CHINO BASIN WATERMASTER

NOTICE OF MEETINGS

April 10, 2003

April 10, 2003 @ 10:00 a.m. - Joint Meeting Appropriative & Non-Agricultural Pools

@ 1:00 p.m. - Agricultural Pool Meeting

at the office of the
Chino Basin Watermaster
8632 Archibald Avenue, Suite 109
Rancho Cucamonga, CA 91730
Tele. (909) 484-3888
FAX (909) 484-3890
www.cbwm.org

CHINO BASIN WATERMASTER
JOINT APPROPRIATIVE & NON-AGRICULTURAL POOLS
10:00 a.m. – April 10, 2003

AGENDA

CALL TO ORDER

AGENDA - ADDITIONS/REORDER

I. **CONSENT CALENDAR**

Note: All matters listed under the Consent Calendar are considered to be routine and non-controversial and will be acted upon by one motion in the form listed below. There will be no separate discussion on these items prior to voting unless any members, staff, or the public requests specific items be discussed and/or removed from the Consent Calendar for separate action.

A. **MINUTES**

Appropriative Pool Only

1. Draft minutes - Annual Appropriative Pool Meeting held January 16, 2003

Non-Agricultural Pool Only

2. Draft minutes - Annual Non-Agricultural Pool Meeting held January 16, 2003

Appropriative & Non-Agricultural Pools

3. Draft minutes - Joint Meeting of the Appropriative & Non-Agricultural Pools held February 13, 2003
4. Draft minutes - Joint Meeting of the Appropriative & Non-Agricultural Pools held March 13, 2003

B. **FINANCIAL REPORTS**

1. Cash Disbursement Report – March 2003
2. Combining Schedule Of Revenue, Expenses And Changes In Working Capital For The Period July 1, 2002 through February 28, 2003
3. Treasurer's Report of Financial Affairs For February 1 through February 28, 2003
4. 2002-03 Actual YTD Revenues And Expenses Compared With Adopted 2002-03 Budget

II. **BUSINESS ITEMS - POSSIBLE ACTION**

A. **FORMATION OF WATER QUALITY COMMITTEE**
Consider action to form a Water Quality Committee pursuant to OBMP Program Element 6.

B. **NIAGARA WATER COMPANY INTERVENTION**
Consider acceptance of Niagara Water Company's request to intervene into the Judgment.

C. **CONSIDER LETTER TO MWD**
Consider recommending Watermaster Board Chair send a letter to MWD regarding additional use of Proposition 13 monies for the QSA deal.

D. **MZ1 MANAGEMENT PLAN - EXTENSOMETER INSTALLATION & TESTING**
Consider authorization for funding and executing the contract documents for the installation of the Extensometer at Ayala Park.

E. **NEW YIELD FROM ADDITIONAL RECHARGE (Appropriative Pool)**
Staff's recommendation will be provided at the meeting.

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Chino Land & Water SBSC Case No RCV 06484
2. Attorney/Managers Meeting(s)

B. CEO REPORT/UPDATES

1. Meter Installation Program
2. Dry Year Yield Project
3. Recharge Improvement Project
4. OBMP Status Update
5. AB303 Grant Application Update
6. AB599 Update
7. SB34 Legislation
8. AGWA/WEF Water Quality Conference held April 8 & 9
9. Other

C. OTHER AGENCY REPORTS

IV. COMMITTEE MEMBER COMMENTS

V. OTHER BUSINESS

VI. FUTURE MEETINGS

April 24, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting
*May 15, 2003	10:00 a.m.	Joint Meeting - Appropriative & Non-Ag Pools
	1:00 p.m.	Ag Pool Meeting
*May 29, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

(*Note: The 2nd Thursday during the month of May conflicts with the ACWA Conference @ Lake Tahoe. Therefore, May meetings are rescheduled for the 3rd and 5th Thursdays, May 15 & May 29.)

FUTURE EVENTS

April 11, 2003	Tentative Recharge Basin Project Groundbreaking
May 7, 8, 9, 2003	ACWA Conference @ Lake Tahoe

Adjourn

CHINO BASIN WATERMASTER
AGRICULTURAL POOL
1:00 p.m. - April 10, 2003

AGENDA

CALL TO ORDER

AGENDA - ADDITIONS/REORDER

I. CONSENT CALENDAR

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A. MINUTES
1. Draft minutes - Annual Meeting of the Agricultural Pool Meeting held January 16, 2003
2. Draft minutes - Meeting of the Agricultural Pool held February 13, 2003
3. Draft minutes - Meeting of the Agricultural Pool held March 13, 2003

B. FINANCIAL REPORTS
1. Cash Disbursement Report – March 2003
2. Combining Schedule Of Revenue, Expenses And Changes In Working Capital For The Period July 1, 2002 through February 28, 2003
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II. BUSINESS ITEMS - POSSIBLE ACTION

A. FORMATION OF WATER QUALITY COMMITTEE
Consider action to form a Water Quality Committee pursuant to OBMP Program Element 6.

B. NIAGARA WATER COMPANY INTERVENTION
Consider acceptance of Niagara Water Company's request to intervene into the Judgment.

C. CONSIDER LETTER TO MWD
Consider recommending Watermaster Board Chair send a letter to MWD regarding additional use of Proposition 13 monies for the QSA deal.

D. MZ1 MANAGEMENT PLAN - EXTENSOMETER INSTALLATION & TESTING
Consider authorization for funding and executing the contract documents for the installation of the Extensometer at Ayala Park.

E. SALT MANAGEMENT BUDGET (Agricultural Pool)
Discuss funding available for Digester Project.

F. NOTIFICATION OF WATER QUALITY SAMPLING RESULTS (Agricultural Pool)
Discuss policy regarding notification of water quality sampling results to private well owners in the Agricultural Pool.

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Chino Land & Water SBSC Case No. RCV 06484
2. Attorney/Managers Meeting(s)

B. CEO REPORT/UPDATES

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C. OTHER AGENCY REPORTS

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FUTURE EVENTS

April 11, 2003	Tentative Recharge Basin Project Groundbreaking
May 7, 8, 9, 2003	ACWA Conference @ Lake Tahoe

Adjourn

CHINO BASIN WATERMASTER

April 10, 2003
10:00 a.m. – Joint Meeting of the
Appropriative & Non-Agricultural Pools
1:00 p.m. – Agricultural Pool

AGENDA PACKAGE MATERIALS

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

I. CONSENT CALENDAR

A. MINUTES

(Appropriative Pool)

Draft Minutes
CHINO BASIN WATERMASTER
ANNUAL MEETING OF THE
APPROPRIATIVE POOL
January 16, 2003

The Appropriative Pool Meeting was held at the offices of the Chino Basin Watermaster, 8632 Archibald Ave., Suite 109, Rancho Cucamonga, CA, on January 16, 2003 at 10:00 a.m.

NON-AGRICULTURAL POOL MEMBER PRESENT

James Jenkins	San Bernardino County Department of Airports
Les Richter	California Speedway
Michael Thies	Space Center Mira Loma

APPROPRIATIVE POOL MEMBERS PRESENT

Ray Wellington, Chair	San Antonio Water Company
Rich Atwater	Inland Empire Utilities Agency
Robert DeLoach	Cucamonga County Water District
Mohamed El Amamy	City of Ontario
Mark Kinsey	Monte Vista Water District
Mike Maestas	City of Chino Hills
Henry Pepper	City of Pomona
J. Arnold Rodriguez	Santa Ana River Water Company
Kyle Snay	Southern California Water Company
Bill Stafford	Marygold Mutual Water Company
Ray Wellington	San Antonio Water Company

Watermaster Staff Present

John Rossi	Chief Executive Officer
Traci Stewart	Chief of Watermaster Services
Sheri Rojo	Finance Manager
Michelle Lauffer	Water Resources Specialist
Mary Staula	Recording Secretary/Administrative Assistant

Watermaster Consultants Present

Michael Fife	Hatch & Parent

Others Present

Dan Arrighi	Fontana Water Company
Raul Garibay	City of Pomona
Rick Hansen	Three Valleys Municipal Water District
Josephine Johnson	Monte Vista Water District
Rita Kurth	Cucamonga County Water District
Eric Mills	MWH

The meeting was called to order by Chair Wellington at 10:12 a.m.

AGENDA - ADDITIONS/REORDER
None

I. ANNUAL ELECTIONS

A. Calendar year 2003 Appropriative Pool Officers
Nominations were heard for Pool Chair, followed by nominations for Pool Vice-Chair, to serve during calendar year 2003

Motion by DeLoach, second by Rodriguez, and by unanimous vote
Moved, to elect Ken Jeske as Chair of the Appropriative Pool during calendar year 2003.

Motion by El Amamy, second by DeLoach, and by unanimous vote
Moved, to elect Robert DeLoach as Vice-Chair of the Appropriative Pool during calendar year 2003.

Chair	Ken Jeske, City of Ontario
Vice-Chair	Robert DeLoach, Cucamonga County Water District
Secretary/Treasurer	Watermaster Chief Executive Officer

B. Calendar year 2003 Non-Major Appropriators on the Advisory Committee
The Non-Major Appropriators were asked to select two representatives to serve on the Advisory Committee during calendar year 2003 A ten-minute caucus was requested. Upon reconvening at 10:25 a.m., the following nominations were heard:

Motion by Kinsey, second by Stafford, and by unanimous vote of the Non-Major Appropriators
Moved, to select the San Antonio Water Company and the Santa Ana River Water Company to continue serving on the Advisory Committee during calendar year 2003.

( ) Arrowhead Mountain Springs Water Company
( ) Inland Empire Utilities Agency
( ) Los Serranos Country Club
( ) Marygold Mutual Water Company
( ) Monte Vista Irrigation Company
( ) Nicholson Trust
( ) Norco, City of
(X) San Antonio Water Company
(X) Santa Ana River Water Company
( ) San Bernardino, County of (Prado Shooting Park)
( ) Southern California Water Company
( ) Upland, City of
( ) West End Consolidated Water Company
( ) West San Bernardino County Water District

C. Calendar year 2003 Advisory Committee Members & Officers
According to the rotation sequence established among the pools, the Appropriators were asked to appoint the Appropriative Pool Chair, or a designated representative, to serve as 2nd Vice-Chair of the Advisory Committee during calendar year 2003

Motion by Wellington, second by Kinsey, and by unanimous vote
Moved, to appoint Appropriative Pool Chair Jeske to serve as the 2nd Vice-Chair of the Advisory Committee during calendar year 2003.

Chair	Agricultural Pool	N/A
Vice-Chair	Non-Agricultural Pool	N/A
2nd Vice-Chair	**Appropriative Pool**	Ken Jeske

D. Calendar year 2003 Pool Representation on the Watermaster Board
Based on the Court-adopted Rotation Schedule for Representatives to the Watermaster, during calendar year 2003 the Cities of City of Chino, the City of Pomona and a Non-Major Appropriator will represent the Appropriative Pool on the Watermaster Board.

Actions taken by the City Councils of Chino and Pomona were reported:

Dennis Yates and Glen Duncan were reappointed as representative and alternate representative, respectively, by the City of Chino to serve a second term on the Watermaster Board.

Dan Rodriguez was appointed representative and Paul Lantz alternate representative by the City of Pomona to serve on the Watermaster Board.

The Non-Major Appropriators were asked to elect a representative and an alternate to serve on the Board, effective January 30, 2003 At 11:25, a 15-minute caucus was called. The meeting reconvened at 11:30 a m. and nominations were heard for the following agencies:

San Antonio Water Company
Monte Vista Irrigation Company
Nicholson Trust

A volume vote was requested and the secretary called the roll among the Non-Major Appropriators present. The volume vote resulted in one abstention, one vote for Monte Vista Irrigation, one vote for San Antonio Water Company and four votes for Nicholson Trust:

Nicholson Trust was elected by the Non-Major Appropriators to serve on the Watermaster Board during calendar year 2003.

Nicholson Trust named the following representative(s):

Board Member: Michael Whitehead Alternate Member: Robert Nicholson

II. CONSENT CALENDAR

A. MINUTES

1. Minutes of the Joint Meeting of the Non-Agricultural Pool, Appropriative Pool and Advisory Committee held December 12, 2002

B. FINANCIAL REPORTS

1. Cash Disbursement Report - December 2002
2. Combining Schedule of Revenue, Expenses and Changes in Working Capital for the Period July 1, 2002 through November 30, 2002
3. Treasurer's Report of Financial Affairs for the Period November 1 through November 30, 2002
4. 2002-03 Actual YTD Revenues and Expenses Compared with Adopted 2002-03 Budget

C. INDEPENDENT AUDITOR'S REPORT ON FINANCIAL STATEMENTS FOR YEAR ENDED JUNE 30, 2002

D. NOTICE OF INTENT TO CHANGE OPERATING SAFE YIELD OF CHINO BASIN (pursuant to Judgment Exhibit 1 Paragraph 2(b))

Submitted annually as a placeholder

E. RESOLUTION 03-01, AUTHORIZING AND DESIGNATING SIGNATORIES OF DEPOSITORY AGREEMENTS, DEPOSITORY CARDS AND DEPOSITS, TRANSFERS AND WITHDRAWALS OF FUNDS

Annual resolution authorizing and designating signatories of financial agreements and transactions

F. WATER TRANSACTION

Lease of Water Production Rights from the City of Pomona to the Fontana Water Company in the amount of 2,500 acre-feet for fiscal year 2002-03 (Noticed December 11, 2002)

G. DRAFT TWENTY-FIFTH ANNUAL REPORT
Included separately for filing with the court by January 31, 2003

There were no questions regarding the Consent Calendar items. Mr. Wellington announced that he would be abstaining from the vote, as he did not receive the agenda materials for review prior to the meeting.

Motion by Pepper, second by Kinsey, and by majority vote
Abstention: Wellington
Moved, to approve the Consent Calendar, as presented.

III. BUSINESS ITEMS

A. MAXIMUM BENEFIT ANALYSIS
Mr. Rossi referred to page 48 of the meeting package. The contract amount for Risk Sciences to perform the Maximum Benefit Analysis was previously approved through the Watermaster process. Mr. Rossi explained that additional administrative costs were incurred by the Santa Ana Watershed Project Authority (SAWPA) to assist with this effort and staff was requesting approval of approximately $17,000 to cover the costs to attend meetings and assist with presentation of the concept. That amount also includes the annual $2,000 for Watermaster participation in the TIN/TDS Task Force. He reviewed the time invested and the work performed by SAWPA on this project and reported that the successful outcome justifies the additional expenditure. When asked about the amount of SAWPA's invoice versus the amount being requested, Mr. Rossi explained that $14,000 of that had been previously approved. Discussions continued regarding the monetary and recharge benefits that will be derived from the maximum benefit concept once applied. It has been approved by the Regional Water Quality Control Board (RWQCB) and is pending approval by the State Board in April or May.

Motion by Wellington, second by Rodriguez, and by unanimous vote
Moved to approve payment of the additional $17,000 administrative costs incurred toward the Maximum Benefit Concept.

IV. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT
Prior to receiving Counsel Fife's report, Mr. DeLoach announced that Cucamonga County Water District was asked to provide a report on the impact of the Colonies Project to their agency. In response, he offered some ranges. He said that anywhere from 4500 acre-feet to 7500 acre-feet of water is pumped from 17 of the 23 wells located in the Cucamonga Basin on an annual basis. In terms of budget, that ranges from approximately $2.5 million to $2.7 million per year. Based on those ranges, the long-term impact would be devastating.

1. **Attorney/Managers Meeting(s)**
   An Attorney/Managers Meeting has been scheduled for 1:00 p.m. January 29.
2. **Colonies Project, Recharge Related Issues**
   The Regional Water Quality Control Board issued a Stop Work Order pending the issuance of a Waste Discharge Permit. The lawsuit filed by Cucamonga County Water District has been stayed to June 30, 2003 pending negotiations over the recharge issue. Watermaster General Legal Counsel is monitoring this matter and will advise staff of any updates.
3. **Niagara Bottling Company**
   Counsel Fife reported that despite their efforts, Niagra Bottling Company is not convinced that they need to voluntarily intervene into the Judgement. Based on advice they received from their attorney, Watermaster may need to leave the matter up to the Court. Mr. Rossi provided copies of correspondence from Watermaster to Niagara, from Wayne Lemieux (Niagara's legal counsel) to Watermaster, and Hatch & Parent's response to Mr. Lemieux'

letter.

4. **Chino Land & Water, SBSC Case No. RCV 064284**
   Attorneys for Lewis Investment Company, LLC filed a Notice of Hearing of Demurrer; Demurrer; Memorandum of Points and Authorities in Support Thereof; Request for Judicial Notice; and Amended Proof of Service for hearing on February 6, 2003. This could bring Watermaster and all the parties back into the case. Watermaster General Legal Counsel will attend the hearing and provide an update in February.

