote to extend usefulness of SWP entitlements
- MWA should undertake a public education program
- Responsibility of water producers to individually and collectively enforce
- Higher costs will eventually be driving factor in conservation

15. Do you have any specific water quality concerns?

- Arsenic, nitrate, chromium, uranium, MTBE
- Concerns that water in spreading basins will degrade existing water quality by leaching contaminants
- Study the long-term impact of TDS from SWP water

16. Introduction of imported water into our groundwater basins may result in some changes to the native water quality. Assuming that changes will not exceed State or Federal health standards, should the maintenance of existing water quality take precedence over measures to reverse the existing overdraft and enhance long-term water supply reliability?

- Recharge and reversal of overdraft should take precedent, provided that health standards are met
- Continued overdraft will deteriorate WQ on its own
- Increasing TDS is acceptable if below drinking water standards
- Concerned about long-term impacts to quality
- This is not a black and white issue

17. What are your thoughts about MWA entering into groundwater storage agreements with outside agencies?

- Acceptable, provided that terms of the agreement do not adversely impact local solutions
- Fine, go for it
- Benefits must be equitably distributed
- Local entities must have priority for use of MWA facilities and groundwater storage
- Details must be carefully worked out

18. What are your thoughts about the MWA and/or the Mojave Basin Area Watermaster entering into groundwater storage agreements with water users within MWA?

- Essential part of the existing plan and the adjudication
- Benefit of storage locations should be fair to all users
- Any means of adding imported water should be a benefit to the region
- Details must be carefully worked out

19. Should the MWA consider purchasing new State Water Project entitlement whenever it might become available?

- Certainly
- #1 priority as long as it is affordable
- MWA should do everything possible to acquire additional SWP water if growth dictates and it is feasible
- First seek a high utilization of current entitlement
- Only at a level of affordability

20. Do you think there is potential for regional projects that would delay or offset proposed local projects?

- Should be considered on a case-by-case basis
- Interested in how regional projects may integrate with individual plans
- Do not understand the question

21. Are you willing to consider delaying local projects in order to develop the regional projects?

- Not for needed short-term goals but definitely for long-term goals
- All projects should be evaluated on their own merit
- No, unless approved in the Regional Plan with prior CEQA analysis
- Need more information, need to define regional and local

22. Are you willing to work with MWA to jointly finance regional capital facilities?

- Already discussed joint funding projects
- Want to continue joint applications with MWA to receive grant funding and matching funds
- Willing to work with MWA depending on the benefits of the project

23. How should the purchase of water and construction of facilities needed for the region to recover from the current groundwater overdraft be financed?

- Those that pay should receive benefits proportional to payment
- Municipal producers should pay for construction of facilities
- All alternatives should be considered, including: user fees, connection fees, assessments, grants, loans, etc.

24. How should the purchase of water and the construction of facilities needed for future water supply reliability be financed?

- End user should be charged a fair price
- By State and Federal grants
- Grants, assessment districts, low-interest loans, developer fees, etc.
- Good question
- Answers the same as question 23

25. Should the MWA offer "degrees of reliability" for wholesale imported water purchases with attendant cost differential (i.e. higher water supply reliability at a higher cost)?

- Should be considered
- If possible, would be able to make better water purchase decisions
- No, reliability must be fair and equitable to all water districts
- May favor particularly lucrative land-use over others
- Need a feasibility and cost-benefit study
- No, the priority should be (1) domestic, (2) agriculture, (3) industrial

26. Should the MWA commit entitlement to State Water Project water by specific region or area and how should it be done?

- Take every step ensure adequate water for everyone
- Allocate entitlement in proportion to payments
- Basins, subareas, locales with the worst overdraft, water quality problems, should be given priority
- Best accomplished by a free market setting
- MWA should annually allocate based on local needs

27. Should the Plan update consider a financing program where everyone pays for regional projects, but new development pays more than the established community?

- Yes, this method has been used effectively elsewhere
- On a case-by-case basis, considering grant availability, benefit of the project area, extent of local control, etc.
- Clarify anticipated regional projects
- No, will inhibit pro-growth philosophy

28. What should be the guiding principle(s) of the Mojave Water Agency?

- Maximize wet water put in the basin
- Procure State aqueduct water for the high desert
- Make sure that the Regional Groundwater Plan will meet the needs of the area
- Provide reliable, clean, cost-effective service to all constituents in an equitable manner
- Enabling legislation did a pretty good job
- Establish an unending water source

29. Do you believe there is input from individuals or groups that may be missed by this process? Please identify them.

- Major interests are represented
- When amendments are made they should be put before the public in the newspaper
- Minimal users should have input and pay their fare share
- Cities, community services districts, BIA
- Municipalities such as Apple Valley

30. Please provide any additional input you believe pertinent to the Plan update.

- Recharge the Transition Zone at the Lower Narrows
- MWA's role as Watermaster produces some inherent conflict of interest issues.
- Provide evidence that the plan is working
- The plan needs to be widely circulated
- It is time to stop studying, it is time to get water in the ground

30. Please provide any additional input you believe pertinent to the Plan update.

- Periodic schedule to assure that the plan objectives and guidelines are being followed in response to the changing economy and population
- Building consensus and gaining commitment among various parties in the basin will be the keys to successful implementation

30. Please provide any additional input you believe pertinent to the Plan update.

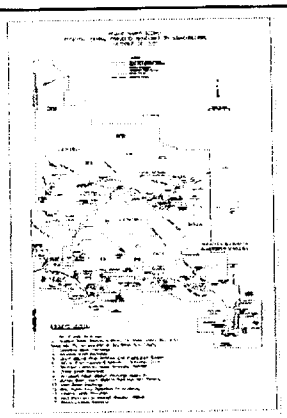
- Priority must be to put water back into the ground without putting farmers out of business while supporting municipal users
- Need for an urban water management plan, hydrographs with potential recharge locations highlighted, and a water systems map

## Questionnaire Response Summary

- Questionnaire responses summarized in table format

## Projects Mentioned by Stakeholders

- Several projects were mentioned
- Additional input is encouraged



## Where We Go From Here

- Develop list of critical issues to be addressed in the updated plan
- Develop expanded list of project and plan alternatives
- Finalize supply and demand analysis
- Develop water management principles
- Prepare draft report

## Schedule

- Draft report completed in mid-December
- Target date for next TAC meeting
  - December 19

SCANNED 11-2-01 TAC mins.

# TECHNICAL ADVISORY COMMITTEE TO THE MOJAVE WATER AGENCY

## MINUTES

**Mojave Water Agency**
**Board Room**
**22450 Headquarters Drive** — **July 25, 2001**
**Apple Valley, CA 92307** — **10:00 a.m.**

1. **CALL TO ORDER**: Chairman Clarke called the meeting to order at 10:03 a.m. MWA staff attending included General Manager Brill, Assistant General Manager Caouette, and Executive Secretary Thornell. Visitors attending included John Woodling, Senior Engineering Geologist and Mansour Hogabry, Civil Engineer, both representing the Department of Water Resources Integrated Storage Investigations Group, and Glenn McPherson representing the consulting team of Saracino-Kirby-Snow.

2. **INTRODUCTIONS**: Introductions were made.

3. **APPROVAL OF AGENDA**: The agenda was approved.

4. **OVERVIEW OF DWR INTEGRATED STORAGE INVESTIGATIONS PROGRAM**: Mr. Brill introduced DWR representatives John Woodling and Mansour Hogabry with the Integrated Storage Investigations (ISI) Program. Mr. Woodling provided a presentation and stated that he is with the DWR Conjunctive Water Management Branch. He is responsible for Proposition 13 groundwater programs, AB 303 (the Groundwater Management Assistance Act), and the groundwater storage element of Integrated Storage Investigations. He explained that the Integrated Storage Investigations is an initiative that came out of CalFed and is identified in the Record of Decision (ROD). The objectives of the ROD for groundwater storage is that the State achieve 0.5 million to 1 million acre-feet of new storage over the seven years of the Phase I implementation of CalFed.

In addressing the surface and groundwater conjunctive management element, Mr. Woodling stated that the objective here is to assist local agencies with improving water supply availability and reliability by increasing the coordinated use of surface and groundwater. In addition to that objective, there are a couple of fundamental beliefs that guide this program. First, conjunctive use projects with broad stakeholder support are more likely to be successful, which is why the ISI supports the TAC's involvement in this Agency's process. Also, if done locally and with local reliability, it makes the Statewide system better overall. CalFed adopted principals for conjunctive use projects which were then transferred to DWR's implementation of this program that deal with local control, locally driven planning, meeting in-basin needs, and if water is made available, there is water for out of basin type transfers and flexibility. Phase I of the ISI conjunctive management process begins with signing of an MOU, as well as stakeholder involvement, resource and needs assessment, programmatic feasibility, and basin management

objectives. Phase II gets into project feasibility, environmental requirements, permits, pilot projects, institutional structure, and monitoring. Phase III involves full scale implementation.

DWR involvement includes planning assistance, technical work by DWR staff, contract services, State cost sharing, monies available through Proposition 13 grant funding in the amount of $200 million, and local groundwater assistance grant funds through AB 303. Mr. Brill added that MWA was successful in obtaining $250,000 in grant funds from AB 303.

Mr. Woodling next referred to an Overview of Groundwater Management and Conjunctive Use Programs, a copy of which is attached.

In summary, Mr. Woodling summarized that the ISI program is a local, voluntary, and flexible program to assist local agencies with improving water supply availability and reliability by increasing the use of surface and ground water.

A brief question and answer period followed.

5. **DISCUSSION OF STAKEHOLDER QUESTIONNAIRE:** Mr. Brill stated that the draft questionnaire, a copy of which is attached to these minutes, will be used in meetings with individual stakeholders to identify water supply needs and suggestions relating to the future of the Mojave Basin. By submitting the questionnaire to the stakeholders and individual meetings with stakeholders, MWA is trying to provide balance in order to capture issues and concerns as efficiently as possible.

Mr. McPherson stated that the list of questions in the questionnaire has been generated as a result of the consultant's history of working on stakeholder processes and putting together questions that will prompt thinking about where the update is going and the issues that need to be addressed. He next reviewed each question in the draft questionnaire. Discussion took place and suggestions for changes to questions were made.

Significant discussion took place as to the representation responding to the questionnaire. Mr. Brill reiterated that individual meetings with stakeholders and distribution of the questionnaire to the members of the TAC is felt to be the best manner in which to address concerns, the latter particularly because the TAC is widely represented by interests from throughout the Mojave basin. It was suggested that TAC members identify any individuals and entities they believe should be targeted with this questionnaire so that the Agency can include them in the process.

Following discussion, the Committee suggested changing the due date from August 10 to a date at the end of August so as to allow more time to gain responsible answers to the questions on the questionnaire. A suggestion was also made to consolidate some of the questions.

Mr. McPherson said that responses to the questionnaire will help to determine how many more meetings will be needed to finalize this process.

Mr. Brill thanked everyone for the comments made today and assured that changes addressed today will be made and the questionnaire will be distributed in the next day or so.

6. **TENTATIVE SCHEDULE OF FUTURE ADVISORY COMMITTEE MEETINGS**:

Mr. McPherson reviewed the project schedule, a copy of which is attached to these minutes. The next TAC meeting will review what was learned at the stakeholder meetings and as a result of responses to the questionnaires. Several other meetings will be held as the draft update is prepared and following the completion of Phase I to discuss the TAC's involvement in Phase II.

7. **OTHER BUSINESS**: None.

8. **ADJOURNMENT**: The meeting adjourned at 11:52 a.m.

Jack Clarke, Chairman

**Mojave Water Agency**
**Regional Water Management Plan Update**
**Issues Questionnaire**

**July 26, 2001**

**Please return this questionnaire to the Mojave Water Agency no later than August 30, 2001.** Your responses may be added directly to the space provided below each question, or you may receive an electronic version (MS Word) via e-mail by sending your request and e-mail address to Gloria Golike (gloriag@mojavewater.org). If you believe that specific questions do not apply to you, indicate "not applicable" or "n/a". Questions regarding the survey should be directed to Norm Caouette at (760) 240-9201.

1. How important is it to reverse the trend and recover from the current groundwater overdraft?

2. If the current Water Management Plan were fully implemented, how effectively would it meet your current and future needs? How would you improve the plan?

3. Do you think the current adjudication will solve the region's water supply problems in the short-term (1-5 years) and the long-term (6-20 years)? Why?

4. How will you measure the success of this plan update process?

    a. From your perspective?

    b. From a basin-wide perspective?

    c. For the short-term (1-5 years)?

    d. For the long-term (6-20 years)?

5. What is your confidence level that your expectations will be met in the short-term (1-5 years) and the long-term (6-20 years)? Why?

6. What potential barriers or key issues do you see that will need to be addressed in order for this plan update process to be a success?

7. If the update doesn't address your water supply needs, what do you think is the most likely way that you will be able to meet your water needs?

8. What do you think are the primary interests of the other stakeholders?

9. What is your confidence level that the region's water resources can be managed to meet the region's anticipated water needs?

10. If you represent a water utility, what land use planning data do you use for your future water demand projections?

11. If you represent a water utility, what are your current and projected (5-year increments through the Year 2020) water supply needs?

12. Do you gather and maintain groundwater level or groundwater quality data? What data do you have and what format (manual tabulation, electronic) is it in?

13. To what extent should the MWA be involved in regional use of recycled water?

14. To what extent should the MWA be involved in water conservation efforts?

15. Do you have any specific water quality concerns?

16. Introduction of imported water into our groundwater basins may result in some changes to the to the native water quality. Assuming that changes will not exceed State or Federal health standards, should the maintenance of existing water quality take precedence over measures to reverse the existing overdraft and enhance long-term water supply reliability?

17. What are your thoughts about MWA entering into groundwater storage agreements with outside agencies?

18. What are your thoughts about the MWA and/or the Mojave Basin Area Watermaster entering into groundwater storage agreements with water users within MWA?

19. Should the MWA consider purchasing new State Water Project entitlement whenever it might become available?

20. Do you think there is potential for regional projects that would delay or offset proposed local projects?

21. Are you willing to consider delaying local projects in order to develop the regional projects?

22. Are you willing to work with MWA to jointly finance regional capital facilities?

23. How should the purchase of water and construction of facilities needed for the region to recover from the current groundwater overdraft be financed?

24. How should the purchase of water and the construction of facilities needed for future water supply reliability be financed?

25. Should the MWA offer "degrees of reliability" for wholesale imported water purchases with attendant cost differential (i.e. higher water supply reliability at a higher cost)?

26. Should the MWA commit entitlement to State Water Project water by specific region or area and how should it be done?

27. Should the Plan update consider a financing program where everyone pays for regional projects, but new development pays more than the established community?

28. What should be the guiding principle(s) of the Mojave Water Agency?

29. Do you believe there is input from individuals or groups that may be missed by this process? Please identify them.

30. Please provide any additional input you believe pertinent to the Plan update.

# Conjunctive Water Management

Since its inception in July 1999, the Conjunctive Water Management Program has emphasized the importance of forming partnerships with local agencies and stakeholders to assist in planning and developing conjunctive water management projects. Conjunctive water management is the planned, coordinated use of surface water and groundwater resources to provide local and regional water supply reliability and improved operational flexibility.

The primary programmatic principles are to: (1) establish local basin-wide planning partnerships, (2) facilitate local basin monitoring, (3) ensure the voluntary local implementation and control of projects, and (4) maintain priority for in-basin water needs and compensation for out-of-basin transfers.

Partnerships are established with local agencies through Memorandums of Understanding to coordinate studies for determining the appropriate role of conjunctive water management projects in the mix of available water management options. Through these partnerships, stakeholder advisory groups are convened to guide development of programmatic feasibility study reports that identify and increase understanding of environmental and third-party impacts, present and future in-basin water needs, and mitigation requirements for potential projects.

Cooperative investigations and project-specific feasibility studies, groundwater basin monitoring and modeling, and pilot and demonstration projects are being conducted by various partners to develop and implement conjunctive water management projects and programs. Other related groundwater basin planning, data collection, monitoring, and management programs are also being considered in the mix of project options.

Realizing the importance of conjunctive water management in the overall approach to resolving California's water supply needs, the State passed AB 303 and the Water Bond Act of 2000. AB 303 sets up a $5 million Local Groundwater Assistance Fund to provide grants to local public agencies for groundwater studies and management activities to increase their understanding of how to better manage their groundwater resources. Chapters 8 and 9 of the Bond Act provide $230 million to study, plan and construct groundwater storage and recharge facilities projects.

## Activities to Date

Signed MOU's with local agencies to develop conjunctive management programs statewide.

Established partnerships local and regional agencies, and stakeholders to guide the programmatic feasibility evaluation process to discuss and resolve related groundwater management issues, and present opportunities to assess impacts before project implementation.

Assisted with modeling studies to determine feasibility of dry year transfers from north Sacramento area groundwater basin and entered into cost-sharing agreements with these partners to complete a groundwater data management system and develop a pilot scale groundwater banking and exchange program.

Assisting San Joaquin County partners with the development of a countywide water management plan.

Entered into cost-sharing agreement with Glenn County partners to complete basin management objectives and groundwater data management pilot program.

Assisted partners with technical evaluation of recharge areas in Westlands Water District.

Developed technical criteria and evaluated proposals for loans and grants to provide funding for conjunctive use feasibility and pilot studies, studies or monitoring leading to better groundwater management and project construction.

# Fish Passage Improvement

Building partnerships to improve and enhance fish passage in Central Valley and Bay Area streams has been a main focus of the Fish Passage Improvement Program since it began in late 1999. Department of Water Resources staff has met with local, State, and federal agencies and stakeholder partners to plan and implement projects to remove barriers that impede migration and spawning of anadromous fish species.

Program principles encourage interagency and stakeholder participation by partnering with watershed and project-specific stakeholder groups to address fish passage issues. DWR's interdisciplinary team of fish biologists, hydrologists, engineers, and environmental specialists has joined with many partners to inventory potential barriers and begin feasibility evaluation of individual projects. These partnerships ensure that project impacts are properly addressed in an open and inclusive manner and have local support. CALFED agencies, water suppliers, and environmental advocates help review overall program direction.

To identify and evaluate projects to modify or remove instream structures that impede migration of anadramous species, the Fish Passage Improvement Program will use a Geographic Information System inventory of fish migration barriers. The inventory will help partners and stakeholders evaluate potential fish migration benefits, ecological and socioeconomic impacts, and project costs for each structure inventoried. Modification or removal of specific fish migration barriers can then be thoroughly investigated. The most feasible fish passage projects with accompanying water use and aquatic ecosystem benefits will be implemented.

### Activities to Date

Consolidated a multi-disciplinary staff of fish biologists, engineers, and support staff to do general coordination and specific project development.

Sponsored meetings and workshops to organize collaborative efforts among stakeholder groups.

Reviewed existing agency information and communicated with local agencies and watershed groups to develop a computerized Geographic Information System inventory of fish migration barriers.

Developed criteria to evaluate projects and established a priority list.

Prepared a draft report on the Fish Passage Improvement Program.

Coordinated program activities with other organizations that have fish passage improvement programs, including The Resources Agency, Caltrans, California Department of Fish and Game, and others.

Coordinated preparation of environmental documentation and feasibility studies for specific projects.

### Currently Identified Priority Projects

Alameda Creek *
San Francisquito Creek *
York Creek: York Dam *
Clear Creek: Saeltzer-McCormick Dam (completed)
Mill Creek: Clough Dam
Battle Creek
Red Bluff Diversion Dam
Yuba River: Daguerre Point Dam *
Butte Creek / Butte Sink / Sutter Bypass *
Fremont Weir *
Putah Creek
Dry Creek *
Cosumnes River *
Calaveras River *
Stanislaus River *
Merced River *

* Active, ongoing implementation and coordination

# In-Delta Storage

A partnership of CALFED agencies are studying in-Delta water storage sites as part of the Integrated Storage Investigations Program. Three proposed water storage project alternatives are being evaluated for their potential to develop long-term approaches for operational flexibility to enhance water supply reliability to cities and farms and ecosystem benefits to fish and wildlife habitat in the Sacramento-San Joaquin River estuary.

The CALFED Record of Decision identified In-Delta storage as one of three surface storage projects to be pursued early in the Bay-Delta Program. The ROD committed CALFED agencies to explore the lease or purchase of the Delta Wetlands project, or, if that is not feasible, to initiate an alternative project. Delta Wetlands has already prepared an Environmental Impact Report for its proposed project.

### Project Alternatives

1. Lease the Delta Wetlands Project, which includes the use of Webb Tract and Bacon Island for water storage and Holland Tract and Bouldin Island for wildlife habitat. Webb Tract and Bacon Island can store approximately 190,000 acre-feet of water, and can deliver approximately 100,000 acre-feet in average years.

2. Purchase the Delta Wetlands Project. This alternative also uses Webb Tract and Bacon Island for water storage and Holland Tract and Bouldin Island for wildlife habitat. Storage and delivery benefits are the same as Alternative 1.

3. Purchase the Delta Wetlands Project. Use Victoria and Bacon Islands for water storage and Webb Tract, Bouldin Island and Holland Tract for habitat development or partial agricultural use. Provide a connection between Victoria Island and Clifton Court Forebay. This alternative provides 232,000 acre-feet of reservoir storage, and provides approximately 120,000 acre-feet in average years.

The ROD lists specific actions for the In-Delta storage project including selecting a project alternative, initiating negotiations with landowners for acquisition or lease of necessary properties, developing a project plan that addresses local concerns about effects on neighboring lands, and completing final design, obtaining necessary authorizations and funding, and beginning construction.

The study is now focused on reconnaissance level investigations, including operations studies, preliminary engineering design and cost estimates, preliminary geologic and biological findings, potential water quality impacts, loss of agricultural land, seepage on adjacent islands, levee stability concerns, and water quality impacts to determine which water storage project alternatives are feasible and warrant further actions. An outreach program is being developed to share information and receive comments on the program from interested parties, local landowners, and other stakeholders within the Delta.

Study participants will then prepare a feasibility study report of In-Delta storage project alternatives. Subsequent to the feasibility study, agencies will complete permit documentation, and other regulatory compliance requirements, conduct a risk analysis, and evaluate other legal and policy issues.

### Activities to Date

Completed reconnaissance level investigations of project alternatives to determine their ability to provide operational flexibility for storage and export, enhance flow regimes for fish in the Delta, and provide Environmental Water Account benefits.

Prepared an appraisal summary of USBR-DWR in-Delta storage investigations.

Developed a joint DWR-USBR workplan for feasibility study investigations of technical information on water quality effects, levee stability, seepage effects, seismic analyses, fishery impacts, operational flexibility, and cost estimates for the most feasible alternatives.