B. **CEO/STAFF REPORT**

1. **Watermaster Project Meeting Updates**

- MZ1 Program
  The Technical Group has been working on a budget associated with the MZ1 Work Plan. They hope to have the budget ready for committee approval next month.
- MWD Dry Year Yield Program
  The parties have been discussing relationships between the master contract and the retail agreements. Discussions will continue on Tuesday, January 28. Mr. Atwater reported that the last issue to be worked out is administration of the storage account at Watermaster. The program is scheduled for MWD Board approval on March 11 and if all retail agreements are approved and executed by the March timeframe, they can pursue the grant funds and begin the projects. A brief discussion ensued regarding the allocation of funds and compliance with DWR grant requirements.
- Watermaster Administrative Updates
  Montclair Basins-Spreading (6500 AF)
  All supplemental water has been spread for this year.
  Proposition 50 Priorities for Funding (Appropriative Pool Only)
  Mr. Argo gave a presentation regarding potential priorities for Proposition 50 funding. Mr. Atwater said that the process for Proposition 50 funding is different from Proposition 13 in that it is subject to specific legislative appropriations. He suggested developing a consolidated working draft document that would represent the general priorities of the agencies working together. He added that the key is to communicate to the legislators that there is a consensus process in Chino Basin to ensure funding is equitably distributed. After the list of priority projects has been put together, a meeting will be scheduled with the Dolphin Group to assist with communicating the priorities within Chino Basin and emphasizing that this groundwater basin is an extremely valuable resource
  Public Relations - Dolphin Group (Appropriative Pool Only)
  The Dolphin Group is in the process of preparing a proposal for the Watermaster Board that can be presented to the appropriator's boards or councils as well.
  Added:
  Recharge Operations Agreement
  The County approved the agreement last Tuesday.

- Other Updates
  - Senator Soto's Legislation
    Mr. Rossi reported that he recently met with Grace Burgess and hopes to have more information regarding SB34 next month.

V. **POOL MEMBER COMMENTS**
None

VI. **OTHER BUSINESS**
None

VII. FUTURE MEETINGS

February 13, 2003	10:00 a.m.	Joint Meeting of the Non-Agricultural & Appropriative Pool
	1:00 p.m.	Agricultural Pool Meeting
February 27, 2003	10:00 a.m	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

There being no further business to come before the pool committee, the meeting adjourned at 11:25 a.m

_____
Secretary

Minutes Approved:_____

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

CONSENT CALENDAR

A. MINUTES

(Non-Agricultural Pool)

Draft Minutes
CHINO BASIN WATERMASTER
ANNUAL MEETING OF THE
NON-AGRICULTURAL POOL
January 16, 2003

Non-Agricultural Pool annual meeting was held at the offices of the Chino Basin Watermaster, 8632 Archibald Ave , Suite 109, Rancho Cucamonga, CA, on January 16, 2003 at 8:30 a.m.

NON-AGRICULTURAL POOL MEMBERS PRESENT

Steve Arbelbide	California Steel Industries, Inc.
Vic Barrion	Reliant Energy, Etiwanda LLC

Watermaster Staff Present

John Rossi	Chief Executive Officer
Traci Stewart	Chief of Watermaster Services
Sheri Rojo	Finance Manager
Mary Staula	Recording Secretary/Administrative Assistant

Others Present
None

The Non-Agricultural Pool meeting was called to order at 8:45 a.m.

AGENDA - ADDITIONS/REORDER
None

RECOGNITION OF SERVICE
Steve Arbelbide, California Steel Industries Inc

Staff expressed appreciation to Mr. Arbelbide for dedicating so much time and effort to Watermaster activities for ten years. During the last five years, Mr. Arbelbide served concurrently on the Non-Agricultural Pool, Advisory Committee, Watermaster Board, and various committees/ sub-committees. Mr. Arbelbide will no longer be able to dedicate the amount of time required to represent the Non-Agricultural Pool at the various levels, but will participate when possible.

I. ANNUAL ELECTIONS

A. Calendar-Year 2003 Non-Agricultural Pool Officers

The following members were elected to serve as officers of the Non-Agricultural Pool during calendar year 2003.

Chair	Vic Barrion, Reliant Energy, Etiwanda LLC
Vice-Chair	Steve Arbelbide, California Steel Industries, Inc.
Secretary/Treasurer	Watermaster Chief Executive Officer

B. Calendar-Year 2003 Advisory Committee Members

The following members were nominated to represent the Non-Agricultural Pool on the Advisory Committee during calendar year 2003. This item will be rescheduled for further discussion and selection of alternates at the next Non-Agricultural Pool meeting, February 13, 9:30 a.m.

Member:	Vic Barrion, Reliant Energy, Etiwanda LLC	Alternate:	(to be determined)
Member:	Les Richter, California Speedway	Alternate:	(to be determined)
Member:	Michael Thies, Space Center Mira Loma	Alternate:	(to be determined)

C. Calendar-Year 2003 Advisory Committee Officers
Based on the rotation sequence established among the pools, the Non-Agricultural Pool Chair was elected to serve as Vice-Chair of the Advisory Committee during Calendar-Year 2003.

Overlying (Agricultural) Pool	Chair	----------
Overlying (Non-Agricultural) Pool	**Vice-Chair**	**Vic Barrion**
Appropriative Pool	2nd Vice-Chair	----------

D. Calendar-Year 2003 Pool Representation on Watermaster Board
The Chair of the Non-Agricultural Pool was appointed to serve on the Watermaster Board during Calendar-Year 2003. The alternate Board member has not been determined.

Board Member: Vic Barrion, Reliant Energy, Etiwanda LLC/Non-Agricultural Pool

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C. INDEPENDENT AUDITOR'S REPORT ON FINANCIAL STATEMENTS FOR YEAR ENDED JUNE 30, 2002

D. NOTICE OF INTENT TO CHANGE OPERATING SAFE YIELD OF CHINO BASIN (pursuant to Judgment Exhibit 1 Paragraph 2(b)
Submitted annually in order to preserve the opportunity to change the operating safe yield of Chino Basin

E. RESOLUTION 03-01, AUTHORIZING AND DESIGNATING SIGNATORIES OF DEPOSITORY AGREEMENTS, DEPOSITORY CARDS AND DEPOSITS, TRANSFERS AND WITHDRAWALS OF FUNDS
Submitted annually to authorize and designate signatories for financial transactions

F. WATER TRANSACTION
Lease of Water Production Rights from the City of Pomona to the Fontana Water Company in the amount of 2,500 acre-feet for fiscal year 2002-03 (Noticed December 11, 2002)

G. DRAFT TWENTY-FIFTH ANNUAL REPORT
Included separately for filing with the court by January 31, 2003

Motion by Arbelbide, second by Barrion, and by unanimous vote
Abstention by Arbelbide on Consent Calendar Item A only
Moved to approve Consent Calendar Items A through G, as presented.

III. BUSINESS ITEMS

A. MAXIMUM BENEFIT ANALYSIS

The contract for Risk Sciences to perform the Maximum Benefit Analysis was previously approved through the Watermaster process. Mr. Rossi explained that additional administrative costs were incurred by the Santa Ana Watershed Project Authority (SAWPA) to assist with this effort. Staff was requesting an additional $17,000 to pay the costs for SAWPA to attend meetings and assist with the presentation of the concept. Included in that amount is the annual $2,000 for Watermaster participation in the TIN/TDS Task Force. Discussions continued regarding the monetary and recharge benefits that will be derived from the maximum benefit concept once applied. It has been approved by the Regional Water Quality Control Board (RWQCB) and is pending approval by the State Board.

Motion by Arbelbide, second by Barrion, and by unanimous vote

Moved to approve payment of the additional $17,000 administrative costs incurred toward the Maximum Benefit Concept.

IV. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Attorney/Managers Meeting(s)

Mr. Rossi noted that an Attorney/Managers Meeting has been scheduled for 1:00 p.m., January 29, at Watermaster. In addition to Items 2, 3 and 4 below, the Dry Year Yield Project will be discussed in detail at that meeting.

2. Colonies Project, Recharge Related Issues

Mr. Rossi said the Regional Water Quality Control Board issued a Stop Work Order on the Colonies Project pending the issuance of a Waste Discharge Permit. The lawsuit filed by Cucamonga County Water District has been stayed to June 30, 2003 pending negotiations over the recharge issue. Watermaster General Legal Counsel has been asked to monitor this issue and advise staff of any updates.

3. Niagara Bottling Company

Niagara Bottling Company (Niagara) has produced approximately 300 to 400 acre-feet of water per year from an on-site well but has never intervened into the Judgment. At the Watermaster meetings held last December, General Legal Counsel was asked to explore the most appropriate method to ensure that Niagara petitions to intervene. Niagara has not attempted to work with Watermaster in this regard and their legal counsel has advised them that intervention is not necessary. Mr. Rossi provided copies of correspondence from Watermaster to Niagara, from Wayne Lemieux (Niagara's legal counsel) to Watermaster, and Hatch & Parent's response to Mr. Lemieux' letter.

4. Chino Land & Water, SBSC Case No. RCV 064284

Attorneys for Lewis Investment Company, LLC filed a Notice of Hearing of Demurrer; Demurrer; Memorandum of Points and Authorities in Support Thereof; Request for Judicial Notice; and Amended Proof of Service for hearing on February 6, 2003. Mr. Rossi said that this could bring Watermaster and all the parties back into the case. Watermaster General Legal Counsel will attend the hearing and provide an update at the February meetings.

B. CEO/STAFF REPORT

1. Watermaster Project Meeting Updates

- **MZ1 Program**
  The Technical Committee met last week and will meet again next week to review the budget and prioritize projects.
- **MWD Dry Year Yield Program**
  The Dry Year Yield Committee met this week. A Master Agreement has been developed between Chino Basin Watermaster, Inland Empire Utilities Agency and Metropolitan Water District. At the next meeting, they plan to discuss retail agreements, equitable allocation of funds, etc.

2. Watermaster Administrative Updates

- **Montclair Basins-Spreading (6500 AF)**
  Mr. Rossi reported that the Watermaster has fulfilled its commitment to spread 6500 acre-feet of water in the Montclair Basin for FY 2002-03.

3. Other Updates

- Senator Soto's Legislation

V. POOL MEMBER COMMENTS

Mr. Arbelbide said that although he is resigning from full participation, he is 100% supportive of Watermaster activities. His wish was that more Non-Agricultural Pool producers would become involved, experience the tremendous amount of good things being accomplished, and develop an understanding of the value of water management and how their industries can benefit.

VI. OTHER BUSINESS

It was recommended to schedule the Non-Agricultural Pool meeting at 9:30, February 13, just prior to the joint meeting with the Appropriative Pool to continue discussing Non-Agricultural Pool appointments and alternates.

VII. FUTURE MEETINGS

February 13, 2003	**9:30 a.m.**	**Non-Agricultural Pool (added)**
	10:00 a.m.	Joint Meeting of the Non-Agricultural & Appropriative Pool
	1:00 p.m.	Agricultural Pool Meeting
February 27, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

Chair Barrion adjourned the meeting at 9:20 a.m.

_____
Secretary

Approved: _____

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

CONSENT CALENDAR

A. MINUTES

(Joint Meetings of the Non-Ag & Appropriative Pools)

Draft Minutes

CHINO BASIN WATERMASTER

JOINT MEETING OF THE APPROPRIATIVE & NON-AGRICULTURAL POOLS

February 13, 2003

The Joint Meeting of the Appropriative and Non-Agricultural Pools was held at the offices of the Chino Basin Watermaster, 8632 Archibald Ave., Suite 109, Rancho Cucamonga, CA, on February 13, 2003 at 10:00 a.m.

APPROPRIATIVE POOL MEMBERS PRESENT

Rich Atwater	Inland Empire Utilities Agency
Dave Crosley	City of Chino
Robert DeLoach	Cucamonga County Water District
Mohamed El Amamy	City of Ontario
Mark Kinsey	Monte Vista Water District
Mike Maestas	City of Chino Hills
Henry Pepper	City of Pomona
J. Arnold Rodriguez	Santa Ana River Water Company
Bill Stafford	Marygold Mutual Water Company
Ray Wellington	San Antonio Water Company

NON-AGRICULTURAL POOL MEMBERS PRESENT

Vic Barrion, Chair	Reliant Energy, Etiwanda LLC

Agricultural Pool Members Present

Robert DeBerard	Crops

Watermaster Board Members Present

Bob Kuhn	Three Valleys Municipal Water District

Watermaster Staff Present

John Rossi	Chief Executive Officer
Sheri Rojo	Accounting/Office Manager
Devonya Williams	Recording Secretary

Watermaster Consultants Present

Michael Fife	Hatch & Parent
Andy Malone	Wildermuth Environmental, Inc.
Mark Wildermuth	Wildermuth Environmental, Inc.

Others Present

Ron Craig	RBF Consulting/City of Chino Hills
Raul Garibay	City of Pomona
Josephine Johnson	Monte Vista Water District
Rita Kurth	Cucamonga County Water District
Dennis Williams	City of Chino Hills

The Joint Meeting of the Appropriative and Non-Agricultural Pools was called to order by Member Wellington at 10:10 a.m.

AGENDA - ADDITIONS/REORDER

None

I. CONSENT CALENDAR

A. FINANCIAL REPORTS

1. Cash Disbursement Report – January 2003

2. Combining Schedule Of Revenue, Expenses And Changes In Working Capital For The Period July 1, 2002 through December 31, 2002
3. Treasurer's Report of Financial Affairs For The Period December 1, through December 31, 2002
4. 2002-03 Actual YTD Revenues And Expenses Compared With Adopted 2002-03 Budget

Motion by Kinsey, second by DeLoach, and by unanimous vote
Moved to approve Consent Calendar Items A – 1 through 4, as presented.

II. BUSINESS ITEMS

A. DISCUSSION OF STORMWATER RECHARGE BENEFIT

Mr. Wildermuth presented the Stormwater Recharge Benefit Program covering the basis of improvements within the Basin that are designed to create new yield to capture additional stormwater as it accrues to the Appropriative Pool per the Peace Agreement. The importance of this project is finding ways to account for new yield:

(1) Based on the instrumentation structure, to accrue actual water recharge from the ground on an annual basis or
(2) To determine a long-term average estimated calculation by using recalibrating simulation models based on the recharge data generated from the Basin.

Mr. Wildermuth will give a calculation update on the recharge project based on this analogy next month.

B. CONSIDER APPROVAL OF DRY YEAR YIELD PROJECT AGREEMENT

Mr. Rossi reported that a consolidation of documents pertaining to the Dry Year Yield Project has been implemented for staff review. Various questions have been presented from interested parties upon circulation of the agreement. Financial impacts on this project focus on the value of 100,000 acre-foot storage calculated at $433 per acre-foot. Mr. Rossi stated "Project participants should find values exceeding this figure when factoring in service reliability gains, pumping lift savings, additional blending water availability and other benefits dependent upon individual agency water system configurations". In lieu of various meetings transpired to discuss key elements of this project, approval of the Advisory Committee is recommended to conclude finalization of this agreement to move forward on the implementation of the operation plan.

Motion by Wellington, second by Crosley, and by unanimous vote
Moved, to approve Staff and Pool recommendation to the Advisory Committee approval of the Dry Year Yield Project Agreement.

C. CONSIDER IMPLEMENTATION OF MZ1 MONITORING WORK PLAN

Mr. Rossi reported on the proposed budget schedule for the MZ1 Subsidence Monitoring Plan for calendar year 2002-2003. With the proposed budget amount exceeding the current budgeted amount, Mr. Rossi recommended implementing the program with savings realized in the Watermaster overall budget. The work plan outlines cost estimates to conduct this project. Mr. Rossi is requesting a $120,000 increase in the MZ1 budget to move forward with the MZ1 Subsidence Monitoring Work Plan.

Motion by Crosley, second by Maestas, and by unanimous vote
Moved, to approve implementing the Work Plan and budget for conducting the MZ1 Monitoring Program.

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. **Chino Land & Water SBSC Case No. RCV 06484**

General Legal Counsel Fife reported that claims filed by Chino Land & Water against Chino

Basin Watermaster, Lewis Investment Company and other members on the appropriative pool and the non-agricultural pool have been dismissed. However, Chino Land & Water may pursue filing an appeal to reopen the case.

2. **Attorney/Managers Meeting(s)**
   General Legal Counsel Fife states that the next attorney/managers meeting is scheduled for February 26, 2003 at 1:30 p.m.
3. **Niagara Water Company Well Production**
   General Legal Council Fife reported that Hatch & Parent is currently drafting a complaint in lieu of shutting down Niagara Water Company's unauthorized well production.

B. **CEO/STAFF REPORT**

1. **Update regarding Fees and Charges related to the SCIWP funded projects attachment)**
   In relation to the state wanting to increase fees associated with Proposition 13 monies, SAWPA is seeking additional funds to continue allocating funds at the whole level of funding to proceed with the SCIWP funded projects.
2. **Status Update regarding Recharge Improvement Project**
   Mr. Rossi states that there will be a more detailed and complete update on the recharge program at the next meeting.
3. **Discussion regarding SB34 Legislation**
   Mr. Rossi plans to continue working on the water quality concept implemented by the Optimum Basin Management Program (OBMP) to refine the detail of the water quality perspectives as it relates to the SB34 legislation. There are organizations that express strong interest in pursuing perchlorate water evaluations outside of the water quality authorities. As these concepts are developed, they will be introduced to the staff for further discussion.