# Los Vaqueros Reservoir Enlargement and Bay Area Blending/Exchange

CALFED agencies, including the Bureau of Reclamation and the Department of Water Resources, formed a partnership with Bay Area agencies and stakeholders to investigate the feasibility of enlarging Los Vaqueros Reservoir as a part of a water quality blending program for the Bay Area. The partnership is committed, consistent with the CALFED Record of Decision, to improve water quality and supply reliability, ecosystem restoration, and operational flexibility for Bay Area communities, while ensuring that the existing Contra Costa Water District mandates and agreements and local voter approval required for the expansion are respected.

The Bay Area Blending/Exchange Project is being developed concurrently to help local partners identify and evaluate actions to improve drinking water quality and supply reliability by interconnecting existing conveyance facilities and blending the water in the enlarged Los Vaqueros Reservoir.

### Participating Agencies

Local Bay Area agencies:
Alameda County Water District
Bay Area Water Users Association
Public Utilities Commission of San Francisco
Contra Costa Water District
East Bay Municipal Utility District
Santa Clara Valley Water District
Zone 7 Water Agency

CALFED agencies:
Department of Water Resources
Department of Fish and Game
National Marine Fisheries Service
U.S. Bureau of Reclamation
U.S. Fish and Wildlife Service

### Los Vaqueros Reservoir Enlargement

The ROD lists a number of actions related to the Los Vaqueros Reservoir Enlargement, beginning with initiation of a Memorandum of Understanding to identify participating partners and establish agreement concerning how the program will be carried out. Through contracts with DWR, CCWD and participating partners will conduct 100,000 acre-foot Los Vaqueros Reservoir by up to 400,000 acre feet. DWR will execute a contract with CCWD, which operates the existing reservoir, to develop Phase 1, Scope of Work, for the Los Vaqueros Reservoir enlargement; and initiate Phase II feasibility studies, which include securing authorization and funding for engineering and environmental studies, developing project alternatives, defining water rights needs, and completing a feasibility study report, environmental documentation and a preliminary design.

Partners will establish a water agency advisory group, and coordinate local agency partnership agreements for necessary studies to develop project alternatives and receive public input for preparation of environmental documentation. USBR, DWR, and stakeholders will work with CCWD to obtain voter approval of selected project, and construct approved project.

### Bay Area Blending/Exchange

The ROD has also directed agencies to implement a project that enables Bay Area water districts to work cooperatively on water quality and water supply reliability. Bay Area water agencies will initiate a separate MOU to establish a partnership among Bay Area water agencies to cooperatively address program water quality and supply reliability concerns on a mutually beneficial and regionally-focused basis. DWR, in partnership with other project operators, will evaluate the feasibility of interconnecting Bay Area conveyance facilities, so water suppliers can take advantage of different sources when water quality is highest.

### Activities to Date

DWR, in partnership with stakeholders, initiated an MOU to identify participants in the feasibility and environmental studies for the expansion of Los Vaqueros Reservoir.

DWR also initiated a partnership agreement with CCWD to outline Phase I, Scope of Work, and to study enlargement of Los Vaqueros Reservoir as an element of Bay Area Blending/Exchange.

# North of the Delta Offstream Storage

The Department of Water Resources is participating in a partnership with local, regional, State, and federal agencies, and stakeholders to further study north-of-the-Delta offstream storage opportunities. Storing water in offstream reservoirs during high flow periods provides opportunities to increase water storage in an environmentally sensitive manner. The stored water is then made available for beneficial uses at times when conflicts over available supplies are most pronounced – during droughts. The North of the Delta Offstream Storage Investigation has focused on four potential projects on the west side of the Sacramento Valley, including the Red Bank Project, Thomes-Newville Project, Colusa Reservoir, and Sites Reservoir.

CALFED's Record of Decision specifically identifies the proposed Sites Reservoir for further technical work, environmental review and development of cost-sharing arrangements during CALFED Stage 1 implementation, before a decision to implement the project as part of the CALFED Program is made. The ROD states that the Sites project could enhance water management flexibility in the Sacramento Valley, reduce diversions from the Sacramento River during critical fish migration and spawning periods, increase the reliability of water supplies for a significant portion of the Sacramento Valley, and provide storage and operational benefits for other programs, including Delta water quality and the Environmental Water Account.

This potential 1.9 million acre-foot reservoir site is located near the western edge of the Sacramento Valley in Glenn and Colusa counties. A reservoir would be formed by constructing two primary dams and nine saddle dams. The water supply to fill the reservoir would be diverted offstream for storage from the Sacramento River and local tributaries.

The ROD directed agencies to develop a Memorandum of Understanding to initiate a partnership with local, regional, State, and federal agencies, and stakeholders to develop an acceptable planning process, receive input from signatories and other interested parties, and address all aspects of project planning, including environmental review and cost-sharing.

Participating Partners

- CALFED agencies including DWR, Department of Fish and Game, U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, and Western Area Power Administration
- Colusa County
- Glenn-Colusa Irrigation District
- Maxwell Irrigation District
- Natomas Mutual Water Company
- Orland Unit Water Users' Association
- Princeton-Cordora-Glenn Irrigation District
- Provident Irrigation District
- Reclamation District No. 108
- Sutter Mutual Water Company
- Tehama-Colusa Canal Authority

The project partners will continue to work with a Technical Advisory Group to provide technical review and input into the planning process. Project planning will involve partnership members to evaluate engineering, economic, and environmental impacts. The investigation will continue to perform field surveys of environmental resources, and to prepare a feasibility study for the project.

Partnership members will jointly evaluate the most feasible project and various alternatives, as required by Section 404 of the Clean Water Act and the environmental documentation process. Partners will prepare planning and environmental documentation and necessary permits for the project determined most feasible.

Activities to Date

Signed an MOU to initiate a partnership with fifteen local, State, and federal agencies.

Partners jointly evaluated preliminary engineering, economic, and environmental studies, performed field surveys of environmental resources, and prepared feasibility study for the project.

Began development of planning agreements with partners.

# San Joaquin River Watershed Storage

The Department of Water Resources and the U.S. Bureau of Reclamation are developing a partnership program to conduct feasibility studies to determine whether a viable alternative exists to improve the reliability of water supplies along the San Joaquin River and help meet the goals of the CALFED Bay-Delta Plan to improve the ecosystem of the San Joaquin River.

Several offstream storage projects have the potential to provide from 250,000 to 700,000 acre-feet of additional storage in the upper San Joaquin River watershed. These projects would be designed to contribute to improvement of water supply reliability and facilitate conjunctive water management and water exchanges that would improve the quality of water deliveries to urban communities and the Delta. These projects also have the potential to help meet riparian environmental needs downstream of Friant Dam and reduce the frequency of damaging floodflows and improve water quality in the river.

In a separate but related effort, the Friant Water Users Authority and a coalition of environmental and fishing organizations led by the Natural Resources Defense Council are developing a water supply plan for use in habitat restoration for the San Joaquin River. Their goal is to accomplish restoration, while not adversely impacting the overall sufficiency, reliability, and cost of water supplies to CVP Friant Division water users.

Participating Entities

Department of Water Resources
Natural Resources Defense Council
The Friant Water Users Authority
U.S. Bureau of Reclamation

The CALFED Record of Decision directs agencies to identify partners and develop and execute planning agreements with local, State and federal agencies, and other stakeholders and interested parties. In addition, partners will initiate discussions and coordinate investigations with the San Joaquin River Management Program and Comprehensive Flood Study. Agencies will also assess the potential water supply reliability improvement, engineering and economic feasibility, and the environmental impacts of the various project alternatives.

An investigation of the feasibility of potential project alternatives will include:

Friant Dam: raise the dam to enlarge the storage capacity of Millerton Lake for various purposes.

Fine Gold Reservoir: construct an offstream reservoir upstream of Millerton Lake on Fine Gold Creek to provide storage for water in the Fine Gold watershed and to hold water pumped from Millerton Lake.

Temperance Flat Dam and Reservoir: construct a new dam and reservoir on the San Joaquin River at the upstream end of Millerton Lake at Temperance Flat.

Upstream Reservoirs: modify operating procedures in reservoirs upstream of Millerton Lake to increase the average water yield in the watershed.

Montgomery Reservoir: construct Montgomery offstream reservoir near the Merced River.

Conjunctive Use: develop projects dowstream of Millerton Lake.

Partners will initiate a feasibility study on the selected project and complete environmental review and planning documentation.

Activities to Date

Completed initial evaluation of Montgomery Reservoir and completed a draft appraisal report for Montgomery Reservoir based on previous studies.

Began feasibility investigations for enlarging Friant Dam and other functionally equivalent surface storage projects.

# Shasta Dam Enlargement

The U.S. Bureau of Reclamation, in partnership with the Department of Water Resources, other federal and local agencies, and stakeholders, will evaluate the feasibility of enlarging Shasta Lake by up to 300,000 acre-feet to meet the broad objectives of improved water supply reliability and ecosystem restoration. Enlarging the lake by raising Shasta Dam would increase the capacity to capture floodwaters, which would then be available to meet downstream beneficial uses. In addition, enlarging Shasta Lake could increase the pool of cold water available to maintain lower temperatures in the Sacramento River needed by certain fish species for survival and spawning.

State agencies could be limited from participating in studies of expansion of Shasta Lake if the project affects the wild and scenic reach of the McCloud River. The California Public Resources Code (Section 5093.542) states that "except for participation by the Department of Water Resources in studies involving the technical and economic feasibility of enlargement of Shasta Dam, no department or agency of the state shall assist or cooperate with, whether by loan, grant, license, or otherwise, any agency of the federal, state, or local government in the planning or construction of any dam, reservoir, diversion, or impoundment facility that could have an adverse effect on the free-flowing condition of the McCloud River, or on its wild trout fishery."

The CALFED Record of Decision identified expansion of Central Valley Project storage in Shasta Lake by approximately 300 thousand acre-feet as one of three surface storage projects to be pursued with project-specific study. Early actions will focus on feasibility study and environmental review necessary for decisions to proceed with or implement the project. A number of project actions are listed in the ROD including resolution of legal issues related to State agency participation in planning and implementation (described above), feasibility and preliminary design studies, environmental review and documentation, federal authorization and funding, and beginning construction.

## Activities to Date

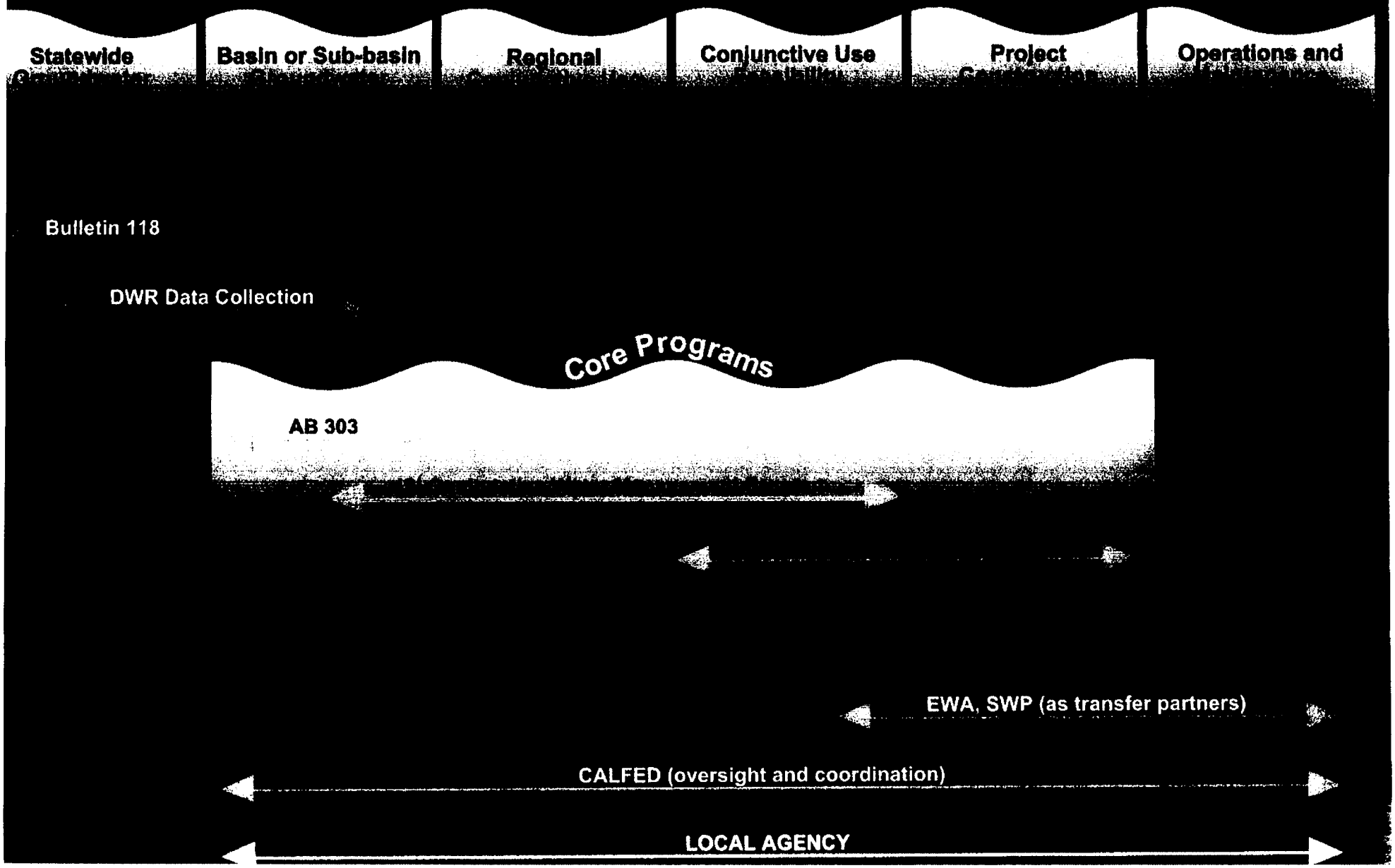
The USBR completed an Appraisal Assessment on the potential for enlarging Shasta Dam and Reservoir. Three enlargement sizes were studied to illustrate the potential costs, technical issues, and impacts associated with raising the height of the dam to provide additional water storage.

Based on the results of this assessment, USBR concluded that a 6.5-foot raise costing about $122 million, including mitigation measures, has the least unit cost for storage - about $420 per acre-foot, minimizes both environmental and socio economic impacts, and warrants further study.

A detailed work plan is being developed by USBR and DWR for this program to outline the feasibility study activities for the Shasta Dam enlargement and its relationship with the Sites reservoir.

The impacts of relocating transportation routes, recreational facilities, and communities are being studied. Detailed topographic surveys are being conducted to assess the impacts on existing facilities.

# Overview of Groundwater Management and Conjunctive Use Programs



# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## *AGENDA – SPECIAL MEETING*

Mojave Water Agency
Board Room
22450 Headquarters Drive
Apple Valley, CA 92307

June 20, 2001
10:00 a.m.

1. CALL TO ORDER

2. INTRODUCTIONS

3. APPROVAL OF AGENDA

4. INTRODUCTION OF REPRESENTATIVES FROM SARACINO-KIRBY-SNOW, THE CONSULTANT TEAM SELECTED TO ASSIST MWA WITH UPDATE OF THE REGIONAL WATER MANAGEMENT PLAN (RWMP)

5. IDENTIFICATION OF THE BASIC REASONS TO UPDATE THE RWMP

6. ORGANIZATION OF THE TAC TO FUNCTION AS THE BASIN ADVISORY PANEL FOR THE RWMP UPDATE

7. IDENTIFICATION OF THE KEY STAKEHOLDERS NOT REPRESENTED BY THE TAC

8. IDENTIFICATION OF KEY ISSUES THE RWMP UPDATE SHOULD ADDRESS

9. COORDINATION OF FUTURE ACTIVITY OF THE TAC IN RELATION TO THE RWMP UPDATE

10. ADJOURNMENT

11-2-01
TAC
minutes

# TECHNICAL ADVISORY COMMITTEE
# TO THE
# MOJAVE WATER AGENCY

## MINUTES – SPECIAL MEETING

**Mojave Water Agency**
**Board Room**
**22450 Headquarters Drive**
**Apple Valley, CA 92307**

**June 20, 2001**
**10:00 a.m.**

1. **CALL TO ORDER:** The meeting was called to order at 10:00 a.m.

2. **INTRODUCTIONS:** Introductions were made. Thirty visitors attended the meeting.

3. **APPROVAL OF AGENDA:** The agenda was approved as submitted.

4. **INTRODUCTION OF REPRESENTATIVES FROM SARACINO-KIRBY-SNOW, THE CONSULTANT TEAM SELECTED TO ASSIST MWA WITH UPDATE OF THE REGIONAL WATER MANAGEMENT PLAN (RWMP):** Mr. Brill stated that MWA adopted the Regional Water Management Plan in 1994, which was a valuable planning tool for the Agency and stakeholders. The intent was for the plan to be updated every five years following adoption. The Agency is now in the process of doing this update, particularly in light of the many changes that have taken place regionally and State-wide since 1994.

Mr. Brill introduced Glenn McPherson, a representative from the consulting team of Saracino-Kirby-Snow, the firm the Agency has hired, along with the Department of Water Resources Integrated Storage Investigations (DWR ISI) group, to carry out the update. He added that DWR is a co-funder in this effort. DWR feels that by helping local management agencies such as MWA in proper management facilities and programs, it helps the overall State water supply situation.

Mr. McPherson provided an overview of the plan update (a copy of the presentation will be included as an attachment to these minutes), indicating that the plan will yield region benefits, including:

- Building consensus among MWA stakeholders
- Enhance management of MWA's water resources and heighten the Agency's ability to work with the stakeholders to manage the resources
- Increase availability and reliability of water supply
- Develop financing options to implement alternatives

Four primary components in this process include technical, institutional, political, legal and financial aspects.

The consulting team wants to be sure that they are asking the right questions throughout the update process to assure success of the update, including:

- How and when can the overdraft be mitigated?
- How will long-term water demands be met?

- How can water quality be protected?
- How will land use changes affect water resources and financial planning of MWA?
- How can outside interests (partners) be integrated into the Plan?
- How can MWA's assets be used to financial advantage?

Mr. McPherson noted that the project team of Saracino-Kirby-Snow does basin management. The update effort will include input from Psomas Engineering for civil and agricultural engineering; James Goodrich, who will be working with political and institutional issues; Peer Swan, who will provide input as to financial alternatives; and Susan Trager for input on legal issues. He referenced his firm's mission, which is to promote sound water resource management through effective use of technical information and scientific data in the development of water resources policy and programs. The firm is well known throughout the State for water resources planning, and the real impetus of the firm is to be sure they are utilizing technology and scientific data to its maximum extent in assisting in water policy development, which is their core purpose. The firm has been active in the CALFED process, the Conjunctive Use Program, and the Water Management Strategy Program, working on data handling and policy setting for the entire State as relates to the CALFED process. They are also involved with DWR on implementation of the CALFED process, as well as the DWR ISI program to enhance understanding of groundwater and surface water resources to integrate a program to maximize them.

Throughout the update process, his firm will be conducting stakeholder outreach, public workshops and education, data management, financial planning, and project engineering. He looks forward to working with everyone.

## 5. IDENTIFICATION OF THE BASIC REASONS TO UPDATE THE RWMP

Mr. Brill stated that a transition from agricultural to municipal and industrial use is being experienced currently, in large part due to growth coming into the region and the resulting need for increased water supply. There is also increased demand in some of the outlying areas away from the Mojave River, and potential regulatory pressures resulting from water quality standards that could have significant impacts. Many changes have also occurred as to California water supply, partly due to overall population growth. Since 1993-94, there is a heightened awareness relating to environmental issues relating to the Sacramento Delta, which is essentially competition for State Water Project water coming from the aqueduct, much of which flows through the Delta. There has been concern that there is not enough water supply for habitat, which directly impacts this region. In the last several years, and as a result of the State's reluctance to address challenges through additional surface storage, there has been a shift of focus from surface storage projects to groundwater storage projects. There have also been potential changes to the State Water Project (SWP) as to the Monterey agreement, which allowed the State Water Contractors (SWC) to make more efficient use of entitlement. This has been called into question as a result of a recent lawsuit. Also, there is potential legislation through the State as to approved development and adequate water supply for development. These are all drivers for the Agency to update the RWMP. Additionally, there is new census data which provides the tools needed to project future demand of water supply.

Mr. Brill noted that the update will be done in a three-phase approach. In Phase I, the current phase, the Agency will make a current assessment and preliminary scope to identify and select alternatives for consideration in the Plan update. The Agency plans to obtain ideas from the stakeholders to help the Agency assure a long-term water supply for the beneficial users. Data will be compiled for basic water supply and demand to assist in the scoping. Phase II will involve taking everything collected under Phase I and doing a more detailed evaluation, assessing pros and cons and costs and benefits, resulting in a short list of a combination of facilities and management responses the Agency might undertake. In Phase III, the Agency anticipates the potential of environmental documentation that will likely be necessary.

Mr. McPherson stated that the interaction with the stakeholders is a primary concern to MWA and to DWR. His firm hopes to build trust and confidence among the stakeholders that the management plan being developed does reflect input from throughout the entire region. They will need to develop principals of project implementation so that those projects being discussed and developed meet a common set of goals for the Agency and for the region. Information will be gathered and project alternatives will be formulated. Data management is key to putting this together. Many agencies have compiled information, and the key is to obtain that data and put it in a form that can be used now and in the future. This information will be assembled in an electronic database, which will be able to be used in the future to look for various types of information, and which will eventually be able to be shared among the stakeholders throughout the Mojave region.

The consulting team will be looking at water planning and demand forecasting, including demands for agriculture, municipal, and industry, and economically feasible conservation as different types of demands. In the past, demand forecasting has been done by looking at population and a historical mix of agricultural and urban demand, projecting it into the future by assuming population increases. With disaggregate forecasting methods, they can review each one of the components of land planning and project on an individual basis, which allows forecasting to be much more specific. To do this, they plan to use the IWR-MAIN model that provides a tool for demand forecasting for years to come.

The consulting team will develop alternatives concurrently while identifying key issues for the plan, which is assisted through stakeholder input. Preliminary results from the statewide economic optimization model (CALVIN) identify the Mojave area as a very economically viable area to do water banking as part of the overall State handling of water supply.

In summary, coming out of Phase I there will be an organized database, which should ultimately be available on the internet. A key component is the integrated process with the stakeholders, which will extend into Phases II and III. The scoping report, which should be out in late October 2001, will contain key issues for consideration as the plan update moves ahead, identifying promising plan alternatives that would provide benefits for the area and management principals and criteria.

## 6. ORGANIZATION OF THE TAC TO FUNCTION AS THE BASIN ADVISORY PANEL FOR THE RWMP UPDATE

## 7. IDENTIFICATION OF THE KEY STAKEHOLDERS NOT REPRESENTED BY THE TAC

Mr. Brill noted that TAC participation is very important in the first phase since more aggressive stakeholder outreach will be done in this phase. He also envisions meetings with individual stakeholders, particularly at the beginning of this process.

The Agency would like to have the TAC serve as a basin advisory panel due to its past value to the Agency and the historical relationship with MWA in relation to water supply issues. At a meeting of the TAC on April 4, the members agreed to participate in this capacity. It is important for MWA to have this support; DWR felt that it would be important for the Agency to have this commitment by the TAC that includes community interest as part of the criteria for DWR to supply funding. The TAC's purpose in this plan update is to provide a valuable tool for different types of stakeholders to communicate and work with MWA in developing this plan and promoting conjunctive use types of alternatives. Mr. Brill noted that the Agency wants to have representation from several key stakeholder groups, with a core group of approximately 20-25. He anticipates meetings about five times for the Phase I scoping process through the end of October. This panel would hopefully also assist in development of the scope for Phases II and III.

Mr. Clarke noted that this is a very important project, and a commitment that needs to be followed throughout the entire RWMP update process, which will be ongoing through 2002 to 2003.

A question and answer period took place. Don Songer asked if domestic well owners includes stipulating and non-stipulating well owners. Mr. Caouette responded that is the intent that both groups be represented.

Reg Adams, Pinon Hills, suggested that future power plants use the dry cooling process.

Tom Bilhorn, a consultant with the Department of Fish and Game, questioned how specific the Plan update will be compared to the current plan. He also believes it is important that it be clearly stated that this is an MWA plan, not a plan for the Watermaster and the stipulating parties. Mr. Brill stated that they are planning to be specific as to management responses and facilities. Phase II will be looking at specific facilities and conceptual cost benefit analyses. MWA wants this update to be a planning tool that launches directly into implementation of various management responses and facilities identified, allowing for a tool to have an accurate projection of the resources the Agency and stakeholders may need to implement what is identified in the Plan. Mr. Clarke added that he believes the Department of Fish and Game needs to be involved in environmental issues since the knowledge of the entire region would be very valuable.

Gary Ledford, Apple Valley resident, said he believes that somebody from the power plant community should be involved in this process. He also questions how the Agency's entitlement will be prioritized. Mr. Clarke responded that the update process will answer

many of these types of questions. He also agrees that there needs to be interest from the power generation community.

Mr. Brill suggested that there be a determination today of parties interested in providing representation for the core group.

## 8. IDENTIFICATION OF KEY ISSUES THE RWMP UPDATE SHOULD ADDRESS

Mr. Brill addressed the first issues of priority as follows, indicating that this is the focus of the upcoming process, with the intent being to see where we are now and to build on or delete from the following list:

- Water supply reliability
- Groundwater storage programs and storage agreements
- SWP entitlement allocation
- Supplemental water pricing and policy (Ordinance No. 9)
- Consumptive use
- Riparian habitat
- Water quality
- Monitoring programs
- Regional aquifer recharge
- New water supply facility needs (recharge, injection, direct use)
- Use of existing facility capacity by others
- Wastewater return flows and reclaimed water use
- Flood water storage
- Relationship of Mojave Basin Area Judgment to RWMP
- Changes to State law
- Other key issues to be identified through the stakeholder process

The next step in the process is as follows:

- Collect, review and organize current data
- Develop current and projected water demand estimates
- One on one meetings with key stakeholders
- Identify key issues for the plan
- Identify water management principals
- Develop preliminary plan alternatives
- Prepare draft scoping report
- Prepare final scoping report

TAC meetings will be held so that there is a purpose to meet. The second meeting will occur after data is collected and compiled so that there will be an opportunity to look at the data. Individual stakeholder outreach will take place in August. The plan is to compile input presented into a general format, with results brought back to the TAC for review. There will also be an opportunity for the TAC to meet after the draft scoping report has

been prepared, which will provide an opportunity for review, comment, and input.

Guy Patterson, representative from the City of Victorville, said he is pleased to see the update process beginning. He is also pleased to see the issue of wastewater treatment being addressed, since in the 1994 plan discharge was listed at 4.8 million gallons daily; currently, the rate is 8.5 million gallons daily, and in 2020 it is projected to be about 21 million gallons daily. He believes it will be critical to determine if we can continue to keep pumping that much water out of the ground, and to address alternatives. Additionally, he believes the issue of water conservation needs to be addressed, particularly in the developing cities. Developers are coming into the cities with plans for mini-parks, landscape maintenance districts, and greenbelts. A plan prepared by MWA with TAC support with justifications for efficient and sensible water use will help to enforce conservation efforts.

Paul Davis, member of the Oeste Subarea Advisory Committee, believes that water quality is a top issue. Mr. Clarke stated that Harold Singer, the Executive Officer for Lahontan, has committed that his agency will be involved in the stakeholder process. Hisam Baqai added that his agency looks forward to providing input to this process. They have many concerns with issues relating to chromium and arsenic, and that activities involving recharge, injection, and direct recharge are protective of water quality and conducive to the basin's needs.

Randy Hill, Victor Valley Water District General Manager, stated that as to water supply reliability and entitlement allocation, he would like to see emphasis on securing additional entitlement in addition to management of what MWA currently has. As to groundwater storage programs and storage agreements, there are two separate categories, including those done internally by entities within this area, and storage issues relating to parties outside this area storing water here. He believes these issues are separate and should be treated as such. He also believes that nitrate is a growing problem, which in his opinion is largely from failing septic systems, and which could threaten the groundwater supply. Another issue is that between water quality and water quantity, since as we bring in more water there is a higher salt content than what is in the basin. Salt loading issues are key and critical and need to be stressed under water quality. Another issue is the area of conservation, especially related to landscaping, as well as fixtures for existing water use. Another key area to be addressed is concern by many of the municipal and industrial producers in looking at the Judgment and insecurity about water rights with respect to future nonstipulating overlying users that may come into the basin and begin using water, who may have a higher water rate than the municipal users. Since this uncertainty makes it difficult to do long range planning, he would like to see this addressed.

Lee Pearl, General Manager for Hi-Desert Water District, said he believes that financial strategy and policy is key, and he hopes this update effort will invest time related to this issue. Mr. Brill confirmed that this has been identified as a critical element of the plan.

Mr. Brill thanked everyone for coming to today's meeting and for the input received, adding that the update process will work only with interaction and dialogue.

## 10. ADJOURNMENT

The meeting adjourned at 11:30 a.m.

Jack Clarke, Chairman

## 9. COORDINATION OF FUTURE ACTIVITY OF THE TAC IN RELATION TO THE RWMP UPDATE

Mr. Clarke called for volunteers to participate in the TAC advisory panel, listed as follows with indication of their representation.

Tom Bilhorn, Department of Fish and Game (he will verify his participation on this group with the Department)

Harold Singer and Hisam Baqai, Lahontan Regional Water Quality Control Board

Gary Ledford, development interests

Guy Patterson, City of Victorville

Jack Stonesifer, City of Adelanto

Don Bartz, Baldy Mesa Water District

Dan Gallagher and Linda Ellsworth, Victor Valley Water Reclamation Authority

Karen Gray, representing well owners in the Baja Subarea

Mike Podegracz, City of Hesperia

Paul Davis, El Mirage community

Chuck Bell, agricultural representative

Lee Pearl, Hi-Desert Water District

Guy Patterson suggested that a representative from San Bernardino County be involved.

Hisam Baqai suggested that a representative from the State health department also be involved. Mr. Clarke said he would address this. Mr. Songer suggested it be coordinated through the local Lahontan office.

Tom Bilhorn suggested that a military representative also serve on this group, perhaps the Yermo Marine Captain.

Perry Dahlstrom, representing interests at Nebo and the City of Barstow

Gary Thrasher, agriculture (Mr. Clarke will contact him)

Mr. Clarke suggested that MWA be contacted if anyone has ideas about anyone who might be a positive influence on this committee. He believes that this is an excellent start for looking at the future of water supply for this region.

## Technical Advisory Committee to the Mojave Water Agency

## Mojave Water Agency

**Regional Water Management Plan Update**
**Phase I**

## Thoughtful Crafting of the Plan Update Will Yield Benefits

- Build consensus among MWA stakeholders
- Enhance management of MWA's water resources

## A Successful Plan Must Address Four Primary Components

- Technical
  - Science and engineering
  - Data management
- Institutional/Political
  - MWA governance
- Legal

Stakeholder Outreach

## Answering the Right Questions Will Help Assure Success

- How & when can overdraft be mitigated?
- How will long-term water demands be met?
- How can water quality be protected?
- How will land use change [illegible]

## The Project Team Will Address all of the Necessary Components

- Saracino-Kirby-Snow: Basin Management
- Psomas Engineering: Civil & Ag Engineering
- [illegible]

## Saracino-Kirby-Snow
### Company Mission

To promote sound water resource management [illegible] effective use of [illegible] and [illegible]

- Our firm specializes in using technical information to influence policy formation [illegible]
- We believe a significant [illegible] often [illegible]

## Converting Information to Policy

- We have the experience and training to:
  - Convert data [illegible] effective [illegible]

## Wide Range of Services

- Technical assistance
  - Water supply yield and reliability
  - Reservoir [illegible]
  - Water quality
  - [illegible]
- [illegible]

## Our Experience Will Enable Us to Meet Plan Objectives

- CALFED Conjunctive Use Program and Water Management Strategy
- DWR Integrated [illegible] Investigations/[illegible] Development
- [illegible]

## The Team has the Strengths to Complete the Needed Tasks

- Stakeholder outreach
- Public workshops and education
- Data management [illegible]
- [illegible]
- [illegible]
- [illegible]

We look forward to working with you!

## Reasons to Update the RWMP

- Plan Adopted in 1994
- Changes in local water demands
  - [illegible]
  - [illegible]
  - [illegible]
- [illegible]

## Reasons to Update the RWMP

- Emphasis on groundwater storage (Conjunctive Use)
- Operational changes to State Water Project (Monterey Agreement)
- [illegible]
- [illegible]

## RWMP Update Process

- Three Phased Approach
  - Phase I
    - Current assessment and preliminary scope to identify, refine and [illegible] alternatives for RWMP Update [illegible]

## RWMP Update Process

  - Phase II
    - Prepare Draft Update assessing the alternatives identified in Phase I
  - Phase III
    - [illegible]

## Approach Promotes Understanding for Stakeholders

- Build trust and confidence among the stakeholders
- Develop principles for project implementation
- [illegible]

## Proper Data Management Facilitates Understanding

- Data will be assembled in a normalized electronic database
- We have developed database systems to manage [illegible] related information [illegible]

## Rigorous Methods are Available to Estimate Future Demand

- Disaggregate demand forecasts based on
  - Agricultural [illegible]
  - Municipal and industrial [illegible]
  - Domestic [illegible]

## Casting a Wide Net Can Produce Innovative Alternatives

- Developing alternatives will be done concurrently with identifying key issues for the plan
- We have extensive knowledge of activities and [illegible]
  - [illegible]

## Products from Phase I

- Organized data needed for future analysis in electronic form designed to facilitate [illegible]
- Demand [illegible] that can be used [illegible] studies
- [illegible]

## Products from Phase I

- The Scoping Report will contain:
  - Key issues to consider
  - Promising plan alternatives that provide [illegible]
  - [illegible]

## RWMP Update Process

- Focused now on Phase I
- TAC participation in all three phases
- Meetings with [illegible] stakeholders [illegible]

## TAC as Basin Advisory Panel

- Utilize the historical relationship between TAC and MWA and the knowledge of water supply issues represented by TAC
- TAC agreed to perform [illegible] capacity by voting [illegible]
- [illegible]

## TAC as Basin Advisory Panel

- Core group of 20 to 25 to represent:
  - MWA geographic areas
  - Agriculture
  - Domestic well owners
  - Municipal and industrial producers
  - Parties to the [illegible]
- [illegible]

## TAC as Basin Advisory Panel

- Meet about 5 times for Phase I scoping process (through end of October)
- Assist with development of scoping [illegible]
- [illegible]

## Our First Cut at Key Issues

- Water supply reliability
- Groundwater storage programs and storage agreements
- SWP [illegible]
- [illegible]

## Our First Cut at Key Issues

- Water quality
- Monitoring programs
- Regional aquifer [illegible]
- [illegible]
- [illegible]

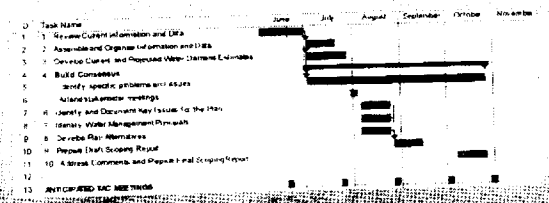
## Our First Cut at Key Issues

- Wastewater return flows and reclaimed water use
- Flood water storage
- Relationship of [illegible] Area [illegible]
- [illegible]

## What's Next?

- Collect, review, and organize current data
- Develop current and projected water demand estimates
- One on one meetings with stakeholders
- Identify [illegible]

## Anticipated TAC Meetings




## Questions

# APPENDIX F

## *The Panorama*

**A newsletter published by the Mojave Water Agency**

Mojave Water Agency

Volume 3, Issue 1

Winter 2003

# The Panorama

*A newsletter published by the Mojave Water Agency to provide the community a regional perspective on water issues affecting the High Desert*

## Mojave Water Agency Mission:

**To manage the region's water resources for the common benefit to assure stability in the sustained use by the citizens we serve.**

**Inside this issue:**


| | |
|---|---|
| MWA Works with New State Laws to Ensure Water Supplies | 1 |
| Message from the Manager | 2 |
| Regional Water Management Plan Moves through Phase II | 2 |
| MWA Moves to Secure Future Water Supplies Through Banking | 2 |
| Judge Kaiser Approves Ramp-down for Alto Basin | 3 |
| Mojave River Pipeline Completed to Daggett | 3 |
| Mojave River Pipeline Project Looks for Recharge Site in Newberry Springs Area | 3 |
| MWA Common Questions and Answers | 4 |


## MWA Works with New State Laws to Ensure Water Supplies

The critical link between water supply and responsible development has found its way into two new pieces of State law that will significantly affect how the High Desert grows.

Created by Senate Bills 221 and 610, the two laws require an assurance of adequate water supply before development can take place in a given area. They were passed in response to growing concern about the continued availability of water to accommodate population growth in California over the next 20 years and beyond.

As the caretaker and monitor of the High Desert's water supply, Mojave Water Agency will play a key role in the implementation of the two laws. The Agency will be called upon to provide an accounting of water resources in the High Desert - information that builders must provide under the two new laws.

General Manager Kirby Brill said SB 221 and SB 610 will be important in the Agency's ongoing goal of securing a long-term, balanced supply of water for the High Desert.

"Population growth is outstretching native water supply," Brill said. "Reversing that trend by importing more water is the key to ensuring the highest quality of life for future generations in the High Desert."

It was this same urgency on a Statewide level that spurred State lawmakers Sheila Kuehl and Jim Costa to draft SB 221 and SB 610, respectively.

SB 221 is expected to have the greatest initial impact on Southern California. It requires developers constructing subdivisions of 500 units or more to submit proof through written verification that a sufficient water supply will be available to serve the subdivisions before they can receive approvals to begin construction.

Previous laws required developers to disclose whether they had enough water, but allowed them to build regardless of whether they could document an adequate supply.

SB 221 would force California builders to prove water supply before building the first house.

SB 610 approaches the relationship between water supply and development from more of a macro perspective by requiring that water supply assurances are provided during the State's environmental review of a development project.

The law increases the consequences for urban water suppliers that do not submit and update their urban water management plan and demand water supply assessments for all projects under the California Environmental Quality Act (CEQA).

This law also requires planning agencies to contemplate water availability when projecting potential development in their General Plan. This includes a thorough description of water amount, location and projected pumping rights of water suppliers in the future.

SB 610 applies to residential developments of more than 500 dwelling units, proposed shopping centers or business establishments employing more than 1,000 people or more than 500,000 square feet of floor space, and proposed hotels or motels having more than 500 rooms. It also applies to a project that would demand an amount of water equal to or greater than the amount of water required to serve the project.

"These laws are proof positive that we cannot grow and prosper responsibly until we have addressed the issue of ensuring a safe and secure water supply for this region," says High Desert economic development and commercial real estate professional Joe Brady.

Fortunately, MWA has anticipated these pressures by supporting the Mojave River Basin Adjudication and other management strategies within its service area. According to Brill, "We have an assortment of assets that we are building into a water management portfolio to address these challenges. The Regional Water Management Plan will go a long way toward pulling it all together."

## Message from the Manager

Kirby Brill
General Manager

As many parts of our region experience growth, there is a growing concern about whether there will be enough water to support the needs of future generations. The issues we face here locally are not unique. The State looks at water resources all across California and expresses similar concerns. In response to a greater awareness of water issues, the State legislature is beginning to engage. SB 221 and SB 610 are just the start. Those and other pieces of new legislation indicate a growing interest by the legislature to ensure that growth throughout the State is supported by solid water resource management that balances supplies with long-term demands.

Fortunately, our region is blessed with several assets that put us in an excellent position to meet the challenges ahead. However, it will not be easy or painless. It will take a community working together to build a portfolio of actions and policies that, when combined together, will form a solid platform from which growth can prosper.

In the Mojave River Basin, our assets start with the Mojave Basin Area Judgment. Although controversial in its inception and implementation, it represents exactly the kind of structure the new State laws are now requiring. The underpinnings of the Judgment leverage our other key asset—our ability to access water from the California Aqueduct. As rampdown progresses, we will begin to realize a revenue source to buy water from the State Water Project in significant quantities in an attempt to arrest the overdraft and achieve that long-term balance between water supply and demand. Without rampdown, we will continue to watch available water run by us while we continue to mine our aquifers. It will be difficult, if not impossible, to provide those sought after assurances.

Our region is also blessed with a unique ability to store large amounts of water underground so that we can accumulate imported water in times of surplus to withstand the inevitable shortages that come in times of drought.

Combine these and other assets into a diverse portfolio and I have significant reason to be optimistic. But again, it won't come easy. We can meet these challenges through prudent planning, aggressive action, communication and cooperation.

## Regional Water Management Plan Moves through Phase II

The second phase of a comprehensive planning effort to map out the desert's future water needs and how to meet them is now well under way. Under Phase II of the Regional Water Management Plan update, MWA is now evaluating and screening potential water delivery projects. Phase II will also involve prioritizing which potential projects will be pursued.

Jointly developed by MWA, Federal and State regulators, and High Desert stakeholders, the Plan will help address the future growth of our region by focusing on increasing the availability and reliability of ground and surface water resources.

As with Phase II of the Regional Water Management Plan update, the Agency will be assisted in Phase II by input from its constituents. The MWA Technical Advisory Committee, made up of various community representatives, has been key to the Agency's efforts to reach out to High Desert stakeholders in developing the Plan update.

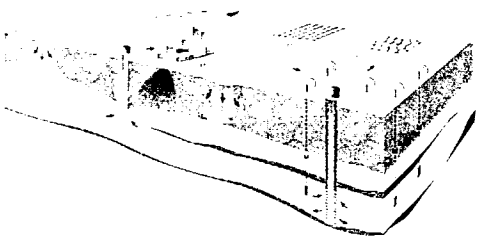
"The collective input we receive has and will continue to provide an important insight into the direction of our projects and the demand that we can expect to see in the near future," said Agency General Manager Kirby Brill. "It is crucial that we continue working together to ensure future success."

If members of the community would like to engage in the process, it's not too late. The Technical Advisory Committee will continue to meet regularly approximately every month through the completion of Phase II, which is expected to conclude in May. The Agency is also planning on several public meetings in different communities to solicit input on the preliminary conclusion of Phase II. The meetings are expected to occur in April.

## MWA Moves to Secure Future Water Supplies Through Banking

On February 13, the Board of Directors made another significant step toward securing adequate water supplies for the region by approving the purchase of 7,700 acre-feet of imported water for "banking" and adopting guidelines for groundwater banking. The imported water will be stored in underground aquifers throughout the region to meet future demands.

The purpose of the actions is to guide the Agency in determining where water will be "banked". The Agency defines "water banking" as the purchase of imported State Water Project water for storage in the various groundwater basins within Agency boundaries for future use. This water is in excess to the annual water demand that the Agency is/will be required to meet under the various current and future water supply obligations of the Agency .



In preparation of implementing the banking program, the MWA established a fund to purchase water for storage in the groundwater basins within the Agency. The funds will be used to purchase water when the Agency determines that water is readily available from the State Water Project, there is sufficient capacity in the MWA system to deliver the water, and the cost of the water is reasonable.

MWA staff will seek approval from the Board of Directors prior to making purchases under these interim guidelines.

Groundwater banking will become one of the most important tools MWA will use to ensure that there is enough water for future generations. The Agency's Regional Water Management Plan update will identify other specific actions to complement the banking program and add to the portfolio.

## Judge Kaiser Approves Rampdown for Alto Basin

After more than four years of delays and numerous requests by the Mojave Basin Area Watermaster, Superior Court Judge E. Michael Kaiser has ruled to proceed with additional rampdown in the Alto sub-basin (Victor Valley area).

Rampdown is the primary mechanism under the Mojave River Basin Adjudication that allows groundwater production rights to be brought into balance with the natural water supply from our local mountains. Without rampdown, many of the groundwater basins will continue to be in overdraft, threatening the long-term stability of our precious water resources.

When the Judgment was first implemented, groundwater pumpers were initially allowed to continue pumping at levels prior to the Judgment. Although pumping at these high levels continued to withdraw groundwater at rates exceeding the natural local supply, it was understood and agreed upon through a series of five percent rampdowns that those production rights would eventually be reduced to equal the natural supply. Those wishing to produce more than their rights could either transfer rights from other production right holders or pay a replacement assessment that would fund the purchase of imported water from the aqueduct. In this way imported water will be purchased to eliminate the overdraft and balance supply with demands, thus securing future supplies for all water users.

The terms of the Judgment clearly state that the Watermaster must recommend a five percent rampdown if the available production rights exceed the average natural supply by more than five percent. The Judgment contains provisions for four such rampdowns, which were concluded in 1998. Those actions brought about a reduction of pumping rights in all basins from 100 percent to eighty percent.

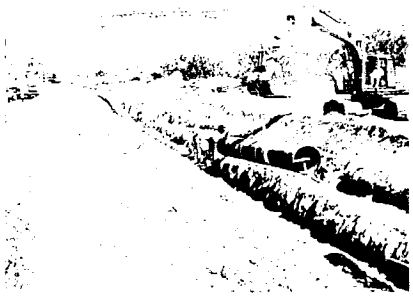
Then, after eliminating several significant legal threats to the Judgment (see last issue), the Watermaster submitted its third additional recommendation for rampdown. This time the request was limited to the Alto and Baja (Daggett and Newberry Springs area) subareas. Other sub-areas were considered close enough to being in balance that rampdown was not warranted. Both the Alto and Baja groundwater basins remain in severe overdraft even after rampdowns are to eighty percent.