IV. COMMITTEE MEMBER COMMENTS

Mr. Wellington asked Mr. Rossi to provide detail information on the meter expenditures at the next meeting.

V. OTHER BUSINESS

None

VI. FUTURE MEETINGS

February 27, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting
March 13, 2003	10:00 a.m.	Joint Meeting – Appropriative & Non-Ag Pools
	1:00 p.m.	Ag Pool Meeting
March 27, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

The Joint Meeting of the Appropriative & Non-Agricultural Pools adjourned.

_____
Secretary

Minutes Approved:_____

Draft Minutes
CHINO BASIN WATERMASTER
Joint Meeting of the Appropriative and Non-Agricultural Pools
March 13, 2003

A Joint Meeting of the Appropriative and Non-Agricultural Pools was held at the offices of the Chino Basin Watermaster, 8632 Archibald Ave., Suite 109, Rancho Cucamonga, CA, on March 13, 2003 at 10:00 a.m.

APPROPRIATIVE POOL MEMBERS PRESENT

Ken Jeske, Chair	City of Ontario
Robert DeLoach, Vice-Chair	Cucamonga County Water District
Gerald Black	Fontana Union Water Company
Dave Crosley	City of Chino
Mark Kinsey	Monte Vista Water District
Mike Maestas	City of Chino Hills
Mike McGraw	Fontana Water Company
Carole McGreevy	Jurupa Community Services District
Henry Pepper	City of Pomona
J. Arnold Rodriguez	Santa Ana River Water Company
Bill Stafford	Marygold Mutual Water District
Ray Wellington	San Antonio Water Company

NON-AGRICULTURAL POOL MEMBERS PRESENT

James Jenkins	County Department of Airports
Bob Bowcock	Vulcan Materials Company

Agricultural Pool Members Present

Robert DeBerard	Crops

Watermaster Board Members Present

Bob Kuhn	Three Valleys Municipal Water District

Watermaster Staff Present

John Rossi	Chief Executive Officer
Sheri Rojo	Accounting/Office Manager
Mary Staula	Recording Secretary
Devonya Williams	Trainee

Watermaster Consultants Present

Michael Fife	Hatch & Parent
Mark Wildermuth	Wildermuth Environmental, Inc.

Others Present

Bo Chen	City of Pomona
Rick Hansen	Three Valleys Municipal Water District
Rita Kurth	Cucamonga County Water District
Mohamed El Amamy	City of Ontario
Josephine Johnson	Monte Vista Water District
Diane Sanchez	State Department of Water Resources

Chair Jeske called the meeting to order at 10:12 a.m.
He introduced Mr. Jenkins, County Department of Airports, Non-Agricultural Pool.

AGENDA - ADDITIONS/REORDER
None

I. CONSENT CALENDAR

A. FINANCIAL REPORTS

1. Cash Disbursement Report – February 2003
2. Combining Schedule Of Revenue, Expenses And Changes In Working Capital For The Period July 1, 2002 through January 31, 2003
3. Treasurer's Report of Financial Affairs For The Period December 1, through January 31, 2003
4. 2002-03 Actual YTD Revenues And Expenses Compared With Adopted 2002-03 Budget

Motion by DeLoach, second by McGraw, and by unanimous vote, the Appropriative Pool
Moved, to approve Consent Calendar Items A.1 through 4, as presented.
Motion by Jenkins, second by Bowcock, and by unanimous vote, the Non-Agricultural Pool
Moved, to approve Consent Calendar Items A.1 through 4, as presented.

II. BUSINESS ITEMS

A. OBMP STATUS REPORT #6

Mr. DeLoach suggested dovetailing this status report with SB34, specifically with regard to water quality efforts. He recommended those areas be highlighted and addresses perchlorate issues and the document be a part of the discussions at the next SB34 meeting.

Motion by Kinsey, second by Black, and by unanimous vote, the Appropriative Pool
Moved, to recommend approval of OBMP Status Report No. 6 for filing with the Court on March 31, 2003, with non-substantive corrections as necessary, and the water quality efforts highlighted.
Motion by Jenkins, second by Bowcock, and by unanimous vote, the Non-Agricultural Pool
Moved, to concur with action taken by the Appropriative Pool.

B. CONSIDER NOTICE TO TERMINATE CURRENT OFFICE LEASE

Mr. Rossi reminded the members that the committees previously approved staff move forward with negotiations to relocate the Watermaster offices to the facilities previously occupied by Cucamonga County Water District. Watermaster's current lease contract includes an early-cancellation clause in year 2003, with submittal of a six-month notice. Staff is requesting authorization to provide a notice in April to the current landlord of Watermaster's intent to move on or about September 30, 2003.

Motion by Kinsey, second by Rodriguez, and by unanimous vote, the Appropriative Pool
Moved, to recommend staff be authorized to notify the current landlord by April 1 of Watermaster's intent to move on or about September 30, 2003.
Motion by Jenkins, second by Bowcock, and by unanimous vote, the Non-Agricultural Pool
Moved, to concur with action taken by the Appropriative Pool.

C. WATER TRANSACTION

Notice of Sale or Transfer of Right to Produce Water In Storage From the City of Chino to the City of Ontario in the amount of 6,000 acre-feet of water (noticed on January 28, 2003).

Motion by DeLoach, second by McGreevy, and by unanimous vote, the Appropriative Pool
Moved, to recommend Advisory and Board approval in April of the Notice of Sale or Transfer of Right to Produce Water in Storage from the City of Chino to the City of Ontario in the amount of 6,000 acre-feet of water.
Motion by Jenkins, second by Bowcock, and by unanimous vote, the Non-Agricultural Pool
Moved, to concur with action taken by the Appropriative Pool.

D. PRESENTATION ON CURRENT STATUS OF WATER QUALITY PROGRAM

The members were provided with a compilation of water quality data (OBMP Program Element 6) gathered through several efforts such as sampling private wells, DHS website

on public drinking wells, and modeling for the Dry Year Yield (DYY) Program. Mr. Wildermuth reported that groundwater modeling is near completion and simulations of DYY Program scenarios are being conducted. He provided overheads of maps indicating the collective results and status of the Water Quality Program (OBMP Program Element 6). Watermaster has been working closely with regulatory agencies to define water quality challenges and to refine the water quality management criteria. Water quality monitoring has been refined to identify and characterize water quality anomalies such as the Volatile Organic Compounds (VOCs) anomaly north of the Chino I Desalter well field. Currently, water samples are being analyzed for general minerals, general physical parameters, hexavalent chromium, silica, barium, perchlorate, 1,2,3-trichloropropane, etc.

Mr. Argo referred to some of the work product that ultimately is going to be assembled as part of the Dry Year Yield (DYY) Project. When discussing storage programs, whether dry-year yield or a larger storage programs, he said that all of the water quality issues come to play. The Storage and Recovery Program document will include an assessment of treatment technologies that deal with various water qualities. The good news is the RO treatment can remove perchlorate as well as TDS. Black & Veatch developed a range of costs to construct, and typical operating costs as part of the report for the MWD DYY Project. In general, they will be quantifying the water quality issues and picking the treatment technologies needed. They will show which of the specific technologies have been picked to solve individual projects being advanced by each retail agency. Mr. Argo said that storage & recovery, conjunctive-use and partnerships are necessary to protect and save our local resources.

Mr. Wildermuth continued with his presentation focusing on the modeling work being done. Looking at the mapping being done now, the data flow building up and the water quality anomalies, he said this is the right time to form a Water Quality Committee. A monitoring plan to evaluate the state of hydraulic control in the southern end of the Basin has not yet been developed. Also, Watermaster will be developing a key well program based on future sampling.

Mr. Rossi said this data is very timely as far as discussions on SB34 and in a larger context, how to approach regional water quality issues. By putting this information out today, he had hoped for feedback and at next month's meetings they could talk about the formation of a Water Quality Committee and discuss where to go from there.

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Chino Land & Water SBSC Case No. RCV 06484
   This case was dismissed in its entirety by Court Order. Chino Land & Water has until May 3 to appeal the Court's decision.
2. Attorney/Managers Meeting(s)
   No meeting is calendared at this time.
3. Niagara Water Company Well Production
   Subsequent to Counsel Fife drafting a compliant, Niagara Water Company (Niagara) expressed a desire to intervene into the Appropriative Pool without production rights and pay replenishment costs. However, additional data is needed and terms pertaining to past production need to be worked out. Staff and Legal Counsel will meet with Niagra at 4:00 p.m. today at Watermaster. There was a brief discussion regarding Niagara's past production. The County does not provide information to Watermaster when permits to drill wells are issued. Niagara's well was drilled in May 2001. This is something Watermaster needs to work out with the County. Legal Counsel concurred that it would be much easier to work with interveners if Watermaster knew in advance that a well was going to be drilled.

B. CEO/STAFF REPORT

1. Update regarding Dry Year Yield Project
   Last month after a preliminary kick-off meeting, the Dry Year Yield business deal with MWD was finalized and the parties are moving forward with the project participants on subsequent agreements. Mr. Rossi recommended a conference call be scheduled with the project participants regarding the retail agreements to see if they have any last minute input. He will make some calls and let everyone know the date and time. The exhibit to MWD's contract pertaining to facilities to be built needs to be finalized. Watermaster is looking for feedback from the individual agencies on how staff can assist with the next step. Jurupa had asked for a copy of the report prepared by Rod Smith but has not received it. Watermaster was asked to agendized this item in April and include a historical report on the work that was done with data and the recommendations from the Report. Additionally, they would like to know what hurdles were identified that have not been resolved and any new hurdles that have been perceived. After further discussion, it was determined these matters of concern should be discussed in a workshop setting. Mr. Rossi offered to find a date and schedule the workshop.
2. Update regarding Recharge Improvement Project
   A tentative date of April 11 has been set for the Recharge Basin Project groundbreaking. Meetings have been held with the U. S. Army Corps of Engineers regarding the need for permits for basins that are jurisdictional. This late finding could result in a time delay with potential costs to contractors. They will be meeting again next Thursday. Staff has been working with IEUA on reporting issues and anticipates a reimbursement of $170,000 from bond proceeds for monies expended on the project predicated by a reimbursement agreement Watermaster will bring forward next month.
3. Update regarding Replenishment Water Order
   Watermaster finished spreading 6500 acre-feet supplemental water in December 2002 and has submitted an order to MWD for the 6500 acre-feet replenishment obligation. MWD advised Watermaster last week that they have wet water available, which is good news. To the extent the wet water runs out before Watermaster has completed its obligation, the balance will be taken out of the cyclic account.
4. Update regarding SB34 Legislation
   Mr. Rossi met with legislators last week. The discussion centered around the concept of forming a voluntary organization that would allow people to sign up for funding that might be available for looking into the salt/perchlorate problems. They are looking at criteria for applying for grant funding.

   SB34 legislation was discussed earlier in the meeting along with related items.

IV. COMMITTEE MEMBER COMMENTS
None

V. OTHER BUSINESS
None

VI. FUTURE MEETINGS

March 27	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting
April 10	10:00 a.m.	Joint Meeting – Appropriative & Non-Ag Pools
	1:00 p.m.	Ag Pool Meeting
April 24	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

FUTURE EVENTS

April 8 & 9	AGWA/WEF Water Quality Conference @ Ontario Doubletree
April 11	Recharge Basin Project Groundbreaking
May 7, 8 & 9	ACWA Conference in Lake Tahoe **(Conflict with the May 8 Pool Meetings)**

The meeting adjourned at 11:45 a.m.

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Secretary

Minutes Approved:_____

CHINO BASIN WATERMASTER

April 10, 2003
10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools
1:00 p.m. – Agricultural Pool

I. CONSENT CALENDAR

A. MINUTES
(Agricultural Pool)

Draft Minutes
CHINO BASIN WATERMASTER
ANNUAL MEETING OF THE
AGRICULTURAL POOL
January 16, 2003

The Agricultural Pool meeting was held at the offices of the Chino Basin Watermaster, 8632 Archibald Ave., Suite 109, Rancho Cucamonga, CA, on January 16, 2003 at 1:00 p.m.

AGRICULTURAL POOL MEMBERS PRESENT

Robert DeBerard, Chair	Crops
Nathan deBoom	Dairy - Milk Producers Council
Joe Delgado	Boy's Republic
Glen Durrington	Crops
Jack Hagerman	State of California Institution for Men
Gene Koopman	Dairy - Milk Producers Council
Ron LaBrucherie	Dairy
Nathan Mackamul	State of California Institution for Women
Jeff Pierson	Crops

Watermaster Staff Present

John Rossi	Chief Executive Officer
Traci Stewart	Chief of Watermaster Services
Sheri Rojo	Finance Manager
Mary Staula	Recording Secretary/Administrative Assistant

Watermaster Consultants Present

Michael Fife	Hatch & Parent

Others Present

Dan McKinney	Reid & Hellyer

Chair DeBerard called the meeting to order at 1:15 p.m.

AGENDA - ADDITIONS/REORDER
None

I. ANNUAL ELECTIONS

A. Calendar-Year 2003 Agricultural Pool Members

Changes were made to the list of members and alternates for calendar year 2003:

Agricultural Pool Members		Alternates:
Crops:	Robert DeBerard	Don Galleano
	Jeff Pierson	John Huitsing
Dairy:	Robert Feenstra	(to be determined)
	Nathan deBoom	Gene Koopman
	Glen Durrington	(to be determined)
	Ron LaBrucherie	Syp Vander Dussen
State:	Joe Delgado	Duffy Blau
	Jack Hagerman	Pete Hall
	Marilyn Levin	Peter Van Haam
	Nathan Mackamul	Rob Kettle

B. Calendar year 2003 Agricultural Pool Officers

Motion by Koopman, second by deBoom, and by unanimous vote
Moved to elect Robert DeBerard to serve as Agricultural Pool Chair during calendar year 2003.

Motion by Koopman, second by Pierson, and by unanimous vote
Moved to elect Nathan deBoom as to serve as Agricultural Pool Vice-Chair during calendar year 2003.

Chair	Robert DeBerard, Crops
Vice-Chair	Nathan deBoom, Dairy
Secretary/Treasurer	John Rossi, Watermaster Chief Executive Officer

C. Calendar Year 2003 Advisory Committee Members & Officers
The membership of the Pool will also serve on the Advisory Committee. Based on the rotation sequence among the pools for Advisory Committee officers, the Agricultural Pool was asked to elect a representative to Chair the Advisory Committee during calendar year 2003:

Motion by Koopman, second by Pierson, and by unanimous vote
Moved to appoint Agricultural Pool Vice-Chair, Nathan deBoom, to serve as Advisory Committee Chair during calendar year 2003.

Chair	**Agricultural Pool**	**Nathan deBoom**
Vice-Chair	Non-Agricultural Pool	N/A
2nd Vice-Chair	Appropriative Pool	N/A

D. Calendar Year 2003 Pool Representation on the Watermaster Board
On December 11, 2002, the State of California deferred its turn to serve on the Watermaster Board to calendar year 2004 and the members took unanimous action to continue the service of Geoffrey Vanden Heuvel and Paul Hofer on the Watermaster Board during calendar year 2003.

II. CONSENT CALENDAR

A. MINUTES
1. Minutes of the Agricultural Pool Meeting held December 11, 2002.

B. FINANCIAL REPORTS
1. Cash Disbursement Report - December 2002
2. Combining Schedule of Revenue, Expenses and Changes in Working Capital for the Period July 1, 2002 through November 30, 2002
3. Treasurer's Report of Financial Affairs for the Period November 1 through November 30, 2002
4. 2002-03 Actual YTD Revenues and Expenses Compared with Adopted 2002-03 Budget

C. INDEPENDENT AUDITOR'S REPORT ON FINANCIAL STATEMENTS FOR YEAR ENDED JUNE 30, 2002

D. NOTICE OF INTENT TO CHANGE OPERATING SAFE YIELD OF CHINO BASIN (pursuant to Judgment Exhibit 1 Paragraph 2(b)
Submitted annually as a placeholder

E. RESOLUTION 03-01, AUTHORIZING AND DESIGNATING SIGNATORIES OF DEPOSITORY AGREEMENTS, DEPOSITORY CARDS AND DEPOSITS, TRANSFERS AND WITHDRAWALS OF FUNDS
Submitted annually to authorize and designate signatories for financial transactions

F. WATER TRANSACTION
Lease of Water Production Rights from the City of Pomona to the Fontana Water Company in the amount of 2,500 acre-feet for fiscal year 2002-03 (Noticed December 11, 2002)

G. DRAFT TWENTY-FIFTH ANNUAL REPORT
Included separately for filing with the court by January 31, 2003

There were no comments or questions regarding the Consent Calendar items
Motion by LeBrucherie, second by Hagerman, and by unanimous vote
Moved to approve Consent Calendar Items A through G, as presented.

III. BUSINESS ITEMS

A. MAXIMUM BENEFIT ANALYSIS
Mr. Rossi referenced the previously approved Risk Sciences contract to perform the Maximum Benefit Analysis, which included $14,000 for administrative costs. However, the Santa Ana Watershed Project Authority (SAWPA) incurred additional costs while assisting with this effort. Staff requested an additional $17,000 to pay the costs for SAWPA to attend meetings and assist with the presentation of the concept. Included in that amount is the annual $2,000 for Watermaster participation in the TIN/TDS Task Force. The concept was presented to the Regional Water Quality Control Board (RWQCB) and received approval. Staff anticipates presentation of the concept to the State Board in April or May. Mr. Rossi discussed the resulting monetary value and associated recharge benefits and requested authorization to process SAWPA's invoice for additional administrative costs incurred.