In a show of united support, the majority of groundwater pumpers and many municipal interests in the Alto subarea wrote letters to Judge Kaiser expressing the importance of a balanced water supply to the local community. Judge Kaiser clearly acknowledged these voices from the community.

Alternately, significant opposition was expressed against the rampdown motion for Baja. As a result, Judge Kaiser ruled for rampdown in Alto and deferred action in Baja. Clearly, the Judge's action will pave the way for importation of water and a balanced long-term water supply in the Alto subarea. The fate of water supplies in the Baja area remains uncertain.

## Mojave River Pipeline Completed to Daggett

Construction of Reach 3D/E of the Mojave River Pipeline has been completed to the Daggett / Yermo Recharge Facility located on the south side of the Mojave River, approximately one mile west of Daggett Road. Reach 3D/E is the latest in a series of segments of the Mojave River Pipeline Project to be completed, and it will enable the Agency to deliver up to 56 acre-feet per day of imported State Water Project water to the upper Baja sub-basin. Baldi Brothers Construction of Beaumont, California is the prime contractor for the project.

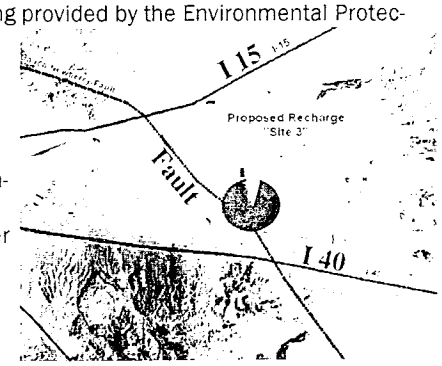


Construction began in September, 2002 on the northeast side of the I-15 undercrossing at Soap Mine Road and included installation of 34,000 feet of 36-inch diameter, cement mortar-lined and coated steel pipe manufactured by Northwest Pipe Company at their Adelanto plant. The project also included construction of the Daggett / Yermo Recharge Facility, which provides flow control to the Mojave River outlet. A portion of the historic Daggett Ditch is utilized to convey water from the flow control building to the river outlet. The pipeline crosses the Mojave River just west of the Nebo Marine Base and travels east along the BNSF railroad to the Daggett / Yermo recharge site.

## Mojave River Pipeline Project Looks for Recharge Site in Newberry Springs

The Mojave River Pipeline Project which began construction in 1994 is nearing the end of its journey. It's taken nine years, millions of dollars spent, and countless construction hours, but by 2006 this life-giving water line will be able to serve the Baja Lower Mojave River area. Mojave Water Agency will complete the first of the two part construction phases for the fourth and final segment of the pipeline. The first pipeline segment is approximately seven miles in length and travels between Daggett Road and the Daggett/ Yermo Airport. The construction of this segment will be completed by the end of 2003.

The second pipeline segment will be approximately 12 miles in length, ending in the Lower Mojave River Basin near the Newberry Springs area. The exact location for the groundwater recharge site is presently being studied by the agency's hydrogeology staff and will involve input from local stakeholders, subsurface investigations, and environmental assessments prior to the final selection of the site. The basin will be located downstream of the Calico-Newberry seismic fault and will be able to annually deliver up to 6,000 acre-feet of State Water Project water to the area for groundwater recharge. The total cost of the remaining work is $8 million, with funds being provided by the Environmental Protection Agency, State of California, and MWA. When completed, the Mojave River Pipeline Project will serve the people and the environment along the river, bringing imported water to areas where overdraft conditions exist.



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**MWA Board of Directors**

George Parker Jim Ventura Richard Hall Mike Page Scott Weldy Beverly Lowry Dick Fortyune

# *Mojave Water Agency's "Panorama"*

*A newsletter published by the Mojave Water Agency to provide the community a regional perspective on water issues affecting the High Desert*

## Common Questions and Answers Relating to MWA

Q: What does the MWA do for us?

A: Since 1991 the MWA has been regularly importing water from the California Aqueduct to recharge the groundwater basins, from which local water companies and other well owners derive water for all uses: domestic, agricultural, industrial and recreational. By importing state water, and managing the native supply, MWA ensures a stable and secure water supply—the key to economic growth in our region and the highest quality of life for residents of the desert region.

Q: Where do we get our water from?

A: The area has traditionally been dependent on groundwater retrieved by wells for all its water supply. Water demands are met by pumping water from groundwater basins, or aquifers. The water originates in the San Bernardino and San Gabriel Mountains, where rain and snow run off into the underlying groundwater basins. As a State Water Contractor, the MWA can also import supplemental water from the California Aqueduct.

Q: How do I go about drilling a well?

A: Obtain or contact a C-57 licensed well driller. A list of C-57 licensed well drillers can be obtained from the San Bernardino County Department of Environmental Health Services (SB EHS) at (909) 387-4666, or in the yellow pages under "Water Well Drilling".

Q: Do I need a permit in order to drill a well?

A: Yes, the well driller is responsible for pulling the well permit with the SB EHS. Upon obtaining a well permit, the Mojave Water Agency receives a copy of the permit via facsimile from the SB EHS.

Q: Will I have to install a meter on my well?

A: As of yet, no.

# APPENDIX G

## A Resolution of the Board of Directors of the Mojave Water Agency Approving the Mojave Water Agency Regional Water Management Plan

**RESOLUTION NO.**
**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE MOJAVE WATER AGENCY APPROVING THE MOJAVE WATER AGENCY 2004 REGIONAL WATER MANAGEMENT PLAN**

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

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

WHEREAS, Subsection (1) of Section 15 (b) of said Chapter 97 empowers the Agency "To make surveys and investigation of the water supply and resources of the agency, to gather data on water use, to plan water projects and to publish and distribute reports thereof."; and,

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

WHEREAS, in December of 1991, the Agency began preparation of a Regional Water Management Plan (RWMP); and,

WHEREAS, a number of "Alternative Management Strategies" were developed as a step in the RWMP process to address the water supply and water demand issues identified within the Agency, and said Alternatives were presented for review and discussion to the Technical Advisory Committee to the Mojave Water Agency and the general public at several public meetings throughout the Agency; and,

WHEREAS, said Alternative Management Strategies and the public comments received were considered during development of a Draft RWMP, and during 2003 and 2004 the Draft RWMP was again presented to the Technical Advisory Committee to the Mojave Water Agency and to the general public at several public meetings throughout the Agency for review and comment as to both the recommendations in the RWMP which should be reviewed in association with the recommendations in the RWMP; and,

WHEREAS, the Draft RWMP was further reviewed in the context of the comments received and was redrafted and formally released for review and comment by the Agency in 2004; and,

WHEREAS, written responses to comments received by the Agency on the Draft RWMP were prepared and provided to the Board of Directors and duly considered; and,

WHEREAS, the Programmatic Environmental Impact Report for the RWMP was circulated for public review and certified by the Mojave Water Agency Board of Directors on XXX, 2004.

NOW, THEREFORE, BE IT RESOLVED by the Mojave Water Agency Board of Directors that the Regional Water Management Plan prepared by Schlumberger Water Services dated XXX 2004, the staff report and recommendations to the Board of Directors dated XXX, 2004, are hereby adopted by the Agency to describe management programs which the Agency can perform as authorized by Chapter 97 of Appendices to the Water Code.

ADOPTED:_____

_____
Richard Hall
President

ATTEST:

_____

Secretary

# APPENDIX H

## EXISTING MONITORING PROTOCOLS

# EXISTING MONITORING PROTOCOLS

## Introduction

This appendix discusses existing monitoring protocols that have been adopted by the Mojave Water Agency (MWA) for general monitoring activity and to monitor compliance with the Mojave Basin Area Judgment and the Warren Valley Judgment. This information supplements the information on existing and proposed monitoring activities presented in Chapter 10. Senate Bill 1938 (S.B. 1938) states, "the local agency shall adopt monitoring protocols that are designed to detect changes" in:

- Groundwater levels
- Groundwater quality
- Inelastic land surface subsidence
- The flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin.

These protocols "shall be designed to generate information that promotes efficient and effective groundwater management." The following sections describe current monitoring activities in the Mojave Basin Area and in the Morongo Basin/Johnson Valley Area.

## Mojave Basin Area

In the Mojave Basin Area, much of the monitoring required by S.B. 1938 is conducted by Agency and Watermaster staff. The MWA Board acts as Watermaster for administration of the Mojave Basin Area Judgment. In addition, the Agency has engaged the U.S. Geological Survey (USGS) in a cooperative water resources program by which the USGS performs monitoring activities in the MWA service area.

## Mojave Basin Area Watermaster

By order of the Mojave Basin Area Judgment, the Mojave Basin Area Watermaster performs monitoring to ensure that the mandates of the Judgment are enforced. Monitoring requirements are described in the Judgment After Trial (1996) and in the Mojave Basin Area Watermaster Annual Reports. The following is a summary of monitoring currently performed by the Watermaster.

## 1. Water Production and Verification

The Judgment requires that annual water production records be collected and verified by producers exceeding 10 acre-feet per year of production within each of the five subareas. These records are used to document water usage and to determine Replacement Water and Makeup Water Obligations.

In addition, MWA catalogues wells as part of the Minimal Producer Program. Minimal Producers are defined as those producers who have an annual production of less than 10 acre-feet and are not subject to the Judgment. MWA estimates total production by Minimal Producers in each subarea.

## 2. Replacement Water Tracking

If a producer's water production exceeds their Free Production Allowance (FPA) in any year the producer must either transfer unused FPA from a willing party or pay the Watermaster a Replacement Water Assessment. The Watermaster then has the responsibility to acquire Replacement Water to replace the overpumped amount. Typically, the Watermaster will pay the funds to the MWA to import State Water Project water to meet this Replacement Water obligation.

## 3. Mojave River Flow Data

The Watermaster uses Mojave river flow data provided by USGS as part of the cooperative water resources program (see below). Mojave River flows are estimated at the following locations:

*Forks:* Total flow at the Forks is measured by combining discharges measured for the West Fork of the Mojave River and for Deep Creek.

*Lower Narrows:* Lower Narrows flow is estimated from the Lower Narrows gage, at which flow measurements are taken on a weekly basis. The Watermaster makes a determination of how much of this flow is base flow and how much is storm flow. The method used to make this determination is described on page C-2 of the Judgment.

*Alto/Centro Boundary:* Because there is no gage at the Alto to Centro boundary, the Judgment requires that the "Transition Zone" water levels be maintained sufficient to transport water from the gage to the Centro Subarea.

*Barstow:* Flow records are taken from the Barstow gage.

*Afton*: Flow records are taken from the Afton Canyon gage.

**4. Precipitation**

The Watermaster utilizes precipitation data complied from records obtained by the National Oceanographic and Atmospheric Administration (NOAA) at Lake Arrowhead, Victorville, and Barstow.

The Watermaster's hydrological inventory includes estimates for deep percolation of percolation for Alto and Baja. These values do not change from year to year and are equal to the following values, which are the same as contained in the sample table in the Judgment:

Alto: 3,500 acre-feet/year
Baja: 100 acre-feet/year

**5. Victor Valley Wastewater Reclamation Authority (VVWRA) discharges**

VVWRA provides the Watermaster with records of discharge of reclaimed water into the Mojave River in the Transition Zone.

**6. Subsurface Flow**

The Watermaster's hydrogeologic inventory includes estimates for subsurface flow between subareas. These values do not change from year to year and are equal to the following values, which are the same as contained in the sample table in the Judgment:

| | |
|---|---|
| Este to Alto: | 200 acre-feet/year |
| Oeste to Alto: | 800 acre-feet/year |
| Alto to Centro: | 2,000 acre-feet/year* |
| Centro to Baja: | 1,200 acre-feet/year |
| Baja to Afton: | 400 acre-feeet/year |

*The Alto to Centro obligation is for the sum of surface and subsurface flows and VVVWRA wastewater discharge to the Mojave River.

**7. Makeup Water**

Both average and minimum annual surface and subsurface flows must be maintained between Alto and Centro. Each year, the Watermaster estimates the total flow between these subareas. If the amount is less than the minimum amount required by the Judgment, the producers in the upstream Alto Subarea

must pay the Watermaster for makeup water to be delivered to the downstream subarea. Either, the Watermaster will pay the MWA to import State Water Project water to meet this Makeup Water obligation or the parties in the Alto Subarea can purchase available FPA in the Centro Subarea to meet the obligation.

The flow measured between subareas includes both surface water and groundwater flows. For the flow from Alto to Centro, the flow equals the subsurface flow plus the Mojave River base flow plus the VVWRA wastewater discharge into the Mojave River.

**8. Wastewater Imports**

The Watermaster records the amount of reclaimed wastewater imported into MWA from Lake Arrowhead Community Services District and Big Bear Area Regional Wastewater Agency.

**9. State Water Project Imports**

The Watermaster records the amount of State Water Project imported by month. This water is categorized by subarea and also by whether it is makeup water, replacement water, or water delivered to other MWA customers.

**10. Groundwater Levels**

Groundwater levels were established in Exhibit H of the Judgment for key wells to monitor water levels for riparian habitat in the Mojave River floodplain. These wells, and their associated groundwater levels as measured from the ground surface to standing water are:

- wells H1-1 and H1-2 in the Victorville/Alto Zone (upper Narrows area) are to be maintained at 7 feet
- well H2-1 in the Lower Narrows/Transition zone is to be maintained at 10 feet
- well H3-1 in the Harvard/Eastern Baja Riparian Forest Habitat (Camp Cady area) is to be maintained at 7 feet. Well H3-2, also in the Camp Cady area, is to be maintained at 1 foot above ground surface to ensure adequate surface water habitat.

Of these wells, only H3-1 has been installed; other monitoring is accomplished using surrogate wells or gauging stations.[1] MWA is continuing to work with Department of Fish and Game to select the well sites.

The Judgment also requires the MWA to establish appropriate well levels in the "Transition Zone." A hydrogeologic study has been completed for the area. Some existing key wells were identified for this purpose. Areas where new key wells need to be established were also identified.

**11. Ungaged Surface Water Inflows**

The Watermaster's hydrogeologic inventory includes estimates of ungaged inflow into each subarea. These values do not change from year to year and are equal to the following values, which are the same as contained in the sample table in the Judgment:

Este: 1,700 acre-feet/year
Oeste: 1,500 acre-feet/year
Alto: 3,600 acre-feet/year
Baja: 400 acre-feet/year

**12. Consumptive Use**

The Watermaster estimates agricultural, urban, and phreatophyte consumptive use for each subarea. Phreatophyte consumptive use is estimated from annual aerial photography and a 1995 study completed by the USGS and California Department of Fish and Game. Agricultural and urban consumptive use is estimated using the records of annual verified production and minimal producer production and the following consumptive use rates, which are specified on page F-1 of the Judgment:

| | |
|---|---|
| Municipal: | 50% |
| Agriculture: | 50% |
| Industrial: | case by case |
| Lakes or Aquaculture: | surface acres x 7 feet |

## U.S. Geological Survey

[1] Personal communication with L. Eckhart, November 26, 2003

As part of a cooperative water services program between MWA and USGS, the USGS performs monitoring of groundwater levels, groundwater quality, surface water flows, and regional water level changes and subsidence. Each of these is described below.

## Groundwater Levels and Water Quality

The USGS has 121 monitoring wells within the Mojave Basin Area from which it takes water level and water quality samples. These are categorized as follows:

- 53 annual water level wells
- 46 semi-annual water level wells
- 2 recorder wells
- 65 water quality wells

Water quality samples are collected once a year from the 23 water quality wells located in the Floodplain Aquifer and once every two years in the 42 water quality wells located in the Regional Aquifer.

## Surface Water Monitoring

The USGS operates and maintains the following gaging stations on the Mojave River:

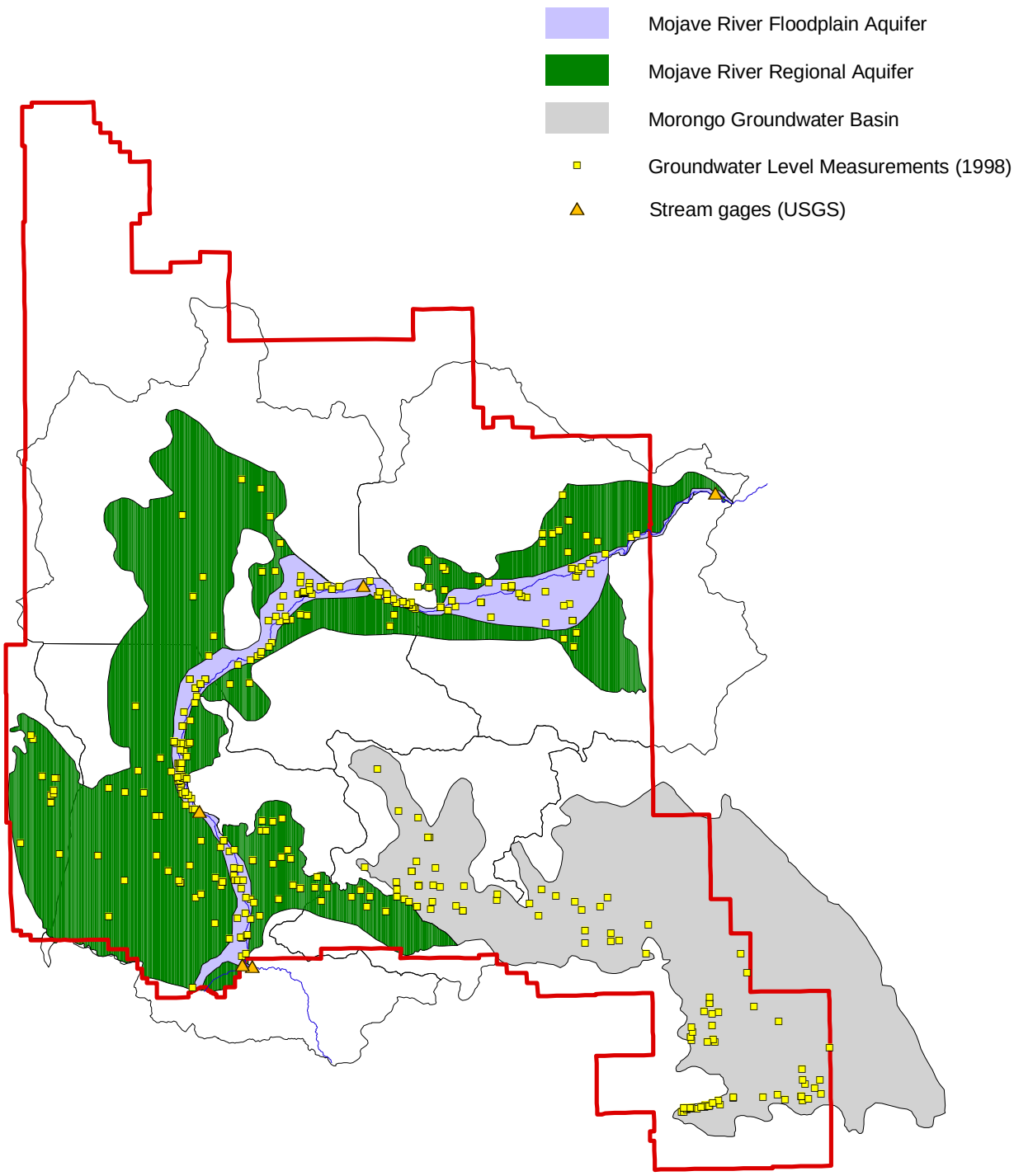
- Deep Creek near Hesperia
- West Fork near Hesperia
- Mojave River at Lower Narrows near Victorville
- Mojave River near Barstow
- Mojave River at Afton

Flows from these gaging stations are used by the Mojave Basin Area Watermaster to determine annual water balances within each subarea (see above).

## Regional Water Level Changes and Land Subsidence

The U.S. Geological Survey (USGS) performed a study of land subsidence in the following four study areas using Interferometric Synthetic Aperture Radar (InSAR) methods (Sneed et al. 2003):

- El Mirage area (Oeste)
- Lockhart-Harper Lake area (Centro)
- Newberry Springs area (Baja)
- Lucerne Valley area (Este)




Schlumberger Water Services

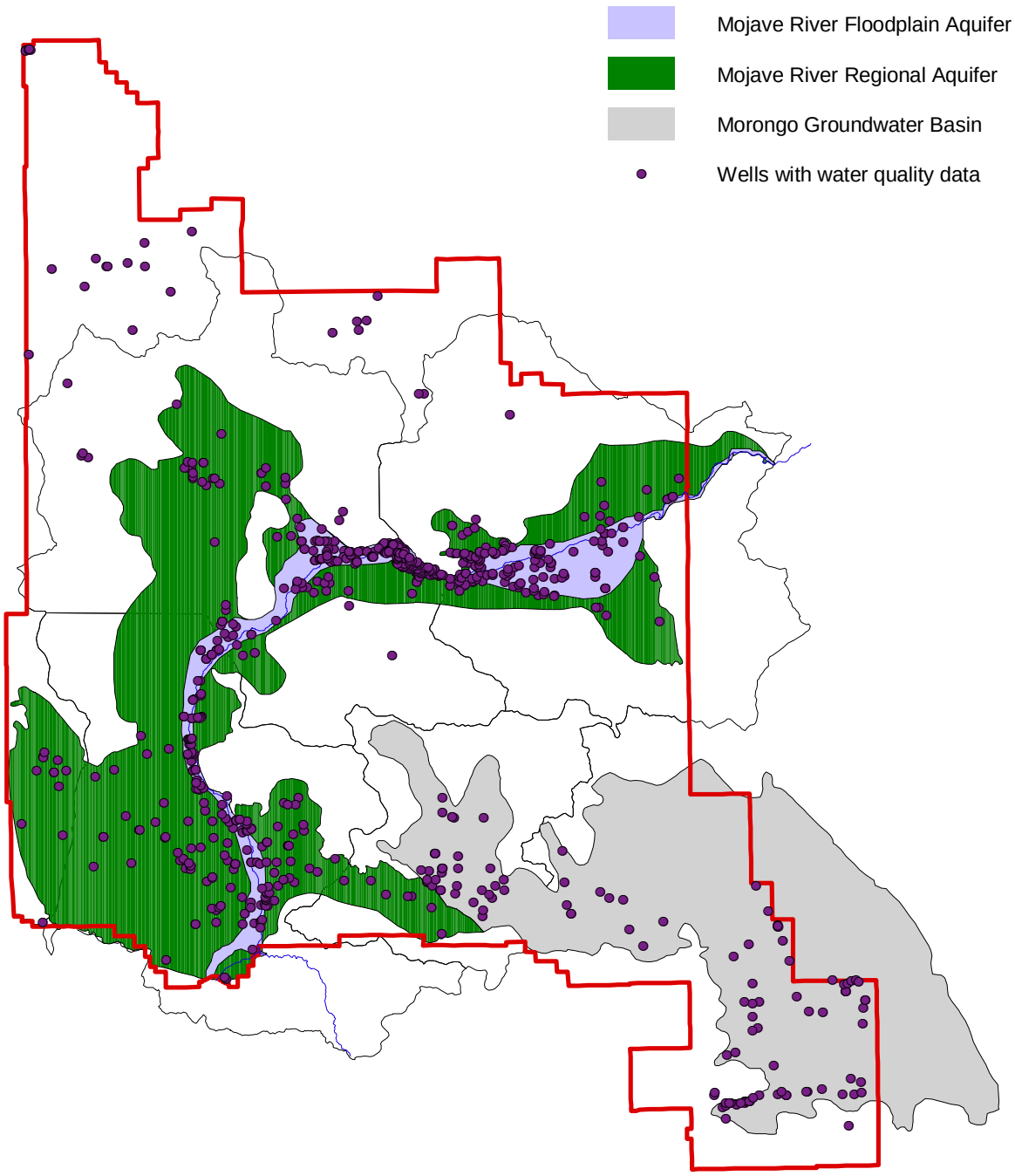
# Groundwater/ Surface Water Monitoring Sites

Mojave Water Agency
2004 Regional Water Management Plan

Figure H-1

Date: February 2004

Prepared By: KTW




Schlumberger Water Services

**Groundwater Quality Monitoring Sites**

Mojave Water Agency
2004 Regional Water Management Plan

Figure H-2

Date: February 2004

Prepared By: KTW

## CIMIS Weather Stations

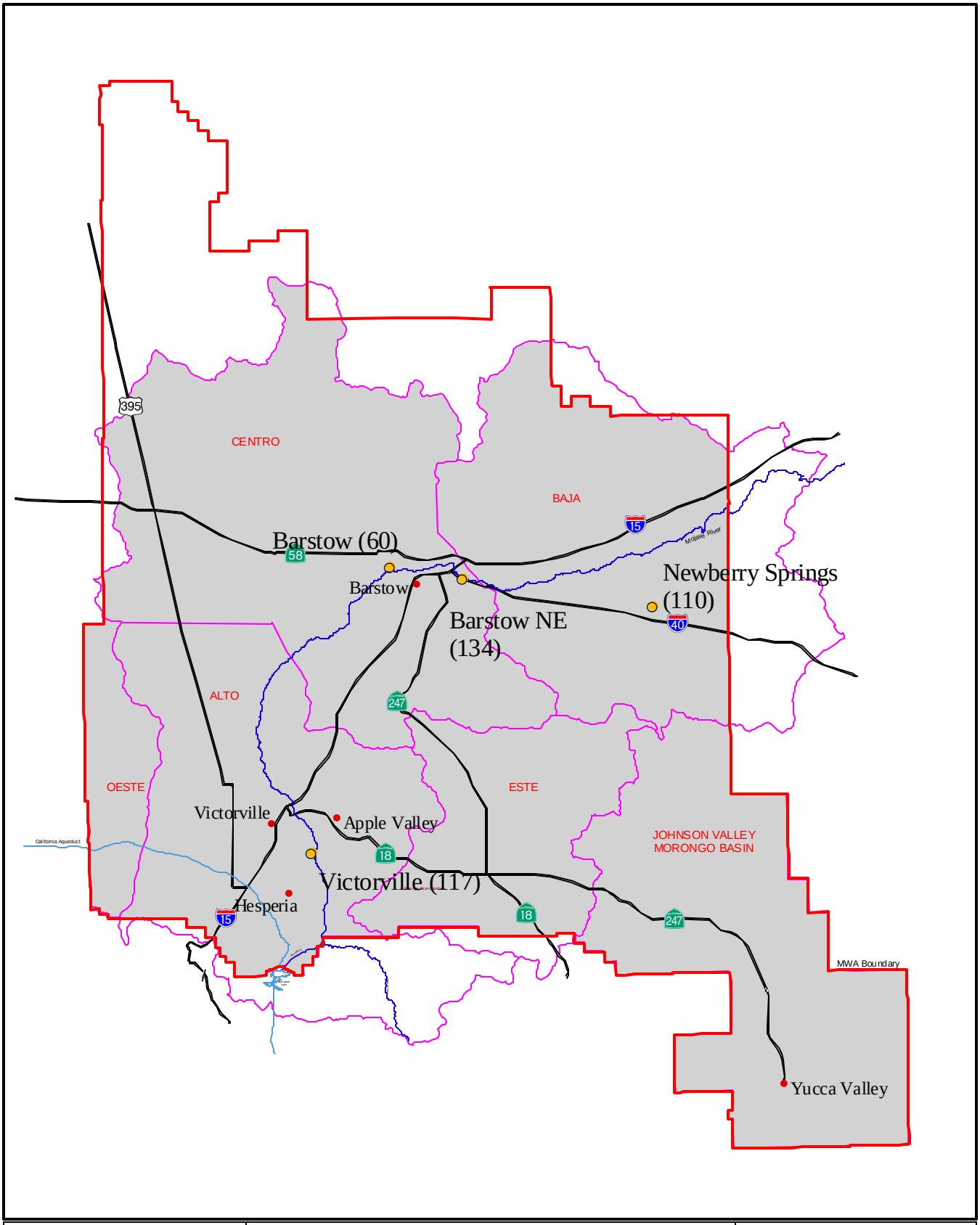
The California Irrigation Management Information System (CIMIS) is a repository of meteorological data collected throughout the State of California. CIMIS is an integrated network of over 100 computerized weather stations located at key agricultural and municipal sites within the state. Comprehensive and timely weather data are collected daily from each weather station. The data are automatically transmitted each night to a computer in Sacramento. Weather data are analyzed for accuracy and stored in the CIMIS database to provide on-demand, localized weather information.

Based on weather data, CIMIS can calculate estimates of the amount of water evaporated from the soil and the amount actually transpired by irrigated grass at the weather station site. Growers can then calculate the appropriate amounts of water to apply to their fields. The ultimate purpose of CIMIS is to encourage growers and turf managers to adopt and use water budget irrigation scheduling so that water is used as efficiently as possible.

CIMIS has operated four stations within the Mojave Water Agency boundaries; station 117 near the City of Victorville and station 134 near the City of Barstow are currently active. Two other stations have been active in the past in Barstow and at Newberry Springs. Locations of these CIMIS stations are shown in Figure H – 3. Data available on CIMIS stations is shown below in Table H – 1.

**Table H - 1 CIMIS Stations**

| Station #, name | County | Start | End |
|---|---|---|---|
| 60 - Barstow | San Bernardino | 20-Nov-86 | 20-Feb-92 |
| 110 - Newberry Springs | San Bernardino | 21-Feb-92 | 27-Dec-96 |
| 117 - Victorville | San Bernardino | 1-Feb-94 | ACTIVE |
| 134 - Barstow NE | San Bernardino | 8-Jan-97 | ACTIVE |




Schlumberger Water Services

# CIMIS Weather Station Locations

Mojave Water Agency
2004 Regional Water Management Plan

Figure H-3

Date: February 2004

Prepared By: KTW

Satellite images

SEBAL (Surface Energy Balance Algorithm for Land) is a new technology that uses data gathered by satellite-based sensors to compute the energy balance at the earth's surface. Evapotranspiration (ET) is predicted as a residual of the energy balance, without having to know crop or vegetation type, or other ground-based information, except routine weather data. ET is computed at the instant of the satellite image, and can be extrapolated to daily and monthly values for use in hydrologic investigations. The spatially discrete information generated by SEBAL supports water management innovation at the farm, district, river basin, national and international scales.

SEBAL is an image-processing model comprised of twenty-five computational steps that calculate ET flux and other energy exchanges at the earth's surface using digital image data collected by Landsat, MODIS, or other remote-sensing satellites measuring visible, near-infrared and thermal infrared radiation. Basically, ET is computed from an energy balance equation for each image pixel.

SEBAL is most applicable in situations where the magnitude and/or spatial distribution of consumptive depletion must be accurately estimated. From a water management perspective, these needs tend to emerge as river basins or groundwater basins approach closure, the condition where little or no potential remains to develop additional supplies, and attention focuses on managing consumptive depletion. MWA plans to use SEBAL as part of comprehensive basin modeling efforts.

Additional monitoring protocols developed as part of this Plan are presented in Chapter 10.

## Monitoring and Management Component Historical Background Data

This section provides a brief description of issues that pertain to particular aspects of the groundwater basins underlying the Mojave Water Agency. These aspects are described here or a reference to locate a more thorough discussion in another chapter is provided to avoid redundancy.

## Identification, Management, and Protection of Wellhead and Recharge Areas

The Mojave Water Agency does not currently have a plan for protection of wellhead and recharge areas. The Agency is developing a geographic information system and associated data that will suggest these activities.

## Well Abandonment and Destruction Program

The Mojave Water Agency does not have a specific well abandonment and destruction program that they administer. Rather, the Agency relies on the County of San Bernardino to provide policy guidance and regulation of well abandonment and destruction. The County has adopted standards contained in the California Water Well Book. The MWA provides information to the County regarding the location and status of abandoned wells identified in the field.

The destruction of abandoned groundwater wells should be performed in accordance with state standards. California Water Code Section 13750.5 requires that those responsible for the destruction of water wells possess a C-57 Water Well Contractor's License. Whenever a water well is destroyed, a report of completion must be filed with the California Department of Water Resources within 60 days of the completion of the work.

## Replenishment of Extracted Water

Water is extracted from the groundwater basins within the Mojave Water Agency's boundaries as the primary source of agricultural, municipal, and industrial water. These basins have been adjudicated in the Mojave Basin Area Judgment (previously described) and the Warren Valley Basin Judgment (also previously described). The management actions called for in the physical solutions to the adjudications are designed to reverse the declining groundwater basins and are described in Chapter 9, Basin Management Objectives and Alternatives.

## Monitoring Levels and Storage

The Mojave Water Agency, as well as many water purveyors and agencies with overlapping boundaries, monitor groundwater levels and estimate storage. A full discussion of past and present monitoring is provided in Chapter 3. A discussion of expected future monitoring is provided under the Monitoring Section in Chapter 10, Management Action Plan.

## Facilitating Conjunctive Use Operations

The Regional Water Management Plan published in 1994 was designed to provide facilities that would assist in accepting as much SWP entitlement as possible for percolation into the groundwater basin for storage and use. This Regional Water Management Plan Update continues to describe ways to maximize surface water use with groundwater replenishment to stabilize the Mojave Regional and Floodplain Aquifers. The projects and management actions that are described in Chapter 9, Basin Management Objectives, are designed to facilitate conjunctive use operations to the fullest. Please refer to Chapter 9 for a fuller discussion of these facilities.

## Well Construction Policies

The Mojave Water Agency does not have specific well construction policies that they administer. Rather, the Agency relies on the County of San Bernardino to provide policy guidance and regulation of well construction. The County has adopted standards contained in the California Water Well Book.

The construction of groundwater wells should be performed in accordance with state standards. California Water Code Section 13750.5 requires that those responsible for the construction of water wells possess a C-57 Water Well Contractor's License. Whenever a water well is constructed, the driller must file a report of completion, called the *Well Completion Report*, DWR 188, with the California Department of Water Resources (DWR) within 60 days after completion of the work. The MWA and the County have entered into an MOU providing that the County will inform the MWA of well construction or destruction permits issued within the MWA. The MWA is also the local entity responsible to provide and maintain state well numbers in cooperation with the DWR.

## Groundwater Cleanup

The Mojave Water Agency does not have groundwater cleanup programs, nor does it track contaminated sites. MWA currently relies on the County of San Bernardino Department of Health Services, and its programs to deal with any of these issues. The Department of Health Services in turn relies on the State programs to track identification and remediation of known groundwater contamination.

The Department of Toxic Substances Control (DTSC) is a part of the California Environmental Protection Agency (Cal EPA) and is responsible, among other programs, for dealing with improper hazardous waste management by overseeing site cleanups. As

part of their cleanup program, DTSC has prepared guidelines for the investigation, monitoring and remediation of groundwater at hazardous substance release sites. The California Integrated Waste Management Board enforces the minimum environmental standards imposed by the State Water Resources Control Board upon closed, illegal or abandoned disposal sites.

The Regional Water Quality Control Board maintains a *Site Cleanup List*. It incorporates data from the DTSC as well as the San Bernardino County Environmental Management Department's site inventory of hazardous material storage sites and underground storage tanks. The Regional Board's cleanup list shows sites that have degraded or threaten to degrade groundwater quality, including spill sites, above ground tank sites, and Department of Defense sites. The list is available to the public on the Internet. It is normally updated on a quarterly basis but has not been updated recently due to understaffing.

## Groundwater Protection

Groundwater is a vital resource for the Mojave area and must be diligently protected – both to maintain or improve quality and to ensure quantities are available to meet current and planned uses.

The general goal of groundwater protection activities is to maintain the groundwater and the aquifer in order to maintain a high quality supply available for use. Activities to meet this goal include continued and increased monitoring, data sharing, education and coordination with other departments and agencies that have local or regional authority or programs.

Efforts to protect groundwater quality can range in scale from protecting the entire watershed to protecting an individual well site. On the largest scale, an entire watershed can be managed in a way that protects the quality of groundwater and other natural resources within the watershed boundaries. In some cases, natural barriers may isolate aquifers from other regions in the watershed and groundwater protection efforts can be focused on the aquifers used for drinking water supplies. Wellhead protection and source water protection efforts involve protecting portions of the aquifer by protecting the land directly overlying well capture zones and areas of an aquifer that serve to recharge groundwater.

In the Mojave area, there are a number of efforts underway by a variety of entities that focus on groundwater and other resource management.

### *Groundwater Monitoring*

Current groundwater monitoring efforts are discussed in Chapter 10.

### *Well Site Management Activities*

Well site management activities include a wide array of functions directed at creating consistency and quality in the drilling, construction, inspection and operation of municipal drinking water production wells. Diligent well site management provides multiple benefits ranging from reducing the opportunity for a well to become a direct conduit for contamination to providing early detection of potential compromises in groundwater quality at production wells. Activities include:

- Well Site Control – the Well Site Control Zone encompasses the area immediately surrounding the well. The purpose of this zone is to provide protection from vandalism, tampering, or other threats at the well site.
- Regular Well Inspection, Testing and Maintenance – Electrical systems that operate the pumps are inspected annually. A visual inspection of the well and the chlorination unit is performed at this time.
- Well Construction Standards – The municipal purveyors follow state standards developed by DWR that address a number of aspects of well construction intended to help prevent contamination of groundwater via the well.

### *Wellhead Protection*

In 1996, the federal Safe Drinking Water Act (SDWA) was reauthorized. One of the amendments to the act required states to develop and implement a program to assess sources of drinking water and encouraged states to establish source water protection programs. The U.S. Environmental Protection Agency (EPA) envisions a state Source Water Assessment Program (SWAP) to be a partnership among local, state, and federal agencies to maintain safe, good quality drinking water.

Ten years prior to the 1996 Safe Drinking Water Act amendments, the SDWA established the Wellhead Protection Program (WHPP). Section 1428 of the SDWA (State Programs to Establish Wellhead Protection Areas) was intended to establish state programs that adequately protect the wellhead areas of all public water systems from contaminants that may adversely affect human health. Each state was to prepare a WHPP and submit it to EPA by June 19, 1989. Although there were many wellhead and

groundwater protection efforts in California, the State did not develop a WHPP by the 1989 deadline. However, central elements of a WHPP—protection area and zone delineation, inventory of possible contaminating activities (PCAs), and vulnerability analysis—are also elements of a SWAP.

In California, the Department of Health Services (DHS) Division of Drinking Water and Environmental Management is the lead agency for implementing California's SWAP program, called the Drinking Water Source Assessment and Protection (DWSAP) Program. In addition to the federal SDWA, there are California statutes that require development and implementation of programs to protect sources of drinking water. Section 116762.60 of the California Health and Safety Code requires DHS to develop such a program, and the program is to include a source water assessment program and a wellhead protection program. The DWSAP satisfies the mandates of Section 116762.60 of the California Health and Safety Code and the federal SWAP and WHPP.

### *Drinking Water Source Assessment and Protection*

Water purveyors within the MWA that have completed assessments for their wells are summarized below in Table H-2. Assessments for private wells that supply groundwater for drinking water to restaurants, resorts and other commercial establishments have been conducted by DHS.

**Table H-2: Completed Assessment of Wells**

| Purveyor | DWSAP # of Sources |
|---|---|
| Adelanto | 13 |
| Apple Valley WC | 22 |
| Barstow | 17 |
| Hesperia | NA* |
| Hi Desert WD | 16 |
| Victorville | 25 |
| Yucca Valley | NA* |

*Data on Hesperia and Yucca Valley were not available at time of publication.

### *Identification and Destruction of Abandoned Wells*

The presence of abandoned groundwater wells represents a potential hazard to the quality of the groundwater basin. It is vital for the long-term health of the basin that abandoned wells be located and destroyed.

While it is the landowner's responsibility to destroy an abandoned well, local water agencies should be proactive about making sure that abandoned wells are in fact destroyed. Coordinated efforts to locate and destroy abandoned wells are currently

limited to efforts by the MWA to identify and categorize abandoned wells found in the field and relay that information to the County. The County has contacted property owners grading their responsibility to properly destroy abandoned wells on their property.

### *Hazardous Materials Response*

The use, storage and transportation of hazardous materials and the generation and transportation of hazardous wastes are issues of increasing importance in the protection of life, the environment and property in the Mojave basin – and a concern for groundwater quality protection. Hazardous material emergencies may be the result of threatened releases, highway accidents, clandestine drug laboratories, train derailments, pipeline transportation accidents, and fire and/or spills at fixed facilities.

Hazardous material emergencies are not currently coordinated with MWA.

### *Map and monitor contaminant sites*

Through its groundwater quality analysis system currently being developed, the MWA will be able to identify and monitor groundwater quality in the basin to meet the Agency's long-term objectives. More information on water quality efforts is provided earlier in this chapter.

### *Watershed management*

MWA coordinates with watershed related entities including the Mojave Desert Resource Conservation District , U.S. Forest Service and the U. S. Bureau of Land Management.

### *Well standards*

Well standards are administered via the San Bernardino County Department of Public Health. The County's Safe Drinking Water Program protects drinking water resources by maintaining a permitting system for water well construction and destruction, serving as the Local Primary Agency for small water systems, providing input into the land use process for the County, and by review of on-site sewage disposal conditions.

## Water Conservation

There are numerous water conservation efforts in the Mojave basin. In addition to conservation efforts of cities, water districts, and water agencies, a coordinated effort is being conducted by the Alliance for Water Awareness and Conservation, a group of 23 entities. A full description of water conservation measures and the Alliance is provided in Chapter 7.

## Land Use Planning

Land uses in the MWA have been primarily agricultural, urban and open space. Population growth is resulting in urbanization of some of the agricultural lands. MWA coordinates with several County and city planning departments in the review of land use plans to facilitate groundwater protection and to monitor potential new water demand.

# APPENDIX I

## WELL CONSTRUCTION DATA FROM MWA WELL DATABASE

**Well Construction Data From MWA Well Database**

| State Well Number | Boring Depth [feet] | Perforated Intervals [feet] | WellType |
|---|---|---|---|
| 04N03W30C01 | 200 | 85-200 | Aqua/Agriculture[1] |
| 07N04W06N01 | 452 | 74-452 | Recreational/Lakes[1] |
| 09N03W22J04 | 205 | 70-205 | Aqua/Agriculture[1] |
| 07N05W25R04 | 85 | 65-85 | Aqua/Agriculture[1] |
| 06N04W34M08 | 185 | 130-180 | Recreational/Lakes[1] |
| 05N04W35J02 | 415 | 100-400 | Aqua/Agriculture[1] |
| 09N03W22F01 | 200 | 70-190 | Aqua/Agriculture[2] |
| 10N01W32F12 | 190 | 68.6 | Aqua/Agriculture[2] |
| 10N03E15Q02 | 260 | 60-260 | Aqua/Agriculture[2] |
| 05N04W15K01 | 600 | 200-600 | Domestic[2] |
| 08N04W20Q12 | 140 | 99.5-139.5 | Monitoring |
| 09N02W06H06 | 99 | 95-99 | Monitoring |
| 09N02W06L07 | 212 | 94.7 | Monitoring |
| 06N05W12G02 | 103 | 93-103 | Monitoring |
| 08N04W12C01 | 150 | 90-150 | Monitoring |
| 09N03E22R07 | 110 | 90-110 | Monitoring |
| 07N05W13H01 | 100 | 90-100 | Monitoring |
| 07N04W06F05 | 99 | 88-99 | Monitoring |
| 04N03W30B01 | 200 | 80-200 | Monitoring |
| 10N03W27F01 | 130 | 80-130 | Monitoring |
| 04N03W30K03 | 80 | 80-120 | Monitoring |
| 05N04W14D03 | 100 | 80-100 | Monitoring |
| 09N01W10J15 | 100 | 80-100 | Monitoring |
| 09N02W06M07 | 97 | 77-97 | Monitoring |
| 04N04W03A02 | 790 | 770-790 | Monitoring |
| 09N02W06L13 | 95 | 75-95 | Monitoring |
| 09N02W06P01 | 95 | 75-95 | Monitoring |
| 10N03W28M01 | 217 | 75-217 | Monitoring |
| 09N02W06P02 | 94 | 74-94 | Monitoring |
| 05N06W22E01 | 750 | 730-750 | Monitoring |
| 09N01W11K15 | 90 | 70-90 | Monitoring |
| 10N03E27J04 | 90 | 70-90 | Monitoring |
| 07N05W23R01 | 740 | 700-740 | Monitoring |
| 06N05W12F01 | 88 | 68-78 | Monitoring |
| 04N01E23K01 | 660 | 640-660 | Monitoring |
| 09N02E03K05 | 650 | 630-650 | Monitoring |
| 09N01W12N04 | 640 | 620-640 | Monitoring |
| 09N01W09D08 | 80 | 60-80 | Monitoring |
| 09N01W12L05 | 80 | 60-80 | Monitoring |
| 09N01W12N07 | 80 | 60-80 | Monitoring |
| 04N04W01C05 | 80 | 60-80 | Monitoring |
| 09N03W23D01 | 70 | 60-70 | Monitoring |
| 09N02E05H01 | N/A | 60-200 | Monitoring |
| 09N02E11H03 | 160 | 60-160 | Monitoring |
| 09N02W01A02 | 110 | 60-110 | Monitoring |
| 04N04W01C02 | 620 | 600-620 | Monitoring |