Motion by LeBrucherie, second by Pierson, and by unanimous vote
Moved to approve payment of $17,000 for administrative costs incurred by SAWPA while assisting Watermaster with the Maximum Benefit Analysis.

IV. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. **Attorney/Managers Meeting(s)**
Counsel Fife reported that an Attorney/Managers Meeting has been scheduled for 1:00 p.m., January 29, at Watermaster. In addition to Items 2, 3 and 4 below, the Dry Year Yield Project will be discussed in detail at that meeting.

2. **Colonies Project, Recharge Related Issues**
The Regional Water Quality Control Board issued a Stop Work Order on the Colonies Project pending the issuance of a Waste Discharge Permit. The lawsuit filed by Cucamonga County Water District has been stayed to June 30, 2003 pending negotiations over the recharge issue. Watermaster General Legal Counsel is monitoring this matter and will advise staff of any updates.

3. **Niagara Bottling Company**
Niagara Bottling Company (Niagara) continues to produce approximately 300 to 400 acre-feet water per year from an on-site well but has never intervened into the Judgment. At Watermaster meetings held last December, Counsel Fife was asked to explore the most appropriate method to ensure that Niagara files a Petition in Intervention with Watermaster. Niagara has not attempted to work with Watermaster in this regard and their legal counsel has advised them that intervention is not necessary. Mr. Rossi provided copies of correspondence from Watermaster to Niagara, from Wayne Lemieux (Niagara's legal counsel) to Watermaster, and Hatch & Parent's response to Mr. Lemieux' letter.

4. **Chino Land & Water, SBSC Case No. RCV 064284**
Attorneys for Lewis Investment Company, LLC filed a Notice of Hearing of Demurrer; Demurrer; Memorandum of Points and Authorities in Support Thereof; Request for Judicial Notice; and Amended Proof of Service for hearing on February 6, 2003. Mr. Rossi felt this could bring Watermaster and all the parties back into the case. Watermaster General Legal Counsel will attend the hearing and provide an update at the February meetings.

B. **CEO/STAFF REPORT**

1. **Watermaster Project Meeting Update**
   - **MZ1 Program**
     The Technical Committee met last week and will meet again next week to review the budget and prioritize projects. Staff was asked to update Watermaster's Web Page to indicate Mr. Hagerman is a member of the Technical Committee.
   - **MWD Dry Year Yield Program**
     The Dry Year Yield Committee met this week. A Master Agreement has been developed between Chino Basin Watermaster, Inland Empire Utilities Agency and Metropolitan Water District. At the next meeting, they plan to discuss retail agreements, equitable allocation of funds, etc.

2. **Watermaster Administrative Updates**
   - **Montclair Basins-Spreading (6500 AF)**
     Mr. Rossi reported that the Watermaster has fulfilled its commitment to spread 6500 acre-feet of water in the Montclair Basin for FY 2002-03

3. **Other Updates**
   - **Senator Soto's Legislation**
     A brief discussion ensued regarding Senator Soto's proposed SB34.

V. **POOL MEMBER COMMENTS**
None

VI. **OTHER BUSINESS**
Mr. Rossi reported that the Non-Agricultural Pool scheduled a special meeting at 9:30 a.m. on February 13, 2003 that will be added to the future meetings list.

VII. **FUTURE MEETINGS**

February 13, 2003	10:00 a.m.	Joint Meeting of the Non-Agricultural & Appropriative Pool
	1:00 p.m.	Agricultural Pool Meeting
February 27, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

There being no further business to come before the Agricultural Pool, the meeting adjourned.

_____
Secretary

Minutes Approved:_____

Draft Minutes
CHINO BASIN WATERMASTER
ADJOURNED MEETING OF THE AGRICULTURAL POOL
February 25, 2003

The Adjourned meeting of the Agricultural Pool was held at the offices of the Chino Basin Watermaster, 8632 Archibald Ave., Suite 109, Rancho Cucamonga, CA, on February 25, 2003 at 1:00 p.m.

AGRICULTURAL POOL MEMBERS PRESENT

Robert DeBerard, Chair	Crops
Nathan deBoom, Vice-Chair	Dairy - Milk Producers Council
Glen Durrington	Crops
Jack Hagerman	State of California Institution for Men
John Huitsing	Crops
Gene Koopman	Dairy - Milk Producers Council
Ron LaBrucherie	Dairy

Watermaster Board Members Present

Paul Hofer	Crops
Geoffrey Vanden Heuvel	Dairy

Watermaster Consultants Present

Michael Fife	Hatch & Parent
Dan McKinney, Special Counsel	Reid & Hellyer

Watermaster Staff Present

John Rossi	Chief Executive Officer
Sheri Rojo	Accountant/Office Manager
Devonya Williams	Recording Secretary

Chair DeBerard called the meeting to order at 1:10 p.m.

AGENDA - ADDITIONS/REORDER
None

I. CONSENT CALENDAR

A. FINANCIAL REPORTS

1. Cash Disbursement Report – January 2003
2. Combining Schedule Of Revenue, Expenses And Changes In Working Capital For The Period July 1, 2002 through December 31, 2002
3. Treasurer's Report of Financial Affairs For The Period December 1, through December 31, 2002
4. 2002-03 Actual YTD Revenues And Expenses Compared With Adopted 2002-03 Budget

Mr. Koopman inquired about the late payments to Inland Empire Utilities Agency. Mr. Rossi provided a brief explanation.

Motion by Koopman, second by Durrington, and by unanimous vote
Moved to approve Consent Calendar Items A.1 through 4, as presented.

II. BUSINESS ITEMS

A. DISCUSSION OF STORMWATER RECHARGE BENEFIT

Mr. Rossi updated the Agricultural Pool with regard to new yield anticipated over and above the recapture of stormwater upon completion of recharge basin improvements. The new yield will be allocated to the Appropriative Pool in accordance with the Peace Agreement. On February 13, Mr. Wildermuth gave a detailed presentation explaining the options for accounting for the new yield, but he was to unable to attend today's meeting. Mr. Rossi explained that basically one of two methods for accounting new yield would be used. With instrumentation, they will be able to capture the amount coming into and leaving the basin and the difference will be what is recharged into the ground. They can either accrue the actual water recharged on an annual basis or look at recharge averages on a much longer term. Recharge is estimated at approximately 18,000 to 19,000 acre-feet per year. Additional information will be presented at the meetings in March.

B. CONSIDER APPROVAL OF DRY YEAR YIELD PROJECT AGREEMENT

Mr. Rossi reminded the members that the Dry Year Yield Project with MWD would bring in $9 million in Proposition 13 funds from DWR and about $18.5 million MWD funds. MWD provided $1.6 million in advance for CEQA requirements, meeting DWR requirements and receiving the appropriate permits by December 2002. Construction funds will be provided to IEUA for the six appropriators who are building ION exchange wellhead treatment plants and new wells. The concept is that MWD would store up to 100,000 acre-feet water into the Chino Basin and 25,000 acre-feet can be recharged into the ground annually during wet or normal years. In-lieu is the preferred method for recharge. MWD can call for up to 33,000 acre-feet water during dry years. The cash flow benefits are significant. Mr. Rossi reviewed the numerous different costs/benefits. The term of the Agreement is 25 years with an option for renewal. The deadline for completing construction of facilities is March 2008.

Motion by Koopman, second by deBoom, and by unanimous vote

Moved, to recommend the Advisory Committee approve the Dry Year Yield Project Agreement with MWD.

C. CONSIDER IMPLEMENTATION OF MZ1 MONITORING WORK PLAN

The Interim Plan for the Management of Subsidence called for the formation of a Technical Committee. The Technical Committee has met several times and developed a Work Plan that is before the committee today for consideration. The Work Plan contemplates several elements of a comprehensive study to collect data over a two-year period. At the end of the two-year period, a long-term plan can be supported. Mr. Rossi recommended the Work Plan be implemented with savings realized in the Watermaster's overall budget. He said a $120,000 increase in the MZ1 budget is needed to move forward.

Motion by Kooperman, second by La Brucherie, and by unanimous vote

Moved, to recommend approval to move forward with implementing the MZ1 Monitoring Work Plan.

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Chino Land & Water SBSC Case No. RCV 06484

General Legal Council Fife reported that claims filed by Chino Land & Water against Lewis Investment Company, naming Chino Basin Watermaster and members of the Appropriative Pool and the Non-Agricultural Pool as defendants, were dismissed by the Court. As a result, Chino Land & Water has indicated they may appeal the decision. They have until March 6 to file an appeal.

2. Attorney/Managers Meeting(s)

General Legal Counsel Fife said an Attorney/Managers Meeting is scheduled for February 26, 2003 at 1:30 p.m.

3. **Niagara Water Company Well Production**
   Hatch & Parent is currently drafting a complaint against Niagara Water Company for unauthorized well production for review at the February 26 Attorney/Managers Meeting.

B. **CEO/STAFF REPORT**

1. **Update regarding Fees and Charges related to the SCIWP funded projects (attachment)**
   With regard to the State increasing fees associated with Proposition 13 funds, SAWPA is seeking additional SCIWP funding in order to continue allocating monies at the level required to proceed with approved projects.
2. **Status Update regarding Recharge Improvement Project**
   Mr. Rossi reported that engineering bids estimate between $5 and $7 million will be required for Phase I Recharge Improvement Project.
3. **Discussion regarding SB34 Legislation**
   Mr. Rossi plans to continue working on the objectives in the Optimum Basin Management Program (OBMP) to refine the detail of water quality perspectives as they relate to the SB34 legislation. Some organizations have expressed a strong interest in pursuing perchlorate water evaluations outside of the water quality authorities. A lengthy discussion ensued. When concepts are developed, they will be reported back to the committees for discussion.

IV. COMMITTEE MEMBER COMMENTS

Chair DeBerard requested introduction of the new Recording Secretary. Mr. Rossi introduced Devonya Williams, followed by the Agricultural Pool members introducing themselves.

V. OTHER BUSINESS

None

VI. FUTURE MEETINGS

February 27, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting
March 13, 2003	10:00 a.m.	Joint Meeting of the Appropriative & Non-Ag Pools
	1:00 p.m.	Ag Pool Meeting
March 27, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

_____
Secretary

Minutes Approved:_____

Draft Minutes
CHINO BASIN WATERMASTER
AGRICULTURAL POOL
March 13, 2003

The Agricultural Pool meeting was held at the offices of the Chino Basin Watermaster, 8632 Archibald Ave., Suite 109, Rancho Cucamonga, CA, on March 13, 2003 at 1:00 p.m.

AGRICULTURAL POOL MEMBERS PRESENT

Robert DeBerard, Chair	Crops
Nathan deBoom, Vice-Chair	Dairy - Milk Producers Council
Glen Durrington	Crops
Bob Feenstra	Dairy - Milk Producers Council
Jack Hagerman	State of California Institution for Men
John Huitsing	Dairy - Milk Producers Council
Jeff Pierson	Crops - Unitex Corporation

Watermaster Staff Present

John Rossi	Chief Executive Officer
Sheri Rojo	Accountant/Office Manager
Mary Staula	Recording Secretary
Devonya Williams	Trainee

Watermaster Consultants Present

Dave Argo	Black & Veatch
Michael Fife	Hatch & Parent
Steven Lee	Special Counsel, Reid & Hellyer
Mark Wildermuth	Wildermuth Environmental Inc.

Chair DeBerard called the meeting to order at 1:15 p.m.

AGENDA - ADDITIONS/REORDER
None

I. CONSENT CALENDAR

A. FINANCIAL REPORTS

1. Cash Disbursement Report – February 2003
2. Combining Schedule Of Revenue, Expenses And Changes In Working Capital For The Period July 1, 2002 through January 31, 2003
3. Treasurer's Report of Financial Affairs For The Period December 1 through January 31, 2003
4. 2002-03 Actual YTD Revenues And Expenses Compared With Adopted 2002-03 Budget

Motion by Feenstra, second by Pierson, and by unanimous vote
Moved, to approve Consent Calendar Items A.1 through 4, as presented.

II. BUSINESS ITEMS

A. OBMP STATUS REPORT #6

Mr. Rossi said the Appropriative Pool approved the OBMP Status Report No. 6 for filing with the Court on March 31, 2003. They also authorized staff to make non-substantive changes as necessary, and added specific action that for more clarity, staff would highlight areas in the Report referring to the water quality issues (including perchlorate) that Watermaster is working on.

Motion by Feenstra, second by Pierson and by unanimous vote

Moved, to recommend approval of OBMP Status Report No. 6, with water quality activities highlighted, for filing with the Court and authorize staff to make any non-substantive edits required.

B. CONSIDER NOTICE TO TERMINATE CURRENT OFFICE LEASE

Mr. Rossi updated the members with regard to Watermaster's current rental fees and future rental fees for Cucamonga County Water District's old offices, the increase in square footage, and current negotiations pertaining to facility updates and maintenance. Watermaster's current lease includes an early-cancellation clause in year 2003, with a six-month notice of intent. Staff is requesting authorization to provide a notice in April to the current landlord of Watermaster's intent to move on or about September 30, 2003.

Motion by Pierson, second by Feenstra, and by unanimous vote

Moved, to recommend staff be authorized to notify the current landlord in April of its intent to move on or about September 30, 2003.

C. WATER TRANSACTION

Notice of Sale or Transfer of Right to Produce Water In Storage from the City of Chino to the City of Ontario in the amount of 6,000 acre-feet of water (noticed on January 28, 2003). Special Counsel Lee said that the Agricultural Pool's special engineer has reviewed this water transaction.

Motion by Pierson, second by deBoom, and by unanimous vote

Moved, to recommend Advisory and Board approval in April of the Notice of Sale or Transfer of Right to Produce Water in Storage from the City of Chino to the City of Ontario in the amount of 6,000 acre-feet of water.

D. PRESENTATION ON CURRENT STATUS OF WATER QUALITY PROGRAM

The members were provided with a compilation of water quality data (OBMP Program Element 6) gathered through several efforts such as sampling private wells, DHS website on public drinking wells, and modeling for the Dry Year Yield (DYY) Program. Mr. Wildermuth reported that groundwater modeling is near completion and simulations of DYY Program scenarios are being conducted. He provided overheads of maps indicating the collective results and status of the Water Quality Program (OBMP Program Element 6). Water quality monitoring has been refined to identify and characterize water quality anomalies such as the Volatile Organic Compounds (VOCs) anomaly north of the Chino I Desalter well field. Currently, water samples are being analyzed for general minerals, general physical parameters, hexavalent chromium, silica, barium, perchlorate, 1,2,3-trichloropropane, etc. Mr. Wildermuth said have yet to develop a monitoring plan to evaluate state of hydraulic control in the southern end of the Basin. Also, Watermaster plans to develop a key well program based on future sampling.

In response to whether there has been improvement since the desalter was put into operation, Mr. Wildermuth said that water quality in the south end of the basin couldn't be used as a matrix to show water quality improvements. The reason is because it will take decades to work out the materials already stored in the vados zone. He pointed out however that building desalters is the right thing to do to begin the process of cleaning up historic degradation. Unfortunately it will take a long time to see any results. Extensive discussion ensued.

Every ground-water basin has its problems but much is being done in the Chino Basin. Mr. Rossi said the important thing is to determine treatment processes to return the water as a public benefit, as a water resource, as an economic benefit, while cleaning it up. That is

the big issue and should be the message. Look at the positive energy being generated through cooperative efforts.

Mr. Feenstra addressed current legislative concerns with regard to perchlorate and discussed ways to address the issues. Mr. Rossi pointed to the fact that in the OBMP and the Peace Agreement, Watermaster committed to form a Water Quality Committee. The pools will be discussing the formation of that committee in April. Additionally, the Agricultural Pool will need to discuss the water quality notification process in April. Watermaster is responsible to provide water quality data to the owner of a private well; however, the question came up regarding the extent the owner shares information with the people actually residing on the property. Another question is whether Watermaster should provide information/data in Spanish as well as English.

The members agreed to request staff include statistics, limits and recommendations regarding these issues in the next agenda package for further discussion. Along with that, staff will provide suggested language for revising the current notices sent to owners of private wells.

Mr. Wildermuth's presentation continued.

Mr. Feenstra mentioned that the Omnibus Bill passed dealing with the Farm Bill. He said the there is $846 million in the budget and at least $120 million for water clean-up, water recycling, etc. A copy of the Bill will be faxed to Watermaster for review of monies that might quality for Watermaster clean-up projects.

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Chino Land & Water SBSC Case No. RCV 06484
   This case was dismissed in its entirety by Court Order. Chino Land & Water has until May 3 to appeal the Court's decision.
2. Attorney/Managers Meeting(s)
   No meeting is calendared at this time.
3. Niagara Water Company Well Production
   Subsequent to Counsel Fife drafting a compliant, Niagara Water Company (Niagara) expressed a desire to intervene into the Appropriative Pool without production rights and pay replenishment costs. However, terms pertaining to past production need to be worked out. Staff and Legal Counsel will meet with Niagra at 4:00 p.m. today at Watermaster.