[1]active

[2]inactive

N/A- not available

**Well Construction Data From MWA Well Database**

| State Well Number | Boring Depth [feet] | Perforated Intervals [feet] | WellType |
|---|---|---|---|
| 09N01W10J12 | 610 | 590-610 | Monitoring |
| 09N03E22R04 | 610 | 590-610 | Monitoring |
| 04N03W12A01 | 600 | 580-600 | Monitoring |
| 04N03W19G02 | 600 | 580-600 | Monitoring |
| 09N02E03G06 | 600 | 580-600 | Monitoring |
| 09N01W11K12 | 590 | 570-590 | Monitoring |
| 10N03E27J01 | 570 | 550-570 | Monitoring |
| 05N06W22E02 | 565 | 545-565 | Monitoring |
| 07N04W19Q05 | 574 | 534-574 | Monitoring |
| 04N03W31L06 | 550 | 530-550 | Monitoring |
| 09N01E10Q02 | 550 | 530-550 | Monitoring |
| 07N05W24R05 | 550 | 510-550 | Monitoring |
| 06N05W01B05 | 10 | 5-10 | Monitoring |
| 01N05E36G01 | 510 | 510 | Monitoring |
| 09N02E11C03 | 190 | 50-190 | Monitoring |
| 03N03W07E01 | 150 | 50-150 | Monitoring |
| 10N01W33L03 | 120 | 50-120 | Monitoring |
| 04N04W03A03 | 510 | 490-510 | Monitoring |
| 07N05W23R02 | 510 | 490-510 | Monitoring |
| 09N02E03K06 | 510 | 490-510 | Monitoring |
| 09N03E22R05 | 510 | 490-510 | Monitoring |
| 09N01W09D05 | 500 | 480-500 | Monitoring |
| 09N02E03G07 | 490 | 470-490 | Monitoring |
| 04N01W13R01 | 480 | 470-480 | Monitoring |
| 09N02E03K09 | 65 | 45-65 | Monitoring |
| 09N01E04K01 | 470 | 450-470 | Monitoring |
| 08N04W20Q07 | 460 | 440-460 | Monitoring |
| 09N01W12L02 | 450 | 430-450 | Monitoring |
| 09N01W04M07 | 80 | 40-80 | Monitoring |
| 09N02W06L14 | 50 | 40-50 | Monitoring |
| 09N02W05N08 | 195 | 40-195 | Monitoring |
| 10N01W32Q04 | 139 | 40-139 | Monitoring |
| 01N05E36G02 | 400 | 400 | Monitoring |
| 08N04W21M04 | 60 | 40 | Monitoring |
| 09N01E16F01 | 410 | 390-410 | Monitoring |
| 05N06W22E03 | 400 | 380-400 | Monitoring |
| 10N03E27J02 | 350 | 370-350 | Monitoring |
| 04N01E23K02 | 380 | 360-380 | Monitoring |
| 04N01W13R02 | 380 | 360-380 | Monitoring |
| 04N03W31L07 | 380 | 360-380 | Monitoring |
| 01N07E23A01 | 370 | 360-370 | Monitoring |
| 09N02W03A02 | 55 | 35-55 | Monitoring |
| 04N03W19G03 | 375 | 355-375 | Monitoring |
| 10N03E27J05 | 45 | 35-45 | Monitoring |
| 08N04W21M01 | 370 | 350-370 | Monitoring |
| 09N01W10J13 | 370 | 350-370 | Monitoring |
| 04N04W03A04 | 360 | 340-360 | Monitoring |

[1]active

[2]inactive

N/A- not available

**Well Construction Data From MWA Well Database**

| State Well Number | Boring Depth [feet] | Perforated Intervals [feet] | WellType |
|---|---|---|---|
| 10N01E20M01 | 350 | 340-350 | Monitoring |
| 08N04W20Q08 | 350 | 330-350 | Monitoring |
| 09N01E10Q03 | 350 | 330-350 | Monitoring |
| 04N03W12A02 | 345 | 325-345 | Monitoring |
| 05N04W14D01 | 340 | 320-340 | Monitoring |
| 09N01E04K02 | 340 | 320-340 | Monitoring |
| 09N01E16F02 | 340 | 320-340 | Monitoring |
| 09N02E03K07 | 340 | 320-340 | Monitoring |
| 04N04W01C03 | 330 | 310-330 | Monitoring |
| 09N03W01R05 | 330 | 310-330 | Monitoring |
| 08N04W20Q11 | 50 | 30-50 | Monitoring |
| 05N04W14D04 | 50 | 30-50 | Monitoring |
| 08N04W29E06 | 40 | 30-40 | Monitoring |
| 06N05W12H01 | 150 | 30-150 | Monitoring |
| 09N01W12L03 | 320 | 300-320 | Monitoring |
| 08N04W19G01 | 315 | 295-315 | Monitoring |
| 07N05W23R03 | 315 | 295-315 | Monitoring |
| 09N01W11K13 | 315 | 295-315 | Monitoring |
| 09N01W12N05 | 310 | 290-310 | Monitoring |
| 08N04W29E03 | 309 | 289-309 | Monitoring |
| 09N01W09D06 | 300 | 280-300 | Monitoring |
| 09N02E03G08 | 300 | 280-300 | Monitoring |
| 09N03E22R06 | 290 | 270-290 | Monitoring |
| 07N05W24R06 | 285 | 265-285 | Monitoring |
| 10N01E20M02 | 285 | 265-285 | Monitoring |
| 09N01W04R02 | 280 | 260-280 | Monitoring |
| 07N04W19Q06 | 276 | 256-276 | Monitoring |
| 06N04W30D10 | 145 | 25-145 | Monitoring |
| 08N04W20Q09 | 270 | 250-270 | Monitoring |
| 06N04W30J05 | 40 | 24-40 | Monitoring |
| 04N01W13R03 | 260 | 240-260 | Monitoring |
| 04N03W31L08 | 140 | 240-260 | Monitoring |
| 10N03E27J03 | 255 | 235-255 | Monitoring |
| 09N01E16F03 | 250 | 230-250 | Monitoring |
| 09N01W04M05 | 250 | 230-250 | Monitoring |
| 06N05W12G04 | 27 | 22-27 | Monitoring |
| 08N04W19G02 | 250 | 220-240 | Monitoring |
| 04N04W03A05 | 235 | 215-235 | Monitoring |
| 08N04W21M02 | 230 | 210-230 | Monitoring |
| 09N02W03E01 | 230 | 210-230 | Monitoring |
| 09N01W04R04 | 40 | 20-40 | Monitoring |
| 04N03E35J01 | 500 | 200-500 | Monitoring |
| 08N04W29E04 | 210 | 190-210 | Monitoring |
| 09N02E03K08 | 210 | 190-210 | Monitoring |
| 09N03W01R06 | 210 | 190-210 | Monitoring |
| 09N02W06L11 | 200 | 190-200 | Monitoring |
| 02N06E18B01 | 310 | 187-305 | Monitoring |

[1]active

[2]inactive

N/A- not available

**Well Construction Data From MWA Well Database**

| State Well Number | Boring Depth [feet] | Perforated Intervals [feet] | WellType |
|---|---|---|---|
| 05N04W14D02 | 200 | 180-200 | Monitoring |
| 09N01E10Q04 | 200 | 180-200 | Monitoring |
| 09N01W10J14 | 200 | 180-200 | Monitoring |
| 04N03W19G04 | 195 | 175-195 | Monitoring |
| 09N01E04K03 | 195 | 175-195 | Monitoring |
| 04N04W01C04 | 190 | 170-190 | Monitoring |
| 09N01W09D07 | 190 | 170-190 | Monitoring |
| 09N01W12L04 | 180 | 165-185 | Monitoring |
| 09N02W03E02 | 185 | 165-185 | Monitoring |
| 06N07W21A02 | 200 | 162-194 | Monitoring |
| 09N03W24J04 | 300 | 160-300 | Monitoring |
| 04N03W19J06 | 255 | 160-250 | Monitoring |
| 09N01W11K14 | 180 | 160-180 | Monitoring |
| 04N03W19M01 | 175 | 153-173 | Monitoring |
| 06N05W12G03 | 25 | 15-25 | Monitoring |
| 07N04W06F06 | 25 | 15-25 | Monitoring |
| 07N05W13H02 | 25 | 15-25 | Monitoring |
| 07N05W13H03 | 25 | 15-25 | Monitoring |
| 06N05W01B04 | 20 | 15-20 | Monitoring |
| 08N04W19G03 | 170 | 150-170 | Monitoring |
| 09N01W12N06 | 170 | 150-170 | Monitoring |
| 08N04W10Q01 | 61 | 14-59 | Monitoring |
| 08N04W20Q10 | 160 | 140-160 | Monitoring |
| 09N01W04M06 | 160 | 140-160 | Monitoring |
| 09N02W02E01 | 160 | 140-160 | Monitoring |
| 09N02W06L12 | 155 | 135-155 | Monitoring |
| 07N04W19Q07 | 150 | 130-150 | Monitoring |
| 07N05W24R07 | 150 | 130-150 | Monitoring |
| 09N01E16F04 | 150 | 130-150 | Monitoring |
| 08N04W21M03 | 140 | 120-140 | Monitoring |
| 09N01W04R03 | 140 | 120-140 | Monitoring |
| 09N02E03G09 | 140 | 120-140 | Monitoring |
| 04N03W31L09 | 140 | 120-140 | Monitoring |
| 07N04W31L01 | 230 | 112-212 | Monitoring |
| 06N04W18N03 | 12 | 11-12 | Monitoring |
| 06N06W21J02 | 200 | 110-200 | Monitoring |
| 08N04W29E05 | 130 | 110-130 | Monitoring |
| 09N03W01R07 | 130 | 110-130 | Monitoring |
| 05N04W23B01 | 45 | 10-45 | Monitoring |
| 07N04W06F04 | 20 | 10-20 | Monitoring |
| 06N05W01B06 | 15 | 10-15 | Monitoring |
| 06N04W18N02 | 15 | 10-14 | Monitoring |
| 10N02E35A01 | 207 | 100-200 | Monitoring |
| 09N01E03H05 | 200 | 100-200 | Monitoring |
| 09N02W03A01 | 120 | 100-120 | Monitoring |
| 09N02W03E03 | 120 | 100-120 | Monitoring |

[1]active

[2]inactive

N/A- not available

# APPENDIX J

## Groundwater Management Planning
## (AB 3030)

## Groundwater Management and State Funding
## (SB 1938)

## California Urban Water Management Planning Act

## Water Security, Clean Drinking Water,
## Coastal and Beach Protection Act of 2002
## (Proposition 50)

## Groundwater Management Planning

California Water Code
Section 10750 - 10750.10 and 10753 - 10753.10

10750. (a) The Legislature finds and declares that groundwater is a valuable natural resource in California, and should be managed to ensure both its safe production and its quality. It is the intent of the Legislature to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions.

(b) The Legislature also finds and declares that additional study of groundwater resources is necessary to better understand how to manage groundwater effectively to ensure the safe production, quality, and proper storage of groundwater in this state.

10750.2. (a) Subject to subdivision (b), this part applies to all groundwater basins in the state.

(b) This part does not apply to any portion of a groundwater basin that is subject to groundwater management by a local agency or a watermaster pursuant to other provisions of law or a court order, judgment, or decree, unless the local agency or watermaster agrees to the application of this part.

10750.4. Nothing in this part requires a local agency overlying a groundwater basin to adopt or implement a groundwater management plan or groundwater management program pursuant to this part.

10750.6. Nothing in this part affects the authority of a local agency or a watermaster to manage groundwater pursuant to other provisions of law or a court order, judgment, or decree.

10750.7. (a) A local agency may not manage groundwater pursuant to this part within the service area of another local agency, a water corporation regulated by the Public Utilities Commission, or a mutual water company without the agreement of that other entity.

(b) This section applies only to groundwater basins that are not critically overdrafted.

10750.8. (a) A local agency may not manage groundwater pursuant to this part within the service area of another local agency without the agreement of that other entity.

(b) This section applies only to groundwater basins that are critically overdrafted.

10750.9. (a) A local agency that commences procedures, prior to January 1, 1993, to adopt an ordinance or resolution to establish a program for the management of groundwater pursuant to Part 2.75 (commencing with Section 10750), as added by Chapter 903 of the Statutes of 1991, may proceed to adopt the ordinance or resolution pursuant to Part 2.75, and the completion of those procedures is deemed to meet the requirements of this part.

(b) A local agency that has adopted an ordinance or resolution pursuant to Part 2.75 (commencing with Section 10750), as added by chapter 903 of the Statutes of 1991, may amend its groundwater management program by ordinance or resolution of the governing body of the local agency to include any of the plan components set forth in Section 10753.7.

10750.10. This part is in addition to, and not a limitation on, the authority granted to a local agency pursuant to other provisions of law.

10753. (a) Any local agency, whose service area includes a groundwater basin, or a portion of a groundwater basin, that is not subject to groundwater management pursuant to other provisions of law or a court order, judgment, or decree, may, by ordinance, or by resolution if the local agency is not authorized to act by ordinance, adopt and implement a groundwater management plan pursuant to this part within all or a portion of its service area.

(b) Notwithstanding subdivision (a), a local public agency, other than an agency defined in subdivision (g) of Section 10752, that provides flood control, groundwater management, or groundwater replenishment, or a local agency formed pursuant to this code for the principal purpose of providing water service that has not yet provided that service, may exercise the authority of this part within a groundwater basin that is located within its boundaries within areas that are either of the following:

(1) Not served by a local agency.

(2) Served by a local agency whose governing body, by a majority vote, declines to exercise the authority of this part and enters into an agreement with the local public agency pursuant to Section 10750.7 or 10750.8.

10753.1. Nothing in this part, or in any groundwater management plan adopted pursuant to this part, affects surface water rights or the procedures under common law or local groundwater authority, or any provision of law other than this part that determines or grants surface water rights.

10753.2. (a) Prior to adopting a resolution of intention to draft a groundwater management plan, a local agency shall hold a hearing, after publication of notice pursuant to Section 6066 of the Government Code, on whether or not to adopt a resolution of intention to draft a groundwater management plan pursuant to this part for the purposes of implementing the plan and establishing a groundwater management program.

(b) At the conclusion of the hearing, the local agency may draft a resolution of intention to adopt a groundwater management plan pursuant to this part for the purposes of implementing the plan and establishing a groundwater management program.

10753.3. (a) After the conclusion of the hearing, and if the local agency adopts a resolution of intention, the local agency shall publish the resolution of intention in the same manner that notice for the hearing held under Section 10753.2 was published. (b) Upon written request, the local agency shall provide any interested person with a copy of the resolution of intention.

10753.4. (a) The local agency shall prepare a groundwater management plan within two years of the date of the adoption of the resolution of intention. If the plan is not adopted within two years, the resolution of intention expires, and no plan may be adopted except pursuant to a new resolution of intention adopted in accordance with this chapter.

(b) For the purposes of carrying out this part, the local agency shall make available to the public a written statement describing the manner in which interested parties may participate in developing the groundwater management plan. The local agency may appoint, and consult with, a technical advisory committee consisting of interested parties for the purposes of carrying out this part.

10753.5. (a) After a groundwater management plan is prepared, the local agency shall hold a second hearing to determine whether to adopt the plan. Notice of the hearing shall be given pursuant to Section 6066 of the Government Code. The notice shall include a summary of the plan and shall state that copies of the plan may be obtained for the cost of reproduction at the office of the local agency.

(b) At the second hearing, the local agency shall consider protests to the adoption of the plan. At any time prior to the conclusion of the second hearing, any landowner within the local agency may file a written protest or withdraw a protest previously filed.

10753.6. (a) A written protest filed by a landowner shall include the landowner's signature and a description of the land owned sufficient to identify the land. A public

agency owning land is deemed to be a landowner for the purpose of making a written protest.

(b) The secretary of the local agency shall compare the names and property descriptions on the protest against the property ownership records of the county assessors.

(c) (1) A majority protest shall be determined to exist if the governing board of the local agency finds that the protests filed and not withdrawn prior to the conclusion of the second hearing represent more than 50 percent of the assessed value of the land within the local agency subject to groundwater management pursuant to this part.

(2) If the local agency determines that a majority protest exists, the groundwater plan may not be adopted and the local agency shall not consider adopting a plan for the area proposed to be included within the program for a period of one year after the date of the second hearing.

(3) If a majority protest has not been filed, the local agency, within 35 days after the conclusion of the second hearing, may adopt the groundwater management plan.

10753.7. (a) For the purposes of qualifying as a groundwater management plan under this part, a plan shall contain the components that are set forth in this section. In addition to the requirements of a specific funding program, any local agency seeking state funds administered by the department for the construction of groundwater projects or groundwater quality projects, excluding programs that are funded under Part 2.78 (commencing with Section 10795), shall do all of the following:

(1) Prepare and implement a groundwater management plan that includes basin management objectives for the groundwater basin that is subject to the plan. The plan shall include components relating to the monitoring and management of groundwater levels within the groundwater basin, groundwater quality degradation, inelastic land surface subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin.

(2) For the purposes of carrying out paragraph (1), the local agency shall prepare a plan to involve other agencies that enables the local agency to work cooperatively with other public entities whose service area or boundary overlies the groundwater basin.

(3) For the purposes of carrying out paragraph (1), the local agency shall prepare a map that details the area of the groundwater basin, as defined in the department's Bulletin No. 118, and the area of the local agency, that will be subject to the plan, as well as the boundaries of other local agencies that overlie the basin in which the agency is developing a groundwater management plan.

(4) The local agency shall adopt monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for

basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin. The monitoring protocols shall be designed to generate information that promotes efficient and effective groundwater management.

(5) Local agencies that are located in areas outside the groundwater basins delineated on the latest edition of the department' s groundwater basin and subbasin map shall prepare groundwater management plans incorporating the components in this subdivision, and shall use geologic and hydrologic principles appropriate to those areas.

(b) (1) (A) A local agency may receive state funds administered by the department for the construction of groundwater projects or for other projects that directly affect groundwater levels or quality if it prepares and implements, participates in, or consents to be subject to, a groundwater management plan, a basinwide management plan, or other integrated regional water management program or plan that meets, or is in the process of meeting, the requirements of subdivision (a). A local agency with an existing groundwater management plan that meets the requirements of subdivision (a), or a local agency that completes an upgrade of its plan to meet the requirements of subdivision (a) within one year of applying for funds, shall be given priority consideration for state funds administered by the department over local agencies that are in the process of developing a groundwater management plan. The department shall withhold funds from the project until the upgrade of the groundwater management plan is complete.

(B) Notwithstanding subparagraph (A), a local agency that manages groundwater under any other provision of existing law that meets the requirements of subdivision (a), or that completes an upgrade of its plan to meet the requirements of subdivision (a) within one year of applying for funding, shall be eligible for funding administered by the department. The department shall withhold funds from a project until the upgrade of the groundwater management plan is complete.

(C) Notwithstanding subparagraph (A), a local agency that conforms to the requirements of an adjudication of water rights in the groundwater basin is in compliance with subdivision (a). For purposes of this section, an "adjudication" includes an adjudication under Section 2101, an administrative adjudication, and an adjudication in state or federal court.

(D) Subparagraphs (A) and (B) do not apply to proposals for funding under Part 2.78 (commencing with Section 10795), or to funds authorized or appropriated prior to September 1, 2002.

(2) Upon the adoption of a groundwater management plan in accordance with this part, the local agency shall submit a copy of the plan to the department, in an electronic

format, if practicable, approved by the department. The department shall make available to the public copies of the plan received pursuant to this part.

10753.8. A groundwater management plan may include components relating to all of the following:

(a) The control of saline water intrusion.

(b) Identification and management of wellhead protection areas and recharge areas.

(c) Regulation of the migration of contaminated groundwater.

(d) The administration of a well abandonment and well destruction program.

(e) Mitigation of conditions of overdraft.

(f) Replenishment of groundwater extracted by water producers.

(g) Monitoring of groundwater levels and storage.

(h) Facilitating conjunctive use operations.

(i) Identification of well construction policies.

(j) The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.

(k) The development of relationships with state and federal regulatory agencies.

(l) The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.

10753.9. (a) A local agency shall adopt rules and regulations to implement and enforce a groundwater management plan adopted pursuant to this part.

(b) Nothing in this part shall be construed as authorizing the local agency to make a binding determination of the water rights of any person or entity.

(c) Nothing in this part shall be construed as authorizing the local agency to limit or suspend extractions unless the local agency has determined through study and investigation that groundwater replenishment programs or other alternative sources of water supply have proved insufficient or infeasible to lessen the demand for groundwater.

10753.10. In adopting rules and regulations pursuant to Section 10753.9, the local agency shall consider the potential impact of those rules and regulations on business activities, including agricultural operations, and to the extent practicable and consistent with the protection of the groundwater resources, minimize any adverse impacts on those business activities.

## Groundwater Management and State Funding

Senate Bill: 1938
Introduced: Senator Machado February 22, 2002
Chaptered: September 19, 2002

An act to amend Sections 10753.4 and 10795.4 of, to amend and renumber Sections 10753.7, 10753.8, and 10753.9 of, and to add Sections 10753.1 and 10753.7 to, the Water Code, relating to water.

Existing law authorizes a local agency to prepare and implement a groundwater management plan. Existing law establishes the Local Groundwater Assistance Fund and provides that, upon appropriation by the Legislature, money in the fund may be used by the Department of Water Resources to assist local public agencies by awarding grants to those agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities.

This bill would require a local agency that elects to develop a groundwater management plan to make available to the public a written statement describing the manner in which interested parties would be allowed to participate in the development of that plan. The bill would require a local agency, for the purposes of qualifying as a groundwater management plan under certain provisions of law, or, with certain exceptions, for the purposes of receiving state funds administered by the department for the construction of groundwater projects or groundwater quality projects, to prepare and implement a plan that includes certain basin management objectives and components, and to adopt certain monitoring protocols. The bill would require the local agency to submit a copy of the plan to the department, in an electronic format, if practicable, approved by the department, and the department would be required to make copies available to the public. The bill would provide, that upon appropriation by the Legislature, money in the Local Groundwater Assistance Fund may be used by the department to assist local public agencies in the development of groundwater management plans.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares the following:
(a) Groundwater constitutes a major source of water for use by the state's citizens in many urban and rural areas. It is in the interest of those citizens, and of benefit to

California's economy, that groundwater resources be protected and managed to optimize the available water supply.

(b) Protection and management include, but are not limited to, protection of recharge areas and source areas from contamination, protection of groundwater quality, artificial recharge, planned variation of pumping, and conjunctive management of both surface water and groundwater to optimize supplies.

(c) Groundwater is a crucial component of California's water supply and provides about 30 percent of California's agricultural and urban demand in an average year, and 40 percent or more in dry years.

(d) California has 515 groundwater basins and subbasins, many of which are the sole source of water supply for irrigation and drinking water and significant number of groundwater basins have been impaired by pollution or are threatened with impairment.

(e) A significant number of the state's groundwater basins are poorly understood, making proper management difficult.