B. CEO/STAFF REPORT

1. Update regarding Dry Year Yield Project
   Last month, the Dry Year Yield business deal with MWD was finalized last month and the parties are moving forward with the project participants on subsequent agreements between the agency building the facilities and getting nitrate wellhead removal facilities back to IEUA and Watermaster.
2. Update regarding Recharge Improvement Project
   There is a tentative date of April 11 set for the Recharge Basin Project groundbreaking. He will provide the firm date, if changed, when available. Staff has been working with IEUA on reporting issues and anticipates a reimbursement of $170,000 from bond proceeds for monies expended on the project. Meetings have been held with the U. S. Army Corps of Engineers regarding the need for permits for basins that are jurisdictional. This late finding could result in a time delay with potential costs to contractors.
3. Update regarding Replenishment Water Order
   Watermaster finished spreading 6500 acre-feet supplemental water in December 2002. Watermaster then submitted its order to MWD for the 6500 acre-feet replenishment

obligation. MWD advised Watermaster last week that they have wet water available, which is good news. To the extent the wet water runs out before Watermaster has completed its obligation, the balance will be taken through a cyclic account transfer.

4. Update regarding SB34 Legislation
This item was previously discussed. Mr. Feenstra inquired whether Watermaster has taken a position on SB 34 to which Mr. Rossi replied "not yet".

IV. COMMITTEE MEMBER COMMENTS

Mr. Feenstra reported that he and Mr. deBoom interviewed Peter Hettinga, a retired dairyman, for becoming an alternate member of the Watermaster Agricultural Pool. Mr. Hettinga would like to become more involve in water policy and is very excited about serving on the pool committee.

Motion by Feenstra, second by deBoom, and by unanimous vote
Moved, to add an action item to the agenda to authorize the addition of an alternate member to the Agricultural Pool.

Motion by Feenstra, second by deBoom, and by unanimous vote
Moved, to add Peter Hettinga to the list of Agricultural Pool Alternate Members.

V. OTHER BUSINESS

None

VI. FUTURE MEETINGS

March 27, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting
April 10, 2003	10:00 a.m.	Joint Meeting – Appropriative & Non-Ag Pools
	1:00 p.m.	Ag Pool Meeting
April 24, 2003	10:00 a.m.	Advisory Committee Meeting
	1:00 p.m.	Watermaster Board Meeting

Recharge Basin Project Groundbreaking – April 11, 2003
AGWA/WEF Water Quality Conference April 8 & 9 – Ontario Doubletree
ACWA Conference May 7, 8, & 9 – Lake Tahoe

Chair DeBerard adjourned the meeting at 3:00 p.m.

_____
Secretary

Minutes Approved:_____

CHINO BASIN WATERMASTER

April 10, 2003
10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools
1:00 p.m. – Agricultural Pool

I. CONSENT CALENDAR

B. FINANCIAL REPORTS
1. Cash Disbursements
March 2003

CHINO BASIN WATERMASTER

8632 Archibald Avenue, Suite 109, Rancho Cucamonga, Ca 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

STAFF REPORT

DATE: **April 10, 2003**

TO: **Watermaster Committee Members**

SUBJECT: **CASH DISBURSEMENT REPORT – March 2003**

SUMMARY

Issue – Record of cash disbursements for the month of March 2003.

Recommendation – Staff recommends the Cash Disbursements for March 2003 be received and filed as presented.

Fiscal Impact – All funds disbursed were included in the FY 2002-03 Watermaster Budget.

BACKGROUND

A monthly cash disbursement report is provided to keep all members apprised of Watermaster expenditures.

DISCUSSION

Total cash disbursements during the month of February were $250,403.36. The most significant expenditures during that month were Hatch & Parent in the amount of $59,660.48; Wildermuth Environmental Inc. in the amount of $35,741; and MWH Laboratories in the amount of $18,833.00.

CHINO BASIN WATERMASTER
Cash Disbursement Detail Report
March 2003

Type	Date	Num	Name	Amount
Mar 03				
General Journal	3/7/2003	03/03/4	PAYROLL	-3,479.09
General Journal	3/7/2003	03/03/4	PAYROLL	-12,395.39
General Journal	3/12/2003	03/03/02	PAYROLL	7,544.27
Bill Pmt -Check	3/20/2003	5437	ACWA SERVICES CORPORATION	-74.46
Bill Pmt -Check	3/20/2003	5438	APPLIED COMPUTER TECHNOLOGIES	-1,958.90
Bill Pmt -Check	3/20/2003	5439	ARGENT COMMUNICATIONS GROUP	-447.50
Bill Pmt -Check	3/20/2003	5440	CHEVRON	-385.73
Bill Pmt -Check	3/20/2003	5441	GROOMAN'S PUMP & WELL DRILLING, INC	-1,213.76
Bill Pmt -Check	3/20/2003	5442	MWH LABORATORIES	-18,833.00
Bill Pmt -Check	3/20/2003	5443	OFFICE DEPOT	-435.54
Bill Pmt -Check	3/20/2003	5444	PAYCHEX	-153.90
Bill Pmt -Check	3/20/2003	5445	REID & HELLYER	-5,258.61
Bill Pmt -Check	3/20/2003	5446	RICOH BUSINESS SYSTEMS-Maintenance	-662.47
Bill Pmt -Check	3/20/2003	5447	TLC STAFFING	-1,582.56
Bill Pmt -Check	3/20/2003	5448	UNITED PARCEL SERVICE	-329.54
Bill Pmt -Check	3/20/2003	5449	VELASQUEZ JANITORIAL	-175.00
Bill Pmt -Check	3/20/2003	5450	VERIZON	-536.04
Bill Pmt -Check	3/20/2003	5451	WHEELER METER MAINTENANCE	-1,768.52
Check	3/20/2003	5452	TOGO'S	-104.85
Bill Pmt -Check	3/20/2003	5453	ASC SCIENTIFIC	-518.02
Bill Pmt -Check	3/20/2003	5454	BANK OF AMERICA	-4,847.43
Bill Pmt -Check	3/20/2003	5455	BEST BUY	-365.23
Bill Pmt -Check	3/20/2003	5456	CITIZENS CONFERENCING	-388.48
Bill Pmt -Check	3/20/2003	5457	COLONIAL LIFE & ACCIDENT INSURANCE CO	-93.15
Bill Pmt -Check	3/20/2003	5458	CONRAD & ASSOCIATES, L.L.P	-75.00
Bill Pmt -Check	3/20/2003	5459	ELLISON, SCHNEIDER & HARRIS, LLP	-4,091.24
Bill Pmt -Check	3/20/2003	5460	ESRI INC	-400.00
Bill Pmt -Check	3/20/2003	5461	FIRST AMERICAN REAL ESTATE SOLUTIONS	-125.00
Bill Pmt -Check	3/20/2003	5462	GROOMAN'S PUMP & WELL DRILLING, INC	-221.00
Bill Pmt -Check	3/20/2003	5463	HATCH AND PARENT	-59,660.48
Bill Pmt -Check	3/20/2003	5464	IDEAL GRAPHICS	-84.05
Bill Pmt -Check	3/20/2003	5465	INLAND EMPIRE UTILITIES AGENCY	-8,231.50
Bill Pmt -Check	3/20/2003	5466	MWH Montgomery Watson Harza	-9,789.50
Bill Pmt -Check	3/20/2003	5467	POWERS ELECTRIC PRODUCTS CO	-41.09
Bill Pmt -Check	3/20/2003	5468	RICOH BUSINESS SYSTEMS-Lease	-3,591.31
Bill Pmt -Check	3/20/2003	5469	SOUTHERN CALIFORNIA EDISON	-569.81
Bill Pmt -Check	3/20/2003	5470	STAULA, MARY L	-2,223.51
Bill Pmt -Check	3/20/2003	5471	TLC STAFFING	-879.20
Bill Pmt -Check	3/20/2003	5472	UNITEK TECHNOLOGY INC.	-415.91
Bill Pmt -Check	3/20/2003	5473	WATER EDUCATION FOUNDATION	-250.00
Bill Pmt -Check	3/20/2003	5474	WORLDCOM	-945.95
Bill Pmt -Check	3/20/2003	5475	INLAND COUNTIES INSURANCE SERVICES, INC	-426.97
Bill Pmt -Check	3/20/2003	5476	MCCALL'S METER SALES & SERVICE	-11,711.78
Bill Pmt -Check	3/20/2003	5477	POWERS ELECTRIC PRODUCTS CO	-25.00
Bill Pmt -Check	3/20/2003	5478	SANTA ANA WATERSHED PROJECT AUTHORITY	-1,000.00
Bill Pmt -Check	3/20/2003	5479	STATE COMPENSATION INSURANCE FUND	-886.50
Bill Pmt -Check	3/20/2003	5480	WILDERMUTH ENVIRONMENTAL INC	-35,741.59
General Journal	3/20/2003	03/03/10	PAYROLL	-13,407.86
General Journal	3/20/2003	03/03/10	PAYROLL	-3,782.86
Check	3/26/2003	5481	THE CHAIR GUY	-670.00
Check	3/27/2003	5484	CAFE CALATO	-181.84
Bill Pmt -Check	3/27/2003	5485	ADEX MEDICAL INC	-195.80
Bill Pmt -Check	3/27/2003	5486	ARROWHEAD MOUNTAIN SPRING WATER	-43.49
Bill Pmt -Check	3/27/2003	5487	BLACK & VEATCH CORPORATION	-6,575.00
Bill Pmt -Check	3/27/2003	5488	CALPERS	-1,491.55
Bill Pmt -Check	3/27/2003	5489	CATLIN, TERRY	-250.00
Bill Pmt -Check	3/27/2003	5490	COLONIAL LIFE & ACCIDENT INSURANCE CO	-93.15
Bill Pmt -Check	3/27/2003	5491	DUNCAN, GLENN	-125.00
Bill Pmt -Check	3/27/2003	5492	MCCALL'S METER SALES & SERVICE	-2,576.56
Bill Pmt -Check	3/27/2003	5493	MWH LABORATORIES	-1,690.00
Bill Pmt -Check	3/27/2003	5494	NEXTEL COMMUNICATIONS	-426.88
Bill Pmt -Check	3/27/2003	5495	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	-3,228.95
Bill Pmt -Check	3/27/2003	5496	PUMP CHECK	-5,402.01
Bill Pmt -Check	3/27/2003	5497	RANCHO TECH LLC	-4,368.00
Bill Pmt -Check	3/27/2003	5498	RBM LOCK & KEY	-184.25
Bill Pmt -Check	3/27/2003	5499	TLC STAFFING	-879.20
Bill Pmt -Check	3/27/2003	5500	U S POSTMASTER	0.00
Bill Pmt -Check	3/27/2003	7500	VANDEN HEUVEL, GEOFFREY	-250.00
Bill Pmt -Check	3/27/2003	7501	WHEELER METER MAINTENANCE	-10,156.20

CHINO BASIN WATERMASTER
Cash Disbursement Detail Report
March 2003

Type	Date	Num	Name	Amount
Bill Pmt -Check	3/27/2003	7502	YATES, DENNIS	-125 00
Bill Pmt -Check	3/27/2003	7503	BARRION, VICTOR A	-250 00
Bill Pmt -Check	3/27/2003	7504	LANTZ, PAULA	-125 00
Bill Pmt -Check	3/27/2003	7505	WHITEHEAD, MICHAEL	-250 00
Check	3/28/2003	7506	P.C. CLUB	-1,496 65
Check	3/28/2003	7507	TOGO'S	-81 90
Bill Pmt -Check	3/28/2003	7508	POWERS ELECTRIC PRODUCTS CO	-25 00
Bill Pmt -Check	3/28/2003	7509	STANDARD INSURANCE CO	-421 92
Bill Pmt -Check	3/28/2003	7510	USPS/PITNEY BOWES	-1,800 00
General Journal	3/31/2003	03/03/9	MONTE VISTA IRRIGATION COMPANY	66,045 13
Check	3/31/2003	7512	MONTE VISTA IRRIGATION CO	-66,045.13
Mar 03				-250,403.36

CHINO BASIN WATERMASTER

April 10, 2003
10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools
1:00 p.m. – Agricultural Pool

I. CONSENT CALENDAR

B. FINANCIAL REPORTS

CHINO BASIN WATERMASTER
COMBINING SCHEDULE OF REVENUE, EXPENSES AND CHANGES IN WORKING CAPITAL
FOR THE
PERIOD JULY 1, 2002 THROUGH FEBRUARY 28, 2003

	WATERMASTER ADMINISTRATION	OPTIMUM BASIN MANAGEMENT	POOL ADMINISTRATION AND SPECIAL PROJECTS APPROPRIATIVE POOL	AGRICULTURAL POOL	NON-AGRIC. POOL	GROUNDWATER OPERATIONS GROUNDWATER REPLENISHMENT	SB222 FUNDS	EDUCATION FUNDS	GRAND TOTALS	BUDGET 2002-03
Administrative Revenues										
Administrative Assessments			$4,470,784.83		$149,042.18				$4,619,827.01	$3,797,572
Interest Revenue			30,443.60	$5,826.92	1,788.52			$35.54	38,094.58	132,890
Mutual Agency Project Revenue	$ 25,878.94								25,878.94	0
Grant Income									0.00	0
Miscellaneous Income									0.00	0
Total Revenues	25,878.94	$0.00	4,501,228.43	5,826.92	150,830.70	$0.00	$0.00	35.54	4,683,800.53	3,930,462
Administrative & Project Expenditures										
Watermaster Administration	500,722.38								500,722.38	752,208
Watermaster Board-Advisory Committee	25,978.77								25,978.77	60,392
Pool Administration			8,965.64	42,887.52	3,308.15				55,161.31	139,782
Optimum Basin Mgnt Administration		$ 587,790.39							587,790.39	891,634
OBMP Project Costs		1,871,859.22							1,871,859.22	3,324,257
Education Funds Use									0.00	375
Mutual Agency Project Costs	58,157.30								58,157.30	2,500
Total Administrative/OBMP Expenses	584,858.45	2,459,649.61	8,965.64	42,887.52	3,308.15			-	3,099,669.37	5,171,148
Net Administrative/OBMP Income	(558,979.51)	(2,459,649.61)								
Allocate Net Admin Income To Pools	558,979.51		407,211.81	133,072.60	18,695.10				0.00	0
Allocate Net OBMP Income To Pools		2,459,649.61	1,791,833.79	585,552.71	82,263.11				0.00	0
Agricultural Expense Transfer			758,887.83	(758,887.83)					0.00	0
Total Expenses			2,966,899.07	2,625.00	104,266.36	-	-	-	3,099,669.37	5,171,148
Net Administrative Income			1,534,329.36	3,201.92	46,564.34			35.54	1,584,131.16	(1,240,686)
Other Income/(Expense)										
Replenishment Water Purchases						1,432,608.71			1,432,608.71	615,000
MZ1 Supplemental Water Assessments						1,586,000.00			1,586,000.00	1,670,049
Water Purchases									0.00	0
MZ1 Imported Water Purchase									0.00	(699,000)
Groundwater Replenishment						(1,582,144.55)			(1,582,144.55)	(1,586,049)
Net Other Income			0.00	0.00	0.00	1,436,464.16	0.00	0.00	1,436,464.16	0
Net Transfers To/(From) Reserves			1,534,329.36	3,201.92	46,564.34	1,436,464.16	-	35.54	3,020,595.32	(1,240,686)
Working Capital, July 1, 2002			2,916,003.13	468,150.31	175,804.57	204,947.95	158,250.86	2,845.07	3,926,001.89	
Working Capital, End Of Period			$ 4,450,332.49	$ 471,352.23	$ 222,368.91	$ 1,641,412.11	$158,250.86	$ 2,880.61	$ 6,946,597.21	
01/02 Production			120,855.574	39,494.349	5,548.481				165,898.404	
01/02 Production Percentages			72.849%	23.806%	3.345%				100.000%	

Q:\Financial Statements\02-03\2 03\[CombiningSchedule Feb 03.xls]Sheet1

Prepared by Sheri Rojo, Accountant

CHINO BASIN WATERMASTER
TREASURER'S REPORT OF FINANCIAL AFFAIRS FOR THE PERIOD
FEBRUARY 1 THROUGH FEBRUARY 28, 2003

SUMMARY at 2/28/2003	DEPOSITORIES:			
	Cash on Hand - Petty Cash			$ 500.00
	Bank of America			
	Governmental Checking-Demand Deposits		$83,559.44	
	Savings Deposits		9,580.81	
	Zero Balance Account - Payroll		0.00	93,140.25
	Local Agency Investment Fund - Sacramento			7,014,317.05
	TOTAL CASH IN BANKS AND ON HAND	2/28/2003		$ **7,107,957.30**
	TOTAL CASH IN BANKS AND ON HAND	12/31/2002		7,875,159.16
	PERIOD INCREASE (DECREASE)			$ **(767,201.86)**

CHANGE IN CASH POSITION DUE TO:		
Decrease/(Increase) in Assets:	Accounts Receivable	86,144.53
	Assessments Receivable	(203,953.31)
	Prepaid Expenses, Deposits & Other Current Assets	1,153.17
(Decrease)/Increase in Liabilities	Accounts Payable	(23,475.88)
	Accrued Payroll, Payroll Taxes & Other Current Liabilities	(81,668.53)
	Transfer to/(from) Reserves	(545,401.84)
	PERIOD INCREASE (DECREASE)	$ **(767,201.86)**

SUMMARY OF FINANCIAL TRANSACTIONS:	Petty Cash	Govt'l Checking Demand	Zero Balance Account Payroll	Savings	Local Agency Investment Funds	Totals
Balances as of 1/31/2003	$500.00	$50,761.30	$0.00	$9,580.81	$7,814,317.05	$7,875,159.16
Deposits		140,223.21	0.00	0.00	0.00	140,223.21
Transfers		737,591.63	62,408.37	0.00	(800,000.00)	0.00
Withdrawals/Checks		(845,016.70)	(62,408.37)	0.00	0.00	(907,425.07)
Balances as of 2/28/2003	$500.00	$83,559.44	$0.00	$9,580.81	$7,014,317.05	$7,107,957.30
PERIOD INCREASE OR (DECREASE)	**$0.00**	**$32,798.14**	**$0.00**	**$0.00**	**($800,000.00)**	**($767,201.86)**

CHINO BASIN WATERMASTER
TREASURER'S REPORT OF FINANCIAL AFFAIRS FOR THE PERIOD
FEBRUARY 1 THROUGH FEBRUARY 28, 2003

INVESTMENT TRANSACTIONS

Effective Date	Transaction	Depository	Activity	Redeemed	Days to Maturity	Interest Rate(*)	Maturity Yield
2/12/2003	Withdrawal	L.A.I.F	(600,000.00)				
2/27/2003	Withdrawal	L.A.I.F.	(200,000.00)				
TOTAL INVESTMENT TRANSACTIONS			**($800,000.00)**	**$0.00**			

* The earnings rate for L.A.I.F. is a daily variable rate; 2.31% was the effective yield rate at the Quarter ended December 31, 2002.

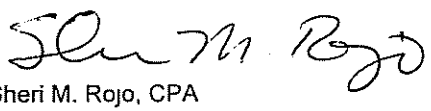
INVESTMENT STATUS
February 28, 2003

Financial Institution	Principal Amount	Number of Days	Interest Rate	Maturity Date
Local Agency Investment Fund	$7,014,317.05			
Time Certificates of Deposit	0.00			
TOTAL INVESTMENTS	**$7,014,317.05**			

Funds on hand are sufficient to meet all foreseen and planned Administrative and project expenditures during the next six months.

All investment transactions have been executed in accordance with the criteria stated in Chino Basin Watermaster's Investment Policy.

Respectfully submitted,



Sheri M. Rojo, CPA
Finance Manager
Chino Basin Watermaster

CHINO BASIN WATERMASTER
2002/2003 ACTUAL YEAR TO DATE REVENUES AND EXPENSES
COMPARED WITH ADOPTED 2002/2003 BUDGET

	Jul '02 - Feb 03	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
4010 · Local Agency Subsidies	25,878 94	20,000 00	5,878 94	129 4%
4110 · Admin Asmnts-Approp Pool	4,470,784 83	3,580,590 00	890,194 83	124 86%
4120 · Admin Asmnts-Non-Agri Pool	149,042 18	196,982 00	-47,939 82	75 66%
4200 · Grants	0 00	0 00	0 00	0 0%
4700 · Non Operating Revenues	38,094 58	132,890 00	-94,795 42	28 67%
4900 · Miscellaneous income	0.00	0.00	0.00	0.0%
Total Income	4,683,800.53	3,930,462.00	753,338.53	119.17%
Gross Profit	4,683,800 53	3,930,462 00	753,338 53	119 17%
Expense				
6010 · Salary Costs	317,747 50	414,173 00	-96,425 50	76 72%
6020 · Office Building Expense	54,100 24	123,845 00	-69,744 76	43 68%
6030 · Office Supplies & Equip.	17,811 07	27,500 00	-9,688 93	64 77%
6040 · Postage & Printing Costs	40,974 46	72,450 00	-31,475 54	56 56%
6050 · Information Services	56,733 38	101,800 00	-45,066 62	55 73%
6061 · Other Consultants	17,229 51	29,000 00	-11,770 49	59 41%
6062 · Audit Services	0 00	5,000 00	-5,000 00	0 0%
6063 · Public Relations Consultan	0 00	12,000 00	-12,000 00	0 0%
6065 · MWD Connection Fee	7,800 00	15,600 00	-7,800 00	50 0%
6066 · Engineering Services	0 00	90,000 00	-90,000 00	0 0%
6067 1 · General Counsel	88,262 16	71,000 00	17,262 16	124 31%
6067 2 · Legal Services -Markot	90 36	5,000 00	-4,909 64	1 81%
6080 · Insurance	9,434 16	11,210 00	-1 775 84	84 16%
6110 · Dues and Subscriptions	12,001 85	13,500 00	-1,498 15	88 9%
6140 · Other WM Admin Expenses	1,197 93	2,300 00	-1,102 07	52 08%
6150 · Field Supplies	1,910 06	3,950 00	-2,039 94	48 36%
6170 · Travel & Transportation	17,085 94	25,500 00	-8,414 06	67 0%
6190 · Conferences & Seminars	9,611 07	14,500 00	-4 888 93	66 28%
6200 · Advisory Comm - WM Board	8,926 98	17,870 00	-8,943 02	49 96%
6300 · Watermaster Board Expenses	17,051 79	42,522 00	-25,470 21	40 1%
8300 · Appr PI-WM & Pool Admin	8,965 64	16,310 00	-7,344 36	54 97%
8400 · Agri Pool-WM & Pool Admin	11,527 31	18,710 00	-7,182 69	61 61%
8467 · Agri-Pool Legal Services	25,485 21	83,000 00	-57,514 79	30 71%
8470 · Ag Meeting Attend -Special	5,875 00	17,300 00	-11,425 00	33 96%
8500 · Non-Ag PI-WM & Pool Admin	3,308 15	4,462 00	-1,153 85	74 14%
6500 · Education Funds Use Expens	0 00	375 00	-375 00	0 0%
9500 · Allocated G&A Expenditures	-151,267.31	-286,120.00	134,852.69	52.87%
Subtotal Administrative Expenses	581,862 46	952,757 00	-370,894 54	61 07%
6900 · Optimum Basin Mgmt Plan	544,455 09	810,777 00	-266,321 91	67 15%
6950 · Mutual Agency Projects	58,157 30	2,500 00	55,657 30	2,326 29%
9501 · G&A Expenses Allocated-OBMP	43,335.30	80,857.00	-37,521.70	53.6%
Subtotal OBMP Expenses	645,947 69	894,134 00	-248,186 31	72 24%

04/02/03

CHINO BASIN WATERMASTER
2002/2003 ACTUAL YEAR TO DATE REVENUES AND EXPENSES
COMPARED WITH ADOPTED 2002/2003 BUDGET

	Jul '02 - Feb 03	Budget	$ Over Budget	% of Budget
7101 · Production Monitoring	18,627 77	61,062 00	-42,434 23	30 51%
7102 · In-line Meter Installation	265,673 65	439,399 00	-173,725 35	60 46%
7103 · Grdwtr Quality Monitoring	126,587 66	321,829 00	-195,241 34	39 33%
7104 · Gdwtr Level Monitoring	58,951 93	205,916 00	-146.964 07	28 63%
7105 · Sur Wtr Qual Monitoring	23,266 31	85,161 00	-61,894 69	27 32%
7106 · Wtr Level Sensors Install	16,595 99	34,501 00	-17,905 01	48 1%
7107 · Ground Level Monitoring	368,903 10	801,070 00	-432,166 90	46 05%
7200 · PE2- Comp Recharge Pgm	131,591 69	184,168 00	-52,576 31	71 45%
7300 · PE3&5-Water Supply/Desalte	5,300 00	123,587 00	-118,287 00	4 29%
7400 · PE4-MZ1 Mgmt Plan	182,858 45	81,172 00	101,686 45	225 27%
7500 · PE6&7-CoopEfforts/SaltMgmt	109,665 23	58,299 00	51.366 23	188 11%
7600 · PE8&9-StorageMgmt/Conj Use	26,655 45	102,830 00	-76,174 55	25 92%
7690 · Recharge Improvement Debt Pymt	429,250 00	620,000 00	-190,750 00	69 23%
9502 · G&A Expenses Allocated-Projects	107,931.99	205,263.00	-97,331.01	52.58%
	1,871,859.22	3,324,257 00	-1,452,397 78	56 31%
Total Expense	3,099,669.37	5,171,148.00	-2,071,478.63	59.94%
Net Ordinary Income	1,584,131 16	-1,240,686 00	2,824,817 16	-127 68%
Other Income/Expense				
Other Income				
4231 · MZ1 Assigned Water Sales	0 00	615,000 00	-615,000 00	0 0%
4210 · Approp Pool-Replenishment	1,424,041 36			
4220 · Non-Ag Pool-Replenishment	8,567 35			
4230 · MZ1 Sup Wtr Assessment	1,586,000.00	1,670,049.00	-84,049.00	94.97%
Total Other Income	3,018,608 71	2,285,049 00	733,559 71	132 1%
Other Expense				
5012.4 · MZ1 Imported Water Purchase	0 00	699,000 00	-699,000 00	0 0%
5010 · Groundwater Replenishment	1,582,144 55	1,586,049 00	-3,904 45	99 75%
9999 · To/(From) Reserves	3,020,595.32	-1,240,686.00	4,261,281.32	-243.46%
Total Other Expense	4,602,739.87	1,044,363.00	3,558,376.87	440.72%
Net Other Income	-1,584,131.16	1,240,686.00	-2,824,817.16	-127.68%
Net Income	0.00	0.00	0.00	0.0%

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

II. BUSINESS ITEM

A. FORMATION OF WATER QUALITY COMMITTEE

CHINO BASIN WATERMASTER

8632 Archibald Avenue, Suite 109, Rancho Cucamonga, Ca 91730
Tel: 909 484 3888 Fax: 909 484 3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

STAFF REPORT

Date: **April 10, 2003**

To: **Pool Committee Members**

SUBJECT: **Formation of Water Quality Committee**

SUMMARY

Issue – The Watermaster's Implementation Plan for the Peace Agreement and Optimum Basin Management Plan requires the formation of a Water Quality Committee.

Recommendation - Staff recommends that the Pools take action to form a Water Quality Committee pursuant to Watermaster's Implementation Plan, and to consider action to direct the Committee to:

- Determine committee membership and chair,
- Invite the Santa Ana Regional Water Quality Control Board, and the Inland Empire Utilities Agency to be members
- Review water quality conditions in the basin,
- Develop cooperative strategies and plans to improve quality in the basin,
- Develop funding strategies to accomplish desired water quality improvements, and
- Direct the Committee to bring back recommendations to the Watermaster regarding goals and objectives in order to implement the items outlined above in accordance with the Judgment, OBMP, Peace Agreement, and Implementation Plan.

Fiscal Impact – Creation of the Committee will not impact current budgetary approvals.

BACKGROUND

Water quality issues within the Chino Basin were recognized as part of the 1978 Judgment. Engineering Exhibit I stated, "Maintenance and improvement of water quality is a prime consideration and function of management decisions by Watermaster. During the development of the OBMP, the parties further recognized the importance as well by calling for the formation of a Water Quality Committee as part of the Peace Agreement Implementation Plan.

Watermaster, as part of Program Element 1 of the OBMP, has been collecting and/or analyzing data associated with water quality samples taken at both private and municipal water wells. Samples have also been taken at recharge basins.

At Watermaster meetings in March 2003, staff and the Watermaster's consultant, Mark Wildermuth, presented some of the analytical results of this work. Various water quality anomalies were discussed as well as the water quality improvements associated with the desalters and other treatment activities.

DISCUSSION

Program Element 6 of the OBMP outlines the need for, and formation of, a water quality committee. The plan describes the following:

> Watermaster will form an ad hoc committee, hereafter *water quality committee*, to review water quality conditions in the Basin and to develop cooperative strategies and plans to improve water quality in the Basin. The committee will meet regularly with Regional Board staff to share information and to recommend cooperative efforts for monitoring groundwater quality and detecting water quality anomalies. The schedule and frequency of meetings will be developed with the Regional Board during fiscal 2000/01 of the OBMP implementation. Watermaster will budget sufficient funds 2000/01 for the first year of ad hoc committee activities. Watermaster will refine its monitoring efforts to support the detection and quantification of water quality anomalies. This may require additional budgeting for analytical work and staff/support. If necessary, Watermaster will conduct investigations to assist the Regional Board in accomplishing mutually beneficial objectives. Watermaster will seek funding from outside sources to accelerate detection and clean up efforts.

Staff recommends that the Pools take action to form a Water Quality Committee pursuant to Watermaster's Implementation Plan. Consideration should be given to:

- Determine committee membership and chair,
- Invite the Santa Ana Regional Water Quality Control Board, and the Inland Empire Utilities Agency to be members
- Review water quality conditions in the basin,
- Develop cooperative strategies and plans to improve quality in the basin,
- Develop funding strategies to accomplish desired water quality improvements, and
- Direct the Committee to bring back recommendations to the Watermaster regarding goals and objectives in order to implement the items outlined above in accordance with the Judgment, OBMP, Peace Agreement, and Implementation Plan.

VI. PHYSICAL SOLUTION

A. GENERAL

41. Watermaster Control. Watermaster, with the advise of the Advisory and Pool Committees, is granted discretionary powers in order to develop an optimum basin management program for Chino Basin, including both water quantity and quality considerations. Withdrawals and supplemental water replenishment of Basin Water, and the full utilization of the water resources of Chin Basin, must be subject to procedures established by and administered through Watermaster with the advice and assistance of the Advisory and Pool Committees composed of the affected producers. Both the quantity and quality of said water resources may thereby be preserved and the beneficial utilization of the Basin maximized.

D. REPLENISHMENT

49. Sources of Supplemental Water. Supplemental water may be obtained by Watermaster from any available source. Watermaster shall seek to obtain the best available quality of supplemental water at the most reasonable cost for recharge in the Basin. To the extent that costs of replenishment water may vary between pools, each pool shall be liable only for the costs attributable to its required replenishment. Available sources may include, but are not limited to:

(a) Reclaimed Water -- There exist a series of agreements generally denominated the Regional Waste Water Agreements between CBMWD and owners of the major municipal sewer systems within the basin. Under those agreements, which are recognized hereby but shall be unaffected and unimpaired by this judgment, substantial quantities of reclaimed water may be made available for replenishment purposes. There are additional sources of reclaimed water which are, or may become, available to Watermaster for said purposes. Maximum beneficial use of reclaimed water shall be given high priority by Watermaster.

(b) State Water -- State water constitutes a major available supply of supplemental water. In the cased of State Water, Watermaster purchases shall comply with the water service provisions of the State's water service contracts. More specifically, Watermaster shall purchase State Water from MWD for replenishment of excess production within CBMWD, WMWD and PVMWD, and from SBVMWD to replenish excess production within SBVMWD's boundaries in Chino Basin, except to the extent that MWD and SBVMWD give their consent as required by such State water service contracts.

(c) Local Import -- There exist facilities and methods for importation of surface and ground water supplies from adjacent basins and watersheds.

(d) Colorado River Supplies -- MWD has water supplies available from its Colorado River Aqueduct.

EXHIBIT "I" ENGINEERING APPENDIX

1. Basin Management Parameters. In the process of implementing the physical solution for Chino Basin, Watermaster shall consider the following parameters:

(a) Pumping Patterns -- Chino Basin is a common supply for all persons and agencies utilizing its waters. It is an objective in management of the Basin's waters that no producer be deprived of access to said waters by reason of unreasonable pumping patter, nor by regional or localized recharge of replenishment water, insofar as such result may be practically avoided.

(b) Water Quality -- Maintenance and improvement of water quality is a prime consideration and function of management decisions by Watermaster.

(c) Economic Considerations -- Financial feasibility, economic impact and the cost and optimum utilization of the basin's resources and the physical facilities of the parties are objectives and concerns equal in importance to water quantity and quality parameters.

I DEFINITIONS AND RULES OF CONSTRUCTION

1.1 Definitions. As used in this Agreement, these terms, including any grammatical variations thereof shall have the following meanings:

(y) "Material Physical Injury" means material injury that is attributable to the Recharge, Transfer, storage and recovery, management, movement or Production of water, or implementation of the OBMP, including, but not limited to, degradation of **water quality,** liquefaction, land subsidence, increases in pump lift (lower water levels) and adverse impacts associated with rising groundwater. Material Physical Injury does not include "economic injury" that results from other than physical causes. Once fully mitigated, physical injury shall no longer be considered to be material;

V WATERMASTER PERFORMANCE

5.1 Recharge and Replenishment. After the Effective Date and until the termination of this Agreement, the Parties expressly consent to Watermaster's performance of the following actions, programs or procedures regarding Recharge and Replenishment:

(f) Watermaster shall undertake Recharge, using water of the lowest cost and the highest **quality**, giving preference as far as possible to the augmentation and the Recharge of native storm water.