(f) The preparation of groundwater management plans enables local agencies to address issues related to groundwater recharge and storage, which are crucial components for effective management of California's water supply.

(g) It is the intent of the Legislature to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions. The preparation of certain basin management objectives will assist local agencies in optimizing local resources while protecting groundwater and surface water resources. The preparation of basin management objectives also will facilitate an understanding of the basin or subbasin, thereby allowing local agencies, individually and cooperatively, to meet local, regional, and state water needs through conjunctive management, while ensuring that no particular water supply is jeopardized.

SEC. 2. Section 10753.1 is added to the Water Code, to read: 10753.1. Nothing in this part, or in any groundwater management plan adopted pursuant to this part, affects surface water rights or the procedures under common law or local groundwater authority, or any provision of law other than this part that determines or grants surface water rights.

SEC. 3. Section 10753.4 of the Water Code is amended to read: 10753.4. (a) The local agency shall prepare a groundwater management plan within two years of the date of the adoption of the resolution of intention. If the plan is not adopted within two years, the resolution of intention expires, and no plan may be adopted except pursuant to a new resolution of intention adopted in accordance with this chapter.

The study was performed as part of a cooperative program with the USGS. This program will continue in the future, and will be expanded to determine the relationship between groundwater levels and land surface elevation changes.

## Morongo Basin/Johnson Valley Area

### Warren Valley Basin Watermaster

The Warren Valley Basin Watermaster performs monitoring in accordance with the Rules and Regulations of the Warren Valley Watermaster (1995). The Hi-Desert Water District acts as Watermaster. The following is a summary of monitoring currently performed by the Watermaster.

**1. Water Production and Verification**

The Judgment requires that annual water production records be collected and verified by producers exceeding one acre-foot per year of production. The Watermaster is required to charge a production levy against any producer that exceeds their production right.

**2. Water Level Measurement**

The Watermaster takes water level measurements each year on a quarterly basis.

**3. Water Quality**

Each producing well must be tested by the well owner for nitrates and total dissolved solids every six months.

Locations of surface water monitoring stations (stream gauges) and wells that are monitored for groundwater elevations are shown in Figure H - 1. Locations of wells that are sampled for groundwater quality are shown in Figure H - 2.

(b) For the purposes of carrying out this part, the local agency shall make available to the public a written statement describing the manner in which interested parties may participate in developing the groundwater management plan. The local agency may appoint, and consult with, a technical advisory committee consisting of interested parties for the purposes of carrying out this part.

SEC. 4. Section 10753.7 of the Water Code is amended and renumbered to read: 10753.8. A groundwater management plan may include components relating to all of the following:

(a) The control of saline water intrusion.

(b) Identification and management of wellhead protection areas and recharge areas.

(c) Regulation of the migration of contaminated groundwater.

(d) The administration of a well abandonment and well destruction program.

(e) Mitigation of conditions of overdraft.

(f) Replenishment of groundwater extracted by water producers.

(g) Monitoring of groundwater levels and storage.

(h) Facilitating conjunctive use operations.

(i) Identification of well construction policies.

(j) The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.

(k) The development of relationships with state and federal regulatory agencies.

(l) The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.

SEC. 5. Section 10753.7 is added to the Water Code, to read: 10753.7. (a) For the purposes of qualifying as a groundwater management plan under this part, a plan shall contain the components that are set forth in this section. In addition to the requirements of a specific funding program, any local agency seeking state funds administered by the department for the construction of groundwater projects or groundwater quality projects, excluding programs that are funded under Part 2.78 (commencing with Section 10795), shall do all of the following:

(1) Prepare and implement a groundwater management plan that includes basin management objectives for the groundwater basin that is subject to the plan. The plan shall include components relating to the monitoring and management of groundwater levels within the groundwater basin, groundwater quality degradation, inelastic land surface subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin.

(2) For the purposes of carrying out paragraph (1), the local agency shall prepare a plan to involve other agencies that enables the local agency to work cooperatively with other public entities whose service area or boundary overlies the groundwater basin.

(3) For the purposes of carrying out paragraph (1), the local agency shall prepare a map that details the area of the groundwater basin, as defined in the department's Bulletin No. 118, and the area of the local agency, that will be subject to the plan, as well as the boundaries of other local agencies that overlie the basin in which the agency is developing a groundwater management plan.

(4) The local agency shall adopt monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin. The monitoring protocols shall be designed to generate information that promotes efficient and effective groundwater management.

(5) Local agencies that are located in areas outside the groundwater basins delineated on the latest edition of the department' s groundwater basin and subbasin map shall prepare groundwater management plans incorporating the components in this subdivision, and shall use geologic and hydrologic principles appropriate to those areas.

(b) (1) (A) A local agency may receive state funds administered by the department for the construction of groundwater projects or for other projects that directly affect groundwater levels or quality if it prepares and implements, participates in, or consents to be subject to, a groundwater management plan, a basinwide management plan, or other integrated regional water management program or plan that meets, or is in the process of meeting, the requirements of subdivision (a). A local agency with an existing groundwater management plan that meets the requirements of subdivision (a), or a local agency that completes an upgrade of its plan to meet the requirements of subdivision (a) within one year of applying for funds, shall be given priority consideration for state funds administered by the department over local agencies that are in the process of developing a groundwater management plan. The department shall withhold funds from the project until the upgrade of the groundwater management plan is complete.

(B) Notwithstanding subparagraph (A), a local agency that manages groundwater under any other provision of existing law that meets the requirements of subdivision (a), or that completes an upgrade of its plan to meet the requirements of subdivision (a) within one year of applying for funding, shall be eligible for funding administered by the department. The department shall withhold funds from a project until the upgrade of the groundwater management plan is complete.

(C) Notwithstanding subparagraph (A), a local agency that conforms to the requirements of an adjudication of water rights in the groundwater basin is in compliance with subdivision (a). For purposes of this section, an "adjudication" includes an adjudication under Section 2101, an administrative adjudication, and an adjudication in state or federal court.

(D) Subparagraphs (A) and (B) do not apply to proposals for funding under Part 2.78 (commencing with Section 10795), or to funds authorized or appropriated prior to September 1, 2002.

(2) Upon the adoption of a groundwater management plan in accordance with this part, the local agency shall submit a copy of the plan to the department, in an electronic format, if practicable, approved by the department. The department shall make available to the public copies of the plan received pursuant to this part.

SEC. 6. Section 10753.8 of the Water Code is amended and renumbered to read: 10753.9. (a) A local agency shall adopt rules and regulations to implement and enforce a groundwater management plan adopted pursuant to this part.

(b) Nothing in this part shall be construed as authorizing the local agency to make a binding determination of the water rights of any person or entity.

(c) Nothing in this part shall be construed as authorizing the local agency to limit or suspend extractions unless the local agency has determined through study and investigation that groundwater replenishment programs or other alternative sources of water supply have proved insufficient or infeasible to lessen the demand for groundwater.

SEC. 7. Section 10753.9 of the Water Code is amended and renumbered to read: 10753.10. In adopting rules and regulations pursuant to Section 10753.9, the local agency shall consider the potential impact of those rules and regulations on business activities, including agricultural operations, and to the extent practicable and consistent with the protection of the groundwater resources, minimize any adverse impacts on those business activities.

SEC. 8. Section 10795.4 of the Water Code is amended to read: 10795.4. Upon appropriation by the Legislature, the money in the fund may be used by the department to assist local public agencies by awarding grants to those agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities in accordance with Part 2.75 (commencing with Section 10750) or other authority pursuant to which local public agencies manage groundwater resources, or both, including the development of groundwater management plans, as provided for in subdivision (a) of Section 10753.7.

**California Urban Water Management Planning Act**

California Water Code
Section 10610 - 10657

## CHAPTER 1. GENERAL DECLARATION AND POLICY

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

10610.2. (a) The Legislature finds and declares all of the following:
(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.
(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.
(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.
(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.
(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.
(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.
(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.
(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.
(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

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

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

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

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

## CHAPTER 2. DEFINITIONS

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

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

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

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

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

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

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

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

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

## CHAPTER 3. URBAN WATER MANAGEMENT PLANS

### Article 1. General Provisions

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

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

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

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

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

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

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

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

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

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

## Article 2. Contents of Plans

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

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

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

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

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

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

board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.
(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.
(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

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

(1) An average water year

(2) A single dry water year

(3) Multiple dry water years

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

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

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

(A) Single-family residential

(B) Multifamily

(C) Commercial

(D) Industrial

(E) Institutional and governmental

(F) Landscape

(G) Sales to other agencies

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

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

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

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

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

(B) Residential plumbing retrofit.

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

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

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

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

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

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

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

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

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

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand

management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

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

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

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

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

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

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

(j) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

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

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

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

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

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

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

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

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

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

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

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

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:
(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.
(c) 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.
(d) 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.
(e) 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.
(f) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

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

### Article 2.5 Water Service Reliability

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water

service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.
(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.
(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.
(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

### Article 3. Adoption and Implementation of Plans

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

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

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

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

10644. (a) An urban water supplier shall file with the department and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be filed with the department and any city or county within which the supplier provides water supplies within 30 days after adoption.
(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the outstanding elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has filed its plan with the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

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

## CHAPTER 4. MISCELLANEOUS PROVISIONS

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:
(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.
(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

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

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant

to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

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

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

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

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

10657. (a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section

10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

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

**Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002.**

California Water Code
Section 79500 - 79590

79500. This division shall be known and may be cited as the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002.

79501. The people of California find and declare that it is necessary and in the public interest to do all of the following:
(a) Secure and safeguard the integrity of the state's water supply from catastrophic damage or failure from terrorist acts or other deliberate acts of destruction.
(b) Provide a safe, clean, affordable, and sufficient water supply to meet the needs of California residents, farms, and businesses.
(c) Provide adequate financing for balanced implementation of the CALFED Bay-Delta Program to:
(1) Provide good water quality for all beneficial uses.
(2) Improve and increase aquatic and terrestrial habitats and improve ecological functions in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary to support sustainable populations of diverse plant and animal species.
(3) Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system.
(4) Reduce the risk to land uses and associated economic activities, water supply, infrastructure, and ecosystems from catastrophic breaching of Delta levees.
(d) Establish and facilitate integrated regional water management systems and procedures to meet increasing water demands due to significant population growth that is straining local infrastructure and water supplies.
(e) Improve practices within watersheds to improve water quality, reduce pollution, capture additional storm water runoff, protect and manage groundwater better, and increase water use efficiency.
(f) Protect urban communities from drought, increase supplies of clean drinking water, reduce dependence on imported water, reduce pollution of rivers, lakes, streams, and coastal waters, and provide habitat for fish and wildlife.
(g) Invest in projects that further the ability of all Californians to live within California's basic apportionment of 4.4 million acre-feet per year of Colorado River water pursuant to the Colorado River Water Use Plan.
(h) Protect, restore, and acquire beaches and coastal uplands, wetlands, and watershed lands along the coast and in San Francisco Bay to protect the quality of drinking water, to keep beaches and coastal waters safe from water pollution, and to provide the wildlife and plant habitat and riparian and wetlands areas needed to support functioning coastal and San Francisco Bay ecosystems for the benefit of the people of California.

79502. It is the intent of the people in enacting this division that it be administered and executed in the most expeditious manner possible, and that all state, regional and local officials implement this division to the fullest extent of their authority.

79503. It is the intent of the people that water facility projects financed pursuant to this division shall be designed and constructed so as to improve the security and safety of the state's drinking water system.

79504. It is the intent of the people that investment of public funds pursuant to this division should result in public benefits.

79505. As used in this division, the following terms shall have the following meanings:
(a) "Acquisition" means the acquisition of a fee interest or any other interest, including easements, leases, and development rights.
(b) "Board" means the State Water Resources Control Board.
(c) "CALFED" means the consortium of state and federal agencies with management and regulatory responsibilities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.
(d) "CALFED Bay-Delta Program" means the undertaking by CALFED to develop and implement, by means of the final programmatic environmental impact statement/environmental impact report, the preferred programs, actions, projects, and related activities that will provide solutions to identified problem areas related to the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ecosystem, including but not limited to the Bay-Delta and its tributary watersheds.
(e) "Department" means the Department of Water Resources.
(f) "Fund" means the Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002 created pursuant to Section 79510.
(g) "Nonprofit organization" means any nonprofit corporation formed pursuant to the Nonprofit Public Benefit Corporation Law (Division 2 (commencing with Section 5000) of Title 1 of the Corporations Code) and qualified under Section 501(c)(3) of the United States Internal Revenue Code.
(h) "Secretary" means the Secretary of the Resources Agency.
(i) "Wetlands" means lands that may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools.

79505.5. As used in this division, the following terms shall have the following meanings:
(a) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.
(b) "Matching funds" means funds made available by nonstate sources, which may include, but are not limited to, donated services from nonstate sources.
(c) Notwithstanding subdivision (b), matching funds for a state agency may include state funds and services.

79505.6. (a) (1) By March 15, 2004, each state agency disbursing grants or loans ursuant to this division shall develop project solicitation and evaluation guidelines. The guidelines may include a limitation on the size of grants or loans to be awarded.
(2) Prior to disbursing grants, each state agency shall conduct two public meetings to consider public comments prior to finalizing the guidelines. Each state agency shall publish the draft solicitation and evaluation guidelines on its Internet Web site at

least 30 days before the public meetings. One meeting shall be conducted at a location in northern California and one meeting shall be conducted at a location in southern California. Upon adoption, each state agency shall transmit copies of the guidelines to the fiscal committees and the appropriate policy committees of the Legislature. To the extent feasible, each state agency shall provide outreach to disadvantaged communities to promote access and participation in those meetings.

(3) (A) Subject to subparagraph (B), the guidelines may include a requirement for matching funds.

(B) A state agency may not require matching funds for the purposes of awarding a grant financed by this division to assist a disadvantaged community, except as follows:

(i) For the purposes of awarding a grant pursuant to subdivision (a) of Section 79545, the department shall impose matching fund requirements in accordance with subdivision (a) of Section 79545.

(ii) For the purposes of awarding a grant subject to Section 79564, the board shall impose matching fund requirements in accordance with subdivision (b) of Section 79564.

(b) Notwithstanding subdivision (a), a state agency, in lieu of adopting guidelines pursuant to subdivision (a), may use guidelines existing on January 1, 2004, to the extent those guidelines conform to the applicable requirements of this division.

79506. Every proposed activity to be financed pursuant to this division shall be in compliance with the California Environmental Quality Act (Division 13 (commencing with Section 21000)) of the Public Resources Code.

79506.7. State agencies that are authorized to award loans or grants financed by this division shall provide technical assistance with regard to the preparation of the applications for those loans or grants in a manner that, among other things, addresses the needs of economically disadvantaged communities.

79507. Watershed protection activities financed pursuant to this division shall be consistent with the applicable adopted local watershed management plan and the applicable regional water quality control plan adopted by the regional water quality control board.

79508. Watershed protection activities in the San Gabriel and Los Angeles River watersheds shall be consistent with the San Gabriel and Los Angeles River Watershed and Open Space Plan as adopted by the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy and the Santa Monica Mountains Conservancy. Notwithstanding any other provision of law, this plan shall be implemented pursuant to Division 23 (commencing with Section 33000) of the Public Resources Code in the watershed of the Los Angeles River upstream of the northernmost boundary of the City of Vernon and pursuant to Division 22.8 (commencing with Section 32600) of the Public Resources Code in the San Gabriel River and in the lower Los Angeles River watershed.

79509. Except for projects financed pursuant to Chapter 6 (commencing with Section 79545) or Chapter 10 (commencing with Section 79570), to be eligible to be financed pursuant to this division, any project that will wholly or partially assist in the fulfillment

of one or more of the goals of the CALFED Bay-Delta Program shall be consistent with the CALFED Programmatic Record of Decision, and shall be implemented, to the maximum extent possible, through local and regional programs.

79510. The Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002 is hereby created.

79511. All money deposited in the fund shall be used only for the purposes and in the amounts set forth in this division and for no other purpose.

79512. Except as otherwise expressly provided in this division, upon a finding by the agency authorized to administer or expend money appropriated from the fund that a particular project or program for which money has been allocated or granted cannot be completed, or that the amount that was appropriated, allocated, or granted is in excess of the total amount needed, the Legislature may reappropriate the money for other high priority needs consistent with this division.

79520. The sum of fifty million dollars ($50,000,000) shall be available for appropriation by the Legislature from the fund for the purpose of protecting state, local, and regional drinking water systems from terrorist attack or deliberate acts of destruction or degradation. This money may be expended or granted for monitoring and early warning systems, fencing, protective structures, contamination treatment facilities, emergency interconnections, communications systems, and other projects designed to prevent damage to water treatment, distribution, and supply facilities, to prevent disruption of drinking water deliveries, and to protect drinking water supplies from intentional contamination.

79521. The Legislature may enact such legislation as is necessary to implement this chapter.

79522. (a) Funds made available pursuant to Section 79520 shall be appropriated to the State Department of Health Services to carry out this chapter consistent with the requirements and for the purposes specified in Section 79520.

(b) In the development of priorities for expenditure of the funds appropriated for the purposes of this section, the State Department of Health Services shall consult with the Office of Emergency Services, the state Office of Homeland Security and local water agencies to develop criteria for the department's programs.

(c) Funds allocated pursuant to this section shall not be available for grants that reimburse project costs incurred prior to the adoption of criteria for the grants provided in this section.

(d) No grant funds may be awarded to supplant funding for the routine responsibilities or obligations of any state, local, or regional drinking water system.

79530. (a) The sum of four hundred thirty-five million dollars ($435,000,000) shall be available for appropriation by the Legislature from the fund to the State Department of

Health Services for grants and loans for infrastructure improvements and related actions to meet safe drinking water standards including, but not limited to, the following types of projects:

(1) Grants to small community drinking water systems to upgrade monitoring, treatment, or distribution infrastructure.

(2) Grants to finance development and demonstration of new technologies and related facilities for water contaminant removal and treatment.

(3) Grants for community water quality monitoring facilities and equipment.

(4) Grants for drinking water source protection.

(5) Grants for treatment facilities necessary to meet disinfectant by-product safe drinking water standards.

(6) Loans pursuant to the Safe Drinking Water State Revolving Fund Law of 1997 (Chapter 4.5 (commencing with Section 116760) of Part 12 of Division 104 of the Health and Safety Code).

(b) Not less than 60 percent of the money appropriated pursuant to this section shall be available for grants to Southern California water agencies to assist in meeting the state's commitment to reduce Colorado River water use to 4.4 million acre feet per year.

79531. The Legislature may enact such legislation as is necessary to implement this chapter.

79532. (a) Funds made available pursuant to subdivision (b) of Section 79530 shall be administered in accordance with this section.

(b) (1) Grant funds appropriated for the purposes of subdivision (b) of Section 79530 shall be awarded on a competitive basis.

(2) The department shall consolidate the application process required to implement the grant program described in this section.

(c) For the purposes of this chapter, "Southern California water agencies" means water agencies whose service area is entirely or partly in one or more of the following counties: San Diego, Imperial, Riverside, Orange, Los Angeles, San Bernardino, Santa Barbara, or Ventura.

(d) Grants may be awarded to Southern California water agencies for eligible projects undertaken by one or more Southern California water agencies and other entities.

(e) A project funded by a grant made pursuant to subdivision (b) of Section 79530 shall meet both of the following requirements:

(1) The project will assist the grantee to meet safe drinking water standards.

(2) The project will assist in meeting the state's commitment to reduce Colorado River water use to 4.4 million acre-feet per year.

(f) In the development of criteria for the grants awarded pursuant to this section, the State Department of Health Services shall consult with the Office of Environmental Health Hazard Assessment for the purposes of developing a program that gives priority to projects that reduce public and environmental exposure to contaminants that pose the most significant health risks, and that will bring water systems into compliance with safe drinking water standards. These include, but are not limited to, projects that address public exposure to contaminants for which safe drinking water standards have been

established, including arsenic, disinfection byproducts and uranium. Projects to address emerging contaminants, including perchlorate, chromium 6, and endocrine disrupters shall also be given priority.

79534. (a) Funds made available pursuant to paragraph (1), (2), 3), (4), or (5) of subdivision (a) of Section 79530, and not for the purposes of subdivision (b) of that section, shall be administered in accordance with this section.

(b) (1) Grants shall be awarded in accordance with subdivision (a) of Section 79530 on a statewide competitive basis.

(2) A project that is eligible for funding for the purposes of subdivision (b) of Section 79530 is not eligible for a grant subject to this section.

(c) For the purposes of this chapter, "small community" means a municipality with a population of 3,300 persons or fewer, or 1,000 connections or fewer.

(d) The State Department of Health Services shall consolidate the application process required to implement the grant program described in this section.

(e) In the development of criteria for the grants awarded under this section, the State Department of Health Services shall consult with the Office of Environmental Health Hazard Assessment for the purpose of developing a program that gives priority to projects that pose the most significant health risks, and that will bring water systems into compliance with safe drinking water standards. These include, but are not limited to, projects that address public eposure to contaminants for which safe drinking water standards have been established, including arsenic, disinfection byproducts and uranium. Projects to address emerging contaminants, including perchlorate, chromium 6, and endocrine disrupters shall also be given priority.

(f) Grants awarded pursuant to this section may not exceed ten million dollars ($10,000,000) for any one project.

79540. (a) The sum of one hundred million dollars ($100,000,000) shall be available for appropriation by the Legislature from the fund to the board for competitive grants for the following purposes:

(1) Water pollution prevention.

(2) Water reclamation.

(3) Water quality improvement.

(4) Water quality blending and exchange projects.

(5) Drinking water source protection projects.

(6) Projects to mitigate pathogen risk from recreational uses at drinking water storage facilities.

(b) Priority shall be given to projects that assist in meeting water quality standards established by the board.

(c) The Legislature may enact such legislation as is necessary to implement this section.

79540.1. (a) Grants shall be awarded in accordance with Section 79540 on a statewide competitive basis.

(b) To the extent funds appropriated pursuant to Section 79540 are expended for the purposes of programs established under Division 20.4 (commencing with Section 30901)

of the Public Resources Code, those funds shall comply with the requirements of that division.

79541. The sum of one hundred million dollars ($100,000,000) shall be available for appropriation by the Legislature from the fund to the secretary for the acquisition from willing sellers, restoration, protection, and development of river parkways. The secretary shall allocate this money in accordance with Article 6 (commencing with Section 78682) of Chapter 6 of Division 24 or pursuant to any other statute that provides for the acquisition, restoration, protection, and development of river parkways. Priority shall be given to projects that are implemented pursuant to approved watershed plans and include water quality and watershed protection benefits. This money may also be used to acquire facilities necessary to provide flows to improve water quality downstream.

79542. The sum of forty million dollars ($40,000,000) shall be available for appropriation by the Legislature from the fund to the California Tahoe Conservancy for acquisition from willing sellers, restoration, and protection of land and water resources to improve water quality in Lake Tahoe.