5.2 Storage and Recovery. After the Effective Date and until the termination of this Agreement, the Parties expressly consent to Watermaster's performance of the following actions, programs or procedures regarding the storage and recovery of water:

(b) Local Storage.

(viii) In the event more than one party to the Judgment submits a request for an agreement to store Supplemental Water pursuant to a Local Storage agreement, Watermaster shall give priority to the first party to file a bona fide written request which shall include the name of the party to the Judgment, the source, quantity and **quality** of the Supplemental Water, an identification of the party to the Judgment's access to or ownership of the Recharge facilities, the duration of the Local Storage and any other information Watermaster shall reasonably request. Watermaster shall not grant any person the right to store more than the then existing amount of available Local Storage. The amount of Local Storage available for the storage of Supplemental Water shall be determined by sub-

tracting the previously approved and allocated quantity of storage capacity for Supplemental Water from the cumulative maximum of 50,000 acre-feet.

PROGRAM ELEMENT 1 – DEVELOP AND IMPLEMENT COMPREHENSIVE MONITORING PROGRAM

Groundwater Quality Monitoring Program

Description. Watermaster began the process to develop a comprehensive water quality monitoring program in July 1999. As with the groundwater level monitoring program, the water quality monitoring program will consist of an initial survey and a long-term monitoring effort. The initial survey will consist of:

- collection of all water quality data from appropriators' wells that are tested by appropriators;
- collection of all water quality data from Regional Board for water quality monitoring efforts that are conducted under their supervision; and
- collection and analysis of at least one water quality sample at all (or a representative set of) other production wells in the Basin. Assumed maximum number of wells sampled by Watermaster staff in the initial survey is 600.

Groundwater quality analyses will be obtained by the following entities:

- Overlying Agricultural Pool – Watermaster staff
- Overlying Non-agricultural Pool – pool member
- Appropriative Pool – pool member
- Other wells – Watermaster staff will obtain data from Regional Board or owners

Re-sampling and analysis will be done at wells sampled by Watermaster if volatile organic compounds (VOCs) are detected. These data will be mapped and reviewed. Based on this review and Watermaster management goals in the OBMP, a long-term monitoring program will be developed and implemented in the fall of 2002. The long-term monitoring program will contain a minimum set of key wells that can be periodically monitored to assess water quality conditions in the Basin over time.

Implementation Status. Watermaster began implementation of a groundwater quality monitoring program in fiscal year 1999/00 with a budget commitment of $250,000 and will commit the same level of effort through 2001/02. After 2001/02, the budget commitment will be less reflecting the implementation of a key-well monitoring program.

Surface Water Discharge and Quality Monitoring.

Description. The current program of measuring water quality at recharge basins will be expanded to all recharge and retention basins that contribute or have the potential to contribute significant recharge to the Basin. Water level sensors will be installed in all recharge and retention basins that contribute significant recharge to the Chino Basin. These facilities are listed in Table 4-3 of the OBMP Phase 1 Report. A total of 16 new water-level sensors will be required at a total cost of about $200,000. Water level data acquisition and water quality sampling will be done by Watermaster staff. The annual cost of laboratory analysis and interpretation of water level and water quality data is about $45,000.

Watermaster needs to assess the existing surface water discharge and associated water quality monitoring programs for the Santa Ana River and its Chino Basin tributaries to determine the adequacy of the existing monitoring programs for characterizing historical ambient conditions

and their utility in detecting water quality impacts from future Chino Basin management activities. If possible, Watermaster will contract with the agencies conducting these programs to modify their programs to accommodate Watermaster.

Implementation Status. Watermaster will take the lead in completing the following activities:

- Watermaster will install water level sensors in all existing recharge and retention facilities that have conservation storage and potential for storm water recharge. This activity will begin in Watermaster fiscal year 2000/01.
- Watermaster staff will obtain grab samples approximately every two weeks for all basins during the rainy season and have these samples analyzed. This activity has been occurring since 1997/98, is budgeted in the current fiscal year, and will continue in the future at some level reflecting the water resources management goals of Watermaster. Current fiscal year budget is $38,250. In addition, Watermaster staff will supplement its storm water quality data by obtaining information from other agencies that are required to collect such data.
- In the current fiscal year, Watermaster will review the surface water discharge and associated water quality monitoring programs for the Santa Ana River and the lower Chino Basin tributaries, and compare what is available from these programs to what is needed for Watermaster investigations under the OBMP. A supplementary/cooperative monitoring program will be developed based on this review and will be implemented by Watermaster during fiscal year 2000/01. The cost of the initial assessment of surface water data for the Santa Ana River is $15,000.

Summary of Implementation Actions and Schedule

First Three Years (1999/00 to 2001/02). The following actions will be completed in the first three years commencing fiscal year 1999/00:

- Complete initial survey for groundwater quality program and develop long-term program.
- Complete meter installation program for overlying agricultural pool.
- Complete Santa Ana River surface water monitoring adequacy analysis.
- Start and continue surface water discharge and quality monitoring at recharge and retention facilities.
- Develop agreements with county and state agencies regarding notification of new well drilling. Well construction and related information will be requested as new wells are identified.
- Watermaster will annually prepare a list of abandoned wells and forward that list to the counties for their action. Watermaster will follow up with the Counties to ensure that abandoned wells are destroyed.

Years Four to Ten (2002/03 to 2010/11). The following actions will be completed in years four through ten, commencing fiscal year 2002/03:

- Start and continue long-term groundwater quality monitoring program, cause key wells to be relocated as necessary.
- Continue surface water discharge and quality monitoring in the Santa Ana River.

- Continue surface water discharge and quality monitoring at recharge and retention facilities.
- Well construction and related information will be requested as new wells are identified.
- Watermaster will annually prepare a list of abandoned wells and forward that list to the counties for their action. Watermaster will follow up with the Counties to ensure that abandoned wells are destroyed.

Years Eleven to Fifty (2011/12 to 2049/50). The following actions will be completed in years eleven to fifty, commencing fiscal year 2011/12:

- Continue long-term groundwater quality monitoring program, cause key wells to be relocated as necessary.
- Continue production monitoring.
- Participate as necessary in the Santa Ana River surface water monitoring.
- Continue surface water discharge and quality monitoring at recharge and retention facilities.
- Well construction related information will be requested as new wells are identified.
- Watermaster will annually prepare a list of abandoned wells and forward that list to the counties for their action. Watermaster will follow up with the Counties to ensure that abandoned wells are destroyed.

PROGRAM ELEMENT 6 – DEVELOP AND IMPLEMENT COOPERATIVE PROGRAMS WITH THE REGIONAL BOARD AND OTHER AGENCIES TO IMPROVE BASIN MANAGEMENT, AND PROGRAM ELEMENT 7 – DEVELOP AND IMPLEMENT SALT MANAGEMENT PROGRAM

These program elements are needed to address some of the water quality management problems that have occurred in the Basin. These water quality problems are described in Section 2 *Current Physical State of the Basin* and Table 3-8 in Section 3 *Goals of the OBMP* of the OBMP Phase 1 Report. The specific water quality issues addressed by these program elements are listed below:

- Watermaster needs to routinely demonstrate that implementation of the OBMP will lead to groundwater quality improvements. Watermaster will develop and use a method to determine water quality trends and to verify whether the OBMP is improving water quality.
- There is legacy contamination in the vadose zone from past agricultural activities (TDS and nitrogen) that will continue to degrade groundwater long into the future.
- Watermaster does not have sufficient information to determine whether point and non-point sources of groundwater contamination are being adequately addressed.
- There is ongoing salt and nitrogen loading from agriculture.

Demonstration of Water Quality Improvement

Description. The Court has indicated that Watermaster needs to routinely demonstrate that implementation of the OBMP will lead to groundwater quality improvements. Groundwater quality monitoring will be done in Program Element 1 and can be used to assess the long-term water quality benefits of the OBMP. In the short term, groundwater quality monitoring will not be a true metric of the water quality benefits of the OBMP. Water quality changes will occur

very slowly. Water quality may continue to degrade after implementation of the OBMP due to legacy contamination in the vadose zone. Watermaster has committed to the development of a salt budget tool that will enable Watermaster to evaluate the water quality benefits of OBMP. The salt budget tool is a computer program that estimates the flow-weighted concentration of TDS and nitrogen into the Chino Basin at the management zone and basin levels, and estimates the TDS and nitrogen impacts of the OBMP on the Santa Ana River. The salt budget tool will cost about $40,000 to $45,000 to develop and use the first time. Watermaster will ether build this tool directly for the Chino Basin, or will participate in an effort to develop a regional salt budget tool for the Santa Ana watershed. Subsequent uses, in either OBMP updates or *ad hoc* investigations, will involve developing new water quality input data based on new monitoring data and revised water and waste management scenarios.

Implementation Status. As part of the Phase 2 OBMP process, Watermaster is conducting preliminary salt budget studies. The preliminary salt budget studies will be completed in May of 2000. Watermaster will develop and use the salt budget tool during Watermaster fiscal year 2000/01.

Cooperative Efforts with the Regional Water Quality Control Board

Description. Watermaster does not have sufficient information to determine whether point and non-point sources of groundwater contamination are being adequately addressed. Watermaster's past monitoring efforts have been largely confined to mineral constituents in the southern half of the Basin and to available monitoring data supplied by municipal and industrial producers. The Regional Water Quality Control Board (Regional Board) has limited resources to detect, monitor and cause the clean up of point and non-point water quality problems in the Chino Basin. The Regional Board commits its resources to enforce remedial actions when it has identified a potential responsible party. Watermaster can improve water quality management in the Basin by committing resources to:

- identify water quality anomalies through monitoring;
- assist the Regional Board in determining sources of the water quality anomalies;
- establish priorities for clean-up jointly with RWQCB; and
- remove organic contaminants through regional groundwater treatment projects in the southern half of the Basin.

The last bulleted item requires some explanation. The well field for SAWPA desalter will eventually intercept a solvent plume of unknown origin that is emanating from the Chino airport area. There is a second solvent plume northeast of the Chino airport area that could be intercepted by the current desalter or another future desalter. This will require additional treatment for the water produced by the desalter. The desalter project can be used to clean up these plumes at some additional cost. The cost of cleaning up the solvent plumes at the desalters will be less than the cost of a dedicated solvent removal system. The additional cost should be paid for by the entity responsible for the solvent discharge.

Implementation Status. Watermaster is in the process of identifying water quality anomalies through its groundwater monitoring programs in Program Element 1. A revised anomaly map similar to Figure 2-58 in the OBMP Phase 1 report will be prepared by Watermaster by May 2000. These maps will be revised at least annually by Watermaster and submitted to the RWQCB for their use.

Watermaster will form an ad hoc committee, hereafter *water quality committee*, to review water quality conditions in the Basin and to develop cooperative strategies and plans to improve water

quality in the Basin. The committee will meet regularly with Regional Board staff to share information and to recommend cooperative efforts for monitoring groundwater quality and detecting water quality anomalies. The schedule and frequency of meetings will be developed with the Regional Board during fiscal 2000/01 of the OBMP implementation. Watermaster will budget sufficient funds 2000/01 for the first year of ad hoc committee activities. Watermaster will refine its monitoring efforts to support the detection and quantification of water quality anomalies. This may require additional budgeting for analytical work and staff/support. If necessary, Watermaster will conduct investigations to assist the Regional Board in accomplishing mutually beneficial objectives. Watermaster will seek funding from outside sources to accelerate detection and clean up efforts.

TDS and Nitrogen (Salt) Management in the Chino Basin

Description. TDS and nitrogen management will require minimizing TDS and nitrogen additions by fertilizers and dairy wastes, desalting of groundwater in the southern part of the Basin, and maximizing the artificial recharge of storm water. The latter two management components are included in Program Elements 3 and 2, respectively

The agricultural area in the southern part of the Chino Basin will gradually convert to urban uses over the next 20 to 30 years and, thus, in the long term, the TDS and nitrogen challenges from irrigated agriculture and dairy waste management will go away. The Regional Board adopted new dairy waste discharge requirements in 1999. The requirements include the following:

- Each dairy will develop and implement an engineered waste management plan that will contain dairy process water and on-dairy precipitation runoff for up to a 25-year, 24-hour storm
- Manure scraped from corrals must be exported from the dairy within 180 days
- All manure stockpiled in the Chino Basin as of December 1, 1999, will be exported from the Basin by December 1, 2001.
- No manure may be disposed of in the Chino Basin
- Some manure can be applied to land at agronomic rates if and only if in the opinion of the Executive Officer there is reasonable progress toward the construction of a new desalter in the Chino Basin.

The urban land use that will replace agriculture will require low TDS municipal supplies that in turn will produce lower TDS irrigation returns to groundwater than those generated by agriculture. The construction of desalters in the southern part of the Basin (as described in Program Elements 3 and 5) will extract and export large quantities of salt from the Basin. If Desalters are installed or expanded as currently being evaluated, approximately 50% of the salt removal capacity contemplated by 2020 in the Phase I report will be occurring by 2005. By 2020, the salt removal capacity of the Desalters will reach over 77,000 tons per year. Watermaster expects a net reduction in salt loading of about 77,000 to 100,000 tons of salt per year in the next 20 to 30 years.

Implementation Status. Watermaster will review the economics of dairy waste management in the Chino Basin and may contribute funds to subsidize the removal of manure from the Basin. Watermaster will contribute $150,000 during fiscal year 2000/01.

Summary of Implementation Actions and Schedule

First Three Years (2000/01 to 2002/03). The following actions will be completed in the first three years commencing fiscal year 2000/01:

- Watermaster will form an ad hoc committee, hereafter *water quality committee*. The schedule and frequency of meetings will be developed with the Regional Board during the first year of the OBMP implementation.
- Watermaster will refine its monitoring efforts to support the detection and quantification of water quality anomalies. This may require additional budgeting for analytical work and staff/support.
- If necessary, Watermaster will conduct investigations to assist the Regional Board in accomplishing mutually beneficial objectives.
- Watermaster will seek funding from outside sources to accelerate detection and clean up efforts.
- Develop salt budget goals, develop the salt budget tool described above and review all the OBMP actions.
- Watermaster will continue to monitor the nitrogen and salt management activities within the basin.

At the conclusion of the third year, the *water quality committee* will have met several times, developed and implemented a cooperative monitoring plan with the Regional Board, and developed a priority list and schedule for cleaning up all known water quality anomalies.

Years Four through Fifty (2003/04 to 2049/50). The following actions will be completed in years four through fifty, commencing fiscal year 2003/04:

- Continue monitoring and coordination efforts with the Regional Board.
- Annually update priority list and schedule for cleaning up all known water quality anomalies.
- Continue to seek funding from outside sources to accelerate clean up efforts.
- Implement projects of mutual interest.
- As part of periodic updates of the OBMP, re-compute the salt budget using the salt budget tool. The salt budget tool will be used to reassess future OBMP actions to ensure that salt management goals are attained.
- Watermaster will continue to monitor the nitrogen and salt management activities within the basin.

CHINO BASIN WATERMASTER

April 10, 2003
10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools
1:00 p.m. – Agricultural Pool

II. BUSINESS ITEM

B. NIAGARA WATER COMPANY INTERVENTION

CHINO BASIN WATERMASTER

8632 Archibald Avenue, Suite 109, Rancho Cucamonga, Ca 91730
Tel: 909.484.3888 Fax: 909 484.3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

STAFF REPORT

DATE: **April 10, 2003**

TO: **Watermaster Committee Members**

SUBJECT: **Intervention of Niagara Bottling, LLC**

SUMMARY

Issue – Request for Intervention by Niagara Bottling, LLC

Recommendation – Staff recommends that the Pools recommend to the Advisory Committee that Niagara's request for intervention be accepted according to the following terms:

1. Niagara will be assigned to the Appropriative Pool.
2. Niagara will have an adjudicated right of 0 acre-feet per year.
3. Niagara will pay a full replenishment obligation.
4. Niagara will reimburse Watermaster for water pumped prior to intervention in the amount of $41,115.00

Fiscal Impact - None

BACKGROUND

Niagara is a water bottling company that is pumping water from a well within the service area of the Cucamonga County Water District. On April 1, 2003, through counsel, Niagara submitted a letter to Watermaster, which indicated that it would like to voluntarily intervene into the Judgment. Such intervention is authorized by Paragraph 60 of the Judgment.

DISCUSSION

The terms of intervention that Niagara has requested are the same terms under which Arrowhead intervened into the Judgment.

Based on information provided by Niagara, Watermaster estimates that Niagara's production from the Basin to date has been less than 200 acre-feet. While Niagara has drilled a well with an estimated capacity of approximately 400 acre-feet per year, it appears that operational issues to date have prevented Niagara from using this well to its full capacity. Estimating Niagara's production has been complicated by the fact that it imports via trucks a considerable amount of water to its facility from outside the Basin. Based on extensive negotiations over the past few months, Watermaster believes that the amount of money that Niagara has offered to reimburse to Watermaster for the water that it has pumped to date is a fair reimbursement, representing substantially all of the water that has been pumped. Niagara is aware that it will be required to install a meter on its well in order to measure future production.