79543. (a) The sum of one hundred million dollars ($100,000,000) shall be available for appropriation by the Legislature from the fund to the board for the purpose of financing projects that restore and protect the water quality and environment of coastal waters, estuaries, bays and nearshore waters, and groundwater.

(b) All expenditures, grants, and loans made pursuant to this section shall be consistent with the requirements of Article 5 (commencing with Section 79148) of Chapter 7 of Division 26.

(c) Of the money made available pursuant to this section, not less than twenty million dollars ($20,000,000) shall be expended to implement priority actions specified in the Santa Monica Bay Restoration Plan. Money appropriated pursuant to this subdivision shall be allocated as recommended by the Santa Monica Bay Restoration Commission.

(d) Money made available pursuant to this section shall supplement, not supplant, money appropriated or available pursuant to that Article 5 (commencing with Section 79148), and no money appropriated pursuant to this section shall be used for a project for which an appropriation was made pursuant to that Article 5 (commencing with Section 79148).

79544. The sum of thirty million dollars ($30,000,000) shall be available for appropriation by the Legislature from the fund to the secretary for the purpose of grants to local public agencies, local water districts, and nonprofit organizations for acquisition from willing sellers of land and water resources to protect water quality in lakes, reservoirs, rivers, streams and wetlands in the Sierra Nevada-Cascade Mountain Region as defined in Section 5096.347 of the Public Resources Code.

79545. The sum of one hundred million dollars ($100,000,000) shall be available for appropriation by the Legislature from the fund to the department for grants for the following projects:

(a) Desalination of ocean or brackish waters. Not less than fifty million dollars ($50,000,000) of the money appropriated by this chapter shall be available for desalination projects. To be eligible to receive a grant, at least 50 percent of the total cost of the project shall be met by matching funds or donated services from non-state sources.

(b) Pilot and demonstration projects for treatment or removal of the following contaminants:

(1) Petroleum products, such as MTBE and BTEX.

(2) N-Nitrosodimethylamine (NDMA).

(3) Perchlorate.

(4) Radionuclides, such as radon, uranium, and radium.

(5) Pesticides and herbicides.

(6) Heavy metals, such as arsenic, mercury, and chromium.

(7) Pharmaceuticals and endocrine disrupters.

(c) Drinking water disinfecting projects using ultraviolet technology and ozone treatment.

79546. The Legislature may enact such legislation as is necessary to implement this chapter.

79547. (a) Funds made available pursuant to Section 79545 shall be administered in accordance with this section. (b) Grants shall be awarded in accordance with Section 79545 on a statewide competitive basis.

79547.2. (a) For the purposes of implementing subdivision (a) of Section 79545, eligible projects shall be selected based on demonstrated need for new or alternative water supplies, project readiness, and the degree to which the project avoids or mitigates adverse environmental impacts. Preference shall be given to eligible projects that incorporate ecosystem restoration and water quality benefits.

(b) A grant made pursuant to subdivision (a) of Section 79545 may not exceed five million dollars ($5,000,000).

(c) For the purposes of this section, "desalination project" includes construction, planning, engineering, design, environmental assessments, or related work necessary for the construction of a desalination facility, or the construction of a pilot or demonstration facility.

79550. The sum of eight hundred twenty-five million dollars ($825,000,000) shall be available for appropriation by the Legislature from the fund for the balanced implementation of the CALFED Bay-Delta Program. Expenditures and grants pursuant to this chapter shall be limited to the following:

(a) Fifty million dollars ($50,000,000) for surface water storage planning and feasibility studies.

(b) Seventy-five million dollars ($75,000,000) for the water conveyance facilities described in subparagraph (B) of paragraph (2) of subdivision (d) of Section 79190.

(c) Seventy million dollars ($70,000,000) for Delta levee restoration. Money expended pursuant to this subdivision shall be subject to Section 79050.

(d) One hundred eighty million dollars ($180,000,000) for water supply reliability projects that can be implemented expeditiously and thereby provide near-term benefits, including, but not limited to, projects that facilitate groundwater management and storage, water transfers, and acquisition of water for the CALFED environmental water account. In acquiring water, preference shall be given to long-term water purchase contracts and water rights. Money allocated pursuant to this subdivision shall be subject to Article 4 (commencing with Section 79205.2) of Chapter 9 of Division 26.

(e) One hundred eighty million dollars ($180,000,000) for ecosystem restoration program implementation of which not less than twenty million dollars ($20,000,000) shall be allocated for projects that assist farmers in integrating agricultural activities with ecosystem restoration.

(f) Ninety million dollars ($90,000,000) for watershed program implementation.

(g) One hundred eighty million dollars ($180,000,000) for urban and agricultural water conservation, recycling, and other water use efficiency projects.

79551. All appropriations pursuant to this chapter shall include money for independent scientific review, monitoring, and assessment of the results or effectiveness of the project or program expenditure.

79552. All projects financed pursuant to this chapter shall be consistent with the CALFED Programmatic Record of Decision including its provisions regarding finance and balanced implementation.

79553. Consistent with the CALFED Programmatic Record of Decision, priority shall be given to projects that achieve multiple benefits across CALFED program elements. Not more than 5 percent of the money available pursuant to this chapter may be used for administrative costs.

79554. All real property acquired with money appropriated or granted pursuant to subdivision (e) or (f) of Section 79550 shall be acquired from willing sellers.

79555. (a) For the 2004-05 fiscal year, and each fiscal year thereafter, not less than 50 percent of the funds made available pursuant to subdivision (d) of Section 79550 for acquisition of water for the CALFED environmental water account shall be expended for long-term water purchase contracts, permanent water rights, and associated costs.

(b) The California Bay-Delta Authority shall report annually to the Legislature on the state's efforts in acquiring long-term purchase contracts and permanent water rights in accordance with this section.

79560. The sum of five hundred million dollars ($500,000,000) shall be available for appropriation by the Legislature from the fund for competitive grants for projects set forth in this section to protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water. No project financed pursuant to this section shall include an on-stream surface water storage facility or an off-stream surface water storage facility other than percolation ponds for groundwater recharge in urban areas. No river or stream channel modification project

whose construction or operation causes any negative environmental impacts may be financed pursuant to this chapter unless those impacts are fully mitigated.

79560.1. (a) The department shall administer 50 percent of the funds, and the board shall administer the remaining 50 percent of the funds, made available to the program described in Sections 79560 and 79561.

(b) For projects proposed to be funded pursuant to Section 79560 that include any modification of a river or stream channel, the state agency making the grant, prior to the award of the grant, shall determine whether the environmental impacts resulting from that modification will be fully mitigated by considering all of the impacts of that modification and any mitigation, environmental enhancement, and environmental benefit resulting from the project, and determining whether, on balance, any environmental enhancement or benefit equals or exceeds any negative environmental impacts of the project. The costs of mitigation or enhancement may be included in the project costs eligible for funding pursuant to Section 79560.

(c) This section shall become operative only if the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 is approved by the voters at the November 5, 2002, statewide general election.

79560.5. For the purposes of carrying out this chapter, the department and the board shall jointly develop project solicitation and evaluation guidelines. Before developing the solicitation and evaluation guidelines, the department and the board shall jointly conduct a public meeting to receive public comments on the scope, procedures, and content of the guidelines. Considering the public comments, the department and the board shall jointly develop solicitation and evaluation guidelines that are consistent with law and state programs and policies. The department and the board shall post the solicitation and evaluation guidelines on their respective Internet Web sites.

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

(a) Programs for water supply reliability, water conservation, and water use efficiency.

(b) Storm water capture, storage, treatment, and management.

(c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.

(d) Non-point source pollution reduction, management, and monitoring.

(e) Groundwater recharge and management projects.

(f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.

(g) Water banking, exchange, reclamation, and improvement of water quality.

(h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.

(i) Watershed management planning and implementation.

(j) Demonstration projects to develop new drinking water treatment and distribution methods.

79561.5. (a) Notwithstanding any other provision of law, of the funds appropriated to the department for the purposes of Section 79560 and 79560.1, the department shall allocate the sum of not less than twenty million dollars ($20,000,000) to competitive grants for groundwater management and recharge projects. The department shall not allocate funds pursuant to this section unless it determines that the allocation is consistent with this division, as approved by the voters at the November 5, 2002, statewide general election.

(b) It is the intent of the Legislature that these funds be used to enhance water supply in rapidly growing areas of this state with limited access to imported water supplies.

(c) Not more than 50 percent of the grants pursuant to this section shall be for projects in northern California. For projects in southern California, the department shall give preference to projects outside the service area of the Metropolitan Water District of Southern California that are infill projects within one mile of established residential and commercial development.

(d) As used in this section, the term "rapidly growing areas" means counties located in southern California where the county population increased by 2.4 percent or more between January 1, 2002, and January 1, 2003.

79562. An amount, not to exceed 10 percent of the money available for appropriation in Section 79560, may be appropriated by the Legislature for facilities, equipment, and other expenses associated with the establishment of comprehensive statewide groundwater monitoring pursuant to Part 2.76 (commencing with Section 10780) of Division 6.

79562.5. (a) For the purposes of carrying out Section 79560, the department shall award grants to eligible projects consistent with an adopted integrated regional water management plan.

(b) For purposes of subdivision (a), the department shall establish standards for integrated regional water management plans. At a minimum, these plans shall address the major water related objectives and conflicts of the watersheds in the region covered by the plan, including water supply, groundwater management, ecosystem restoration, and water quality elements, and may include other elements consistent with this chapter.

(c) The department may waive the requirement for consistency with an adopted integrated regional water management plan until January 1, 2007, if the applicant is engaged in the development of an integrated regional water management plan and indicates, within its grant application, how the project fits into achieving the integrated regional water management plan objectives.

(d) The department may waive the matching fund requirement for disadvantaged communities.

(e) For groundwater management and recharge projects and for projects with potential groundwater impacts, the board and the department shall give preference to eligible projects in areas subject to a groundwater management plan that meets the requirements of Section 10753.7, or that includes the development of a groundwater management plan as a project component.

(f) The maximum award for any single grant pursuant to this section may not exceed fifty million dollars ($50,000,000).

(g) The department shall require that eligible projects include a nonstate contribution.

(h) For the purposes of implementing Section 79563, and to the extent funds are expended for the purposes of Section 30947 of the Public Resources Code, those funds shall comply with the requirements of that section.

79563. At least 50 percent of the amount available for appropriation in Section 79560 shall be appropriated to the board. The board shall establish procedures for selecting among eligible projects specified in Section 79561 that use the procedures developed by the board for stakeholder-based accelerated selection and contracting pursuant to Section 79104.32.

79563.5. (a) The board, to the extent that funds are appropriated pursuant to Section 79563 of the Water Code for purposes that are consistent with this section, shall fund the development of one or more integrated coastal watershed management plans.

(b) The plans shall be designed to allow for the integration of projects funded by the State Coastal Conservancy pursuant to Chapter 5.5 (commencing with Section 31220) of Division 21 of the Public Resources Code, and projects funded by the board pursuant to Chapter 3 (commencing with Section 30915) and Article 5 (commencing with Section 30945) of Chapter 4, of Division 20.4 of the Public Resources Code, within one or more coastal regions.

(c) The planning areas shall be selected by the board in consultation with the State Coastal Conservancy and the Department of Fish and Game and shall include coastal watersheds that influence water quality in areas of special biological significance.

(d) The board may only expend funds for the purposes of this section to the extent the board determines that the expenditures are consistent with the requirements of this chapter.

79564. To be eligible for financing pursuant to Section 79563, a project shall meet both of the following criteria:

(a) The project is consistent with an adopted integrated water management plan designed to improve regional water supply reliability, water recycling, water conservation, water quality improvement, storm water capture and management, flood management, recreation and access, wetlands enhancement and creation, and environmental and habitat protection and improvement.

(b) The project includes matching funds or donated services from non-state sources.

79564.1. (a) Of the funds made available by Section 79560, not less than 40 percent shall be available for eligible projects in northern California and not less than 40 percent be available for eligible projects in southern California, subject to a determination by the administering agency that each project meets all of the requirements of this chapter.

(b) For the purposes of this section, "southern California" means the Counties of San Diego, Imperial, Riverside, Orange, Los Angeles, Santa Barbara, San Bernardino, and Ventura.

(c) For the purposes of this section, "northern California" means all California counties except those identified in subdivision (b).

79565. Notwithstanding Section 13340 of the Government Code, the sum of one hundred forty million dollars ($140,000,000) is hereby continuously appropriated from the fund to the Wildlife Conservation Board, without regard to fiscal years, for expenditure by the board and for grants, for the acquisition from willing sellers of land and water resources, including the acquisition of conservation easements, to protect regional water quality, protect and enhance fish and wildlife habitat, and to assist local public agencies in improving regional water supply reliability.

79567. The sum of twenty million dollars ($20,000,000) shall be available for appropriation by the Legislature from the fund to the department for grants for canal lining and related projects necessary to reduce Colorado River water use pursuant to the California Colorado River Water Use Plan adopted by the Colorado River Board of California.

79568. (a) The sum of fifty million dollars ($50,000,000) shall be available for appropriation by the Legislature from the fund to the Wildlife Conservation Board for the acquisition, protection, and restoration of land and water resources necessary to meet state obligations for regulatory requirements related to California's allocation of water supplies from the Colorado River. No money allocated pursuant to this section may be used to supplant or pay for the regulatory mitigation obligations of private parties under state or federal law.

(b) All real property acquired pursuant to this section shall be acquired from willing sellers.

79570. The sum of two hundred million dollars ($200,000,000) shall be available for appropriation by the Legislature from the fund for expenditures and grants for the purpose of protecting coastal watersheds, including, but not limited to, acquisition, protection, and restoration of land and water resources and associated planning, permitting, and administrative costs, in accordance with the following schedule:

(a) The sum of one hundred twenty million dollars ($120,000,000) to the State Coastal Conservancy for coastal watershed protection pursuant to Division 21 (commencing with Section 31000) of the Public Resources Code.

(b) The sum of twenty million dollars ($20,000,000) to the State Coastal Conservancy for expenditure for the San Francisco Bay Conservancy Program for coastal watershed protection pursuant to Chapter 4.5 (commencing with Section 31160) of Division 21 of the Public Resources Code.

(c) The sum of forty million dollars ($40,000,000) to the Santa Monica Mountains Conservancy. Twenty million dollars ($20,000,000) of this sum shall be expended for protection of the Los Angeles River watershed upstream of the northernmost boundary of the City of Vernon, and twenty million dollars ($20,000,000) shall be expended for protection of the Santa Monica Bay and Ventura County coastal watersheds, pursuant to Division 23 (commencing with Section 33000) of the Public Resources Code.

(d) The sum of twenty million dollars ($20,000,000) to the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy for protection of the San Gabriel and lower

Los Angeles River watersheds pursuant to Division 22.8 (commencing with Section 32600) of the Public Resources Code.

79571. Ten percent of the money allocated in each of the categories in Section 79570 shall be used for grants for the acquisition and development of facilities to promote public access to and participation in the conservation of land, water, and wildlife resources. Eligible projects include, but are not limited to, the following:

(a) Training and research facilities for watershed protection and water conservation activities conducted by nonprofit organizations. Priority shall be given to projects operated by nonprofit organizations in collaboration with the University of California and public water agencies.

(b) Nature centers that are in or adjacent to watersheds and wetlands identified for protection pursuant to this chapter, that provide wildlife viewing, outdoor experiences, and conservation education programs to the public and to students. Priority shall be given to projects that are operated by or in cooperation with nonprofit organizations and are designed to serve children from urban areas that lack access to natural areas and outdoor education programs.

79572. (a) Notwithstanding Section 13340 of the Government Code, the sum of seven hundred fifty million dollars ($750,000,000) is hereby continuously appropriated from the fund to the Wildlife Conservation Board, without regard to fiscal years, for the acquisition, protection, and restoration of coastal wetlands, upland areas adjacent to coastal wetlands, and coastal watershed lands. Money appropriated pursuant to this section shall be for the acquisition, protection, and restoration of lands in or adjacent to urban areas. Eligible projects shall be limited to the following:

(1) Acquisition, protection, and restoration of coastal wetlands identified in the Southern California Coastal Wetlands Inventory as of January 1, 2001, published by the State Coastal Conservancy, located within the coastal zone, and other wetlands connected and proximate to such coastal wetlands, and upland areas adjacent and proximate to such coastal wetlands, or coastal wetlands identified for acquisition, protection, and restoration in the San Francisco Baylands Ecosystem Habitat Goals Report, and upland areas adjacent to the identified wetlands.

(2) Acquisition, protection, and restoration of coastal watershed and adjacent lands located in Los Angeles, Ventura, and Santa Barbara Counties. Any project financed pursuant to this paragraph within the Santa Monica Mountains Zone, as defined in Section 33105 of the Public Resources Code, shall be by grant from the Wildlife Conservation Board to the Santa Monica Mountains Conservancy. Any project financed pursuant to this paragraph within the Baldwin Hills area, as defined in Section 32553 of the Public Resources Code, shall be by grant from the Wildlife Conservation Board to the Baldwin Hills Conservancy.

(b) Not less than three hundred million dollars ($300,000,000) of the amount appropriated in this section shall be expended or granted for projects within Los Angeles and Ventura Counties. Of the remaining funds available pursuant to this section the Wildlife Conservation Board shall give priority to the acquisition of not less than 100 acres consisting of upland mesa areas, including wetlands therein, adjacent to the state ecological reserve in the Bolsa Chica wetlands in Orange County.

(c) Not more than two hundred million dollars ($200,000,000) of the amount appropriated in this section may be expended or granted for projects in the San Francisco Bay area, as described in Section 31162 of the Public Resources Code. Any project within the San Francisco Bay area may be by grant from the Wildlife Conservation Board to the State Coastal Conservancy.

79573. (a) The purchase price for each acquisition made pursuant to Section 79572 shall not exceed the fair market value of the property as defined in Section 1263.320 of the Code of Civil Procedure. Fair market value shall be determined by an appraisal that is prepared by a licensed real estate appraiser and approved by the Wildlife Conservation Board and the Department of General Services.

(b) All real property acquired pursuant to this chapter shall be acquired from willing sellers.

79575. Not later than January 1, 2005, and on or before January 1 of each year thereafter, each state agency expending funds pursuant to this division for projects, grants, or loans shall report to the Legislature on the recipient and amount of each project, grant, or loan awarded under this division during the previous fiscal year. The information shall include the total amount awarded, categorized by project, grant, or loan, the geographic distribution of projects, grants, or loans awarded under this division, and the intended public and environmental benefit that the awards provide. The information shall also include data on the balances of funds available under this division for expenditures and grants in that fiscal year and future fiscal years.

79580. Bonds in the total amount of three billion four hundred forty million dollars ($3,440,000,000), not including the amount of any refunding bonds issued in accordance with Section 79588, or so much thereof as is necessary, may be issued and sold to be used for carrying out the purposes set forth in this division and to be used to reimburse the General Obligation Bond Expense Revolving Fund pursuant to Section 16724.5 of the Government Code. The bond proceeds shall be deposited in the Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002 created by Section 79510. The bonds shall, when sold, be and constitute a valid and binding obligation of the State of California, and the full faith and credit of the State of California is hereby pledged for the punctual payment of both principal of and interest on the bonds as they become due and payable.

79581. The bonds authorized by this division shall be prepared, executed, issued, sold, paid, and redeemed as provided in the State General Obligation Bond Law (Chapter 4 (commencing with Section 16720) of Part 3 of Division 4 of Title 2 of the Government Code), and all provisions of that law shall apply to the bonds and to this division and are hereby incorporated in this division by this reference as though fully set forth in this division.

79582. (a) Solely for the purpose of authorizing the issuance and sale, pursuant to the State General Obligation Bond Law, of the bonds authorized by this division, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 Finance

Committee is hereby created. For purposes of this division, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 Finance Committee is "the committee" as that term is used by the State General Obligation Bond Law. The committee shall consist of the Controller, the Director of Finance, and the Treasurer, or their designated representatives. The Treasurer shall serve as chairperson of the committee. A majority of the committee may act for the committee.

(b) For purposes of this chapter and the State General Obligation Bond Law, the secretary is designated as "the board."

79583. The committee shall determine whether or not it is necessary or desirable to issue bonds authorized pursuant to this division in order to carry out the actions specified in this division and, if so, the amount of bonds to be issued and sold. Successive issues of bonds may be authorized and sold to carry out those actions progressively, and it is not necessary that all of the bonds authorized to be issued be sold at any one time.

79584. There shall be collected annually in the same manner and at the same time as other state revenue is collected, in addition to the ordinary revenues of the state, a sum in an amount required to pay the principal of, and interest on, the bonds maturing each year, and it is the duty of all officers charged by law with any duty in regard to the collection of the revenue to do so and perform each and every act that is necessary to collect that additional sum.

79585. Notwithstanding Section 13340 of the Government Code, there is hereby appropriated from the General Fund, for purposes of this division, an amount that will equal the total of the following:

(a) The sum annually necessary to pay the principal of, and interest on, bonds issued and sold pursuant to this division, as the principal and interest become due and payable.

(b) The sum which is necessary to carry out the provisions of Section 79586, appropriated without regard to fiscal years.

79586. For the purposes of carrying out this division, the Director of Finance may authorize the withdrawal from the General Fund of an amount or amounts not to exceed the amount of the unsold bonds that have been authorized to be sold for the purpose of carrying out this division. Any amounts withdrawn shall be deposited in the fund. Any money made available under this section shall be returned to the General Fund, plus the interest that the amounts would have earned in the Pooled Money Investment Account, from money received from the sale of bonds that would otherwise be deposited in that fund.

79587. All money derived from premium and accrued interest on bonds sold shall be reserved and shall be available for transfer to the General Fund as a credit to expenditures for bond interest.

79588. Any bonds issued or sold pursuant to this division may be refunded by the issuance of refunding bonds in accordance with Article 6 (commencing with Section 16780) of Chapter 4 of Part 3 of Division 4 of Title 2 of the Government Code. Approval

by the electors of the state for the issuance of the bonds shall include approval of the issuance of any bonds issued to refund any bonds originally issued or any previously issued refunding bonds.

79589. The people of California hereby find and declare that inasmuch as the proceeds from the sale of bonds authorized by this division are not "proceeds of taxes" as that term is used in Article XIIIB of the California Constitution, the disbursement of these proceeds is not subject to the limitation imposed by that article.

79590. Pursuant to Chapter 4 (commencing with Section 16720) of Part 3 of Division 4 of Title 2 of the Government Code, the cost of bond issuance shall be paid out of the bond proceeds. These costs shall be shared proportionally by each program funded under this division. Actual costs incurred in connection with administering programs authorized under the categories specified in this division shall be paid by the funds authorized for those purposes by this division.