Given the relatively small quantity of water anticipated to be produced by Niagara in the future, Watermaster does not believe that any Material Physical Injury to any party or to the Basin will result from Niagara's intervention. Staff recommends that the Pools forward a recommendation to the Advisory Committee and Board to approve Niagara's request for intervention according to the terms listed above.

Pure Quality Since 1963
NIAGARA WATER
17842 Cowan Street
Irvine, CA 92614
(949) 863-1400, (949) 955-0758 Facsimile
www.niagarawater.com

April 1, 2003

VIA FACSIMILE (909) 484-3890

Mr. John Rossi, CEO
Chino Basin Watermaster
8632 Archibald Ave., Ste. 109
Rancho Cucamonga, CA 91730

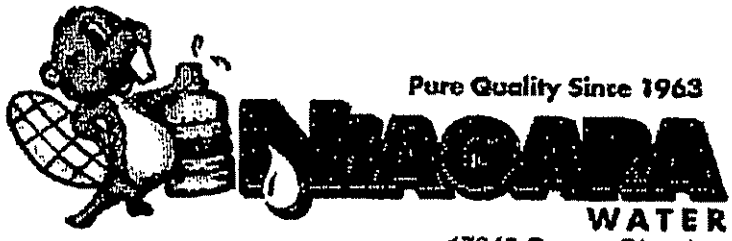
RE: NIAGARA BOTTLING, LLC, GENERAL BUSINESS MATTERS
Subject: Request for Intervention by Niagara Bottling LLC

Dear Mr. Rossi:

Please allow this correspondence to serve as Niagara's formal request to intervene in the Chino Basin Judgment (Case No. RCV 51010), effective April 1, 2003. In accordance with this request, we request that Niagara be placed into the Appropriative Pool with adjudicated production rights of 0 acre-feet per year and a full replenishment obligation. In other words, in the interests of compromise, Niagara will forfeit any and all existing water rights (including arguably convertible agricultural rights) it may have, and will terminate its relationship with Wayne Lemieux, to the extent such representation deals with, or in any way pertains to the Chino Basin and/or the Chino Basin Watermaster.

In order to demonstrate our desire to compromise, and participate as a member of the Chino Basin Community, and conditioned upon the Watermaster's acceptance of the terms set forth herein, Niagara will agree to pay the replenishment assessment ($243 per acre-foot) on the water it produced from May of 2002 to April 1, 2003. Based on information provided to us by Watermaster, we are informed that this amount of water is approximately 169.2 acre-feet resulting in a replenishment cost of $41,115.60.

We understand that with an approved intervention on these terms, all past issues with Niagara will have been resolved, and that Niagara will be able to produce water from the Chino Basin with all rights afforded to us as a party to the Judgment.



17842 Cowan Street
Irvine, CA 92614
(949) 863-1400, (949) 955-0758 Facsimile
www.niagarawater.com

In the event you have any questions or concerns, please do not hesitate to contact the undersigned at (949) 735-4045.

Best Regards,

Brian M. Hess
General Counsel for
Niagara Drinking Waters, Inc.

(bhess@niagarawater.com)

cc: Michael Fife via facsimile (805) 965-4333

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

II. BUSINESS ITEM

C. LETTER TO MWD

CHINO BASIN WATERMASTER

8632 Archibald Avenue, Suite 109, Rancho Cucamonga, Ca 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

STAFF REPORT

DATE: **April 10, 2003**

TO: **Watermaster Committee Members**

SUBJECT: **Colorado River Quantitative Settlement Agreement (QSA) Negotiations**

SUMMARY

Issue – Letter to Metropolitan Water District

Recommendation – Consider recommending the Watermaster Board Chair send a letter to Metropolitan Water District regarding additional use of Proposition 13 monies for the QSA deal.

Fiscal Impact - None

BACKGROUND

The Governor announced the proposed Colorado River proposal on March 12, 2003. The proposal seeks significant Proposition 50 appropriations to "subsidize" the IID/SDCWA transfer. Other member agencies (Calleguas MWD, Los Angeles Department of Water & Power, Municipal Water District of Orange County) have all expressed concerns about the use of voter approved bond funds for this water transfer.

DISCUSSION

Supporting information has been included in this package for your review.

CHINO BASIN WATERMASTER

8632 Archibald Avenue, Suite 109, Rancho Cucamonga, Ca 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

DRAFT

April 24, 2003

Phillip J. Pace
Chairman of the Board
Metropolitan Water District of Southern California
700 North Alamda Street
Los Angeles, CA 90012

Re: Colorado River QSA Negotiations

Dear Chairman Pace:

On behalf of Chino Basin Watermaster (Watermaster), I am writing to express our deep concerns with the proposed Colorado QSA Agreement in its present form and our growing frustration with the lack of information and analysis on the potential impact this deal will have on both ratepayers and Metropolitan member agencies.

While we recognize that these negotiations are complex and involve many variables, the Watermaster is unable to support this proposal in its present form. We concur with many other agencies (Inland Empire Utilities Agency, the Calleguas Municipal Water District, the San Diego County Water Authority, et al) in saying that this fails to yield a cost effective return, commensurate asset or a significant social value and we consider such payments "gifts of public funds".

Following are six areas of concern:

1. Interim Surplus Guidelines - The Bureau of Reclamation's model of the Colorado River system for river operations shows the limiting impact of drier conditions, leaving the question of whether there will be any interim surplus water in the fifteen-year period that the guidelines would be in effect. If true, what are your member agencies paying for?

2. Salton Sea Impacts - Opinions abound on the value of the Salton Sea, and the prognosis for saving and restoring it vary greatly. Perhaps it is better to seek less environmentally impacted water than to assume a greater risk for mitigation efforts that have not been sufficiently evaluated for impacts or long-term costs. If potential transfers of water are going to impact the Salton Sea, we should steer clear of its waters and develop other resources that are not burdened by those concerns.

3. Expensive Water - Our rough calculations suggest a water price of $250/af, as compared with other water opportunities around the State of $100/af. Absent a full financial analysis from MWD, we fail to see the investment value of this agreement. The fact that the State is willing to subsidize the deal does nothing to increase its benefit. Given California's grave fiscal condition, it is our hope that the State's limited resources are invested in the most cost-effective manner.

It is imperative to recognize the that base cost of Colorado River water will likely rise due to anticipated treatment costs for perchlorate removal. These costs should be figured into any analysis prepared by MWD.

4. Proposition 50 Competition - Despite specific call-outs in Chapters 4 and 9 of Proposition 50 for Colorado River concerns, it appears that the proposed agreement is targeting Chapter 8's Integrated Regional Project funds to make up an additional $200 million to close the deal. San Bernardino County supported Proposition 50 for varied reasons, but none so compelling as the chance to access funds for badly needed local water projects.

   SB 1473 (Machado), signed into law last year, clarified the Legislature's intent *"that 40% of the ($500 million in) funds made available by the initiative for integrated regional water management projects be made available for projects in Northern California and 40% of the funds be made available for projects in Southern California."* A $200 million earmark for the Colorado River would absorb all the funds intended for regional projects in Southern California and would leave San Bernardino County with nothing. We strongly support a competitive grant process (as did MWD) for the distribution of these funds and consider any additional earmarks for the Colorado River, official or implied, a raid on the measure.

5. Adequate Water Supplies - MWD's Water Supply Assessment continues to demonstrate that MWD has adequate firm water supplies through 2015 and numerous water sources, beyond the Colorado surplus, under development to assure a full 20-year supply. This is a result of MWD's excellent efforts to diversify its water portfolio. What is the relative cost of interim surplus water to these other options?

6. Future Funds - Given the significant role that water plays in California's economic and environmental health, it is appropriate that the Governor's office use its influence to assure the State's resources are well managed. Unfortunately, the high-profile of these negotiations have given "surplus" Colorado River water a status beyond its worth and have left many Californians with the impression that this one agreement will take care of all our water concerns in the South. This is not the case, nor does it support our on-going efforts to develop local supplies and reduce our reliance on the State's two large water projects.

   If the state commits bond funds and loan guarantees for this agreement, will the Legislature be willing to provide additional funds for local projects in the six county Southern California Region? Our fear is that they will not -- nor will the voters who saw Proposition 50 as the answer to many of the local water needs in their communities, unless we show progress with the funds they voted us this past year.

As resource managers, we plan for the future needs of this region by carefully developing cost-effective, reliable, quality water supplies. Considering the anticipated cost for this "phantom" surplus water, compared to other water supply options in this State, Watermaster must question the value of this deal - especially if it relies on funds that could be better invested in local water projects, as the voters intended.

Watermaster thanks you for considering our comments and the comments from other agencies and asks that you seek additional information to assist us in further evaluating the proposed QSA Agreement.

Sincerely,

Dennis Yates, Chairman
Chino Basin Watermaster Board

c: R. Gastelum, CEO
MWD Board of Directors

Inland Empire
UTILITIES AGENCY

Date: April 2, 2003

To: Honorable Board of Directors

From: Richard W. Atwater
Chief Executive Officer/General Manager

Subject: Colorado River Quantitative Settlement Agreement (QSA) Negotiations

RECOMMENDATION

It is recommended that the Board of Directors authorize the Board President to sign the attached letter.

BACKGROUND

The Governor announced the proposed Colorado River proposal on March 12, 2003. The proposal seeks significant Prop. 50 appropriations to "subsidize" the IID/SDCWA transfer. Other member agencies (Calleguas MWD, Los Angeles Department of Water & Power, Municipal Water District of Orange County) have all expressed concerns about the use of voter approved bond funds for this water transfer. I would recommend that the Board approve the attached letter.

PRIOR BOARD ACTION

None.

IMPACT ON BUDGET

None.

April 2, 2003

DRAFT

Phillip J. Pace
Chairman of the Board
Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012

RE: Colorado River QSA Negotiations

Dear Chairman Pace:

On behalf of Inland Empire Utilities Agency, I am writing to express our deep concerns with the proposed Colorado QSA Agreement in its present form and our growing frustration with the lack of information and analysis on the potential impact this deal will have on both ratepayers and Metropolitan member agencies.

While I recognize that these negotiations are complex and involve many variables, the Inland Empire Utilities Agency is unable to support this proposal in its present form. Our Agency cannot, in good conscience, support any MWD investment that fails to yield a cost effective return, commensurate asset or a significant social value. We consider such payments "gifts of public funds," which are not in keeping with our mission to service our customers in an "economically responsible manner."

We have six areas of concern:

1. Interim Surplus Guidelines – The Bureau of Reclamation's model of the Colorado River system for river operations shows the limiting impact of drier conditions, leaving the question of whether there will be any interim surplus water in the fifteen-year period that the guidelines would be in effect. If true, what are we paying for?

2. Salton Sea Impacts – Opinions abound on the value of the Salton Sea, and the prognosis for saving and restoring it vary greatly. Perhaps it is better to seek less environmentally impacted water, than assume a greater risk for mitigation efforts that have not been sufficiently evaluated for impacts or long-term costs. If, indeed, potential transfers of water are going to impact the Salton Sea, we should steer clear of this water and instead develop other resources that are not burdened by those concerns.

3. Expensive Water – Our rough calculations suggest a water price of $250/af, as compared with other water opportunities around the state of $100/af. Absent a full financial analysis from MWD, we fail to see the investment value of this agreement. The fact that the State is willing to subsidize the deal does nothing to increase its benefit. Rather, given California's grave fiscal condition, it is our responsibility as municipal providers to assure the State's limited resources are invested in the most cost-effective manner.

   Setting aside the price tag of this deal, we must recognize that the base cost of Colorado River will likely rise due to anticipated treatment costs for perchlorate removal. These costs should be figured into any analysis prepared by MWD.

DRAFT

4. Proposition 50 Competition – Despite specific call-outs in Chapters 4 and 9 of Proposition 50 for Colorado River concerns, it appears that the proposed agreement is targeting Chapter 8's Integrated Regional Project funds to make up an additional $200 million to close the deal. San Bernardino County supported Proposition 50 for varied reasons, but none so compelling as the chance to access funds for badly needed local water projects.

   SB 1473 (Machado), signed into law last year, clarified the Legislature's intent *"that 40% of the [$500 million in] funds made available by the initiative for integrated regional water management projects be made available for projects in Northern California and 40% of the funds be made available for projects in Southern California."* A $200 million earmark for the Colorado River would absorb all the funds intended for regional projects in Southern California and would leave San Bernardino County with nothing. Inland Empire Utilities Agency, like many other member agencies, intends to seek project funding from Chapter 8. We strongly support a competitive grant process (as did MWD) for the distribution of these funds and consider any additional earmarks for the Colorado River, official or implied, a raid on the measure.

5. Adequate Water Supplies – MWD's Water Supply Assessment continues to demonstrate that the District has adequate firm water supplies through 2015 and numerous water sources, beyond the Colorado surplus, under development to assure a full 20-year supply. This is a result of MWD's excellent efforts to diversify its water portfolio. What is the relative cost of Interim surplus water to these other options?

6. Future Funds – Given the significant role that water plays in California's economic and environmental health, it is appropriate that the Governor's office use its influence to assure the State's resources are well-managed. Unfortunately, the high-profile of these negotiations have given "surplus" Colorado River water a status beyond its worth and have left many Californians with the impression that this one agreement will take care of all our water concerns in the South. This is not the case, nor does it support our on-going efforts to develop local supplies and reduce our reliance on the State's two large water projects

   If the state commits bond funds and loan guarantees for this agreement, will the Legislature be willing to provide additional funds for local projects in the six county Southern California Region? Our fear is that they will not -- nor will the voters, who saw Prop 50 as the answer to many of the local water needs in their communities, unless we show progress with the funds they voted us this past year.

Our job as resources managers is to plan for the future needs of this region by carefully developing cost-effective, reliable, quality water supplies. Considering the anticipated cost for this "phantom" surplus water, compared to other water supply options in this state, Inland Empire Utilities Agency again must question the value of this deal – especially if it relies on funds that could be better invested in local water projects, as the voters intended.

DRAFT

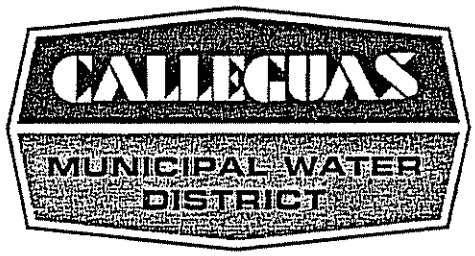
I thank you for your consideration of our comments and ask that you seek additional information to assist us in further evaluating the proposed QSA Agreement.

Sincerely,

INLAND EMPIRE UTILITIES AGENCY

John L. Anderson
President
Board of Directors

cc: Ron Gastelum, CEO
MWD Board of Directors
IEUA Board of Directors



web site: www.calleguas.com

2100 OLSEN ROAD • THOUSAND OAKS, CALIFORNIA 91360-6800 805/526-9323 • FAX: 805/522-5730 • FAX: 805/526-3675

March 24, 2003

Phillip J. Pace
Chairman of the Board
Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012

RE: Colorado River QSA Negotiations

Dear Chairman Pace:

On behalf of Calleguas Municipal Water District, I am writing to express our deep concerns with the proposed Colorado QSA Agreement in its present form and our growing frustration with the lack of information and analysis on the potential impact this deal with have on both ratepayers and Metropolitan member agencies.

While I recognize that these negotiations are complex and involve many variables, I am unable to support this proposal in its present form. Calleguas cannot, in good conscience, support any MWD investment that fails to yield a cost effective return, commensurate asset or a significant social value. We consider such payments "gifts of public funds," which are not in keeping with our mission to service our customers in an "economically responsible manner."

We have six areas of concern:

1. Interim Surplus Guidelines – The Bureau of Reclamation's model of the Colorado River system for river operations shows the limiting impact of drier conditions, leaving to question whether there will be any interim surplus water in the fifteen-year period that the guidelines would be in effect. To a point: what are we paying for?

2. Salton Sea Impacts – Opinions abound on the value of the Salton Sea, and the prognosis for saving and restoring it vary greatly. Perhaps it is better to seek less environmentally impacted water, than assume a greater risk for mitigation efforts that have not been sufficiently evaluated for impacts or long-term costs. If, indeed, potential transfers of water are going to impact the Salton Sea, we should steer clear of this water and instead develop other resources that are not burdened by those concerns.

3. Expensive Water – Our rough calculations suggest a water price of $250/af, as compared with other water opportunities around the state of $100/af. Absent a full financial analysis from MWD, we fail to see the investment value of this agreement. The fact that the State is willing to subsidize the deal does nothing to increase its benefit. Rather, given California's grave fiscal condition, it is our responsibility as municipal providers to assure the State's limited resources are invested in the most cost-effective manner.

Setting aside the price tag of this deal, we must recognize that the base cost of Colorado River will likely rise due to anticipated treatment costs for perchlorate removal. These costs should be figured into any analysis prepared by MWD.

4. Proposition 50 Competition – Despite specific call-outs in Chapters 4 and 9 of Proposition 50 for Colorado River concerns, it appears that the proposed agreement is targeting Chapter 8's Integrated Regional Project funds to make up an additional $200 million to close the deal. Ventura County supported Proposition 50 for varied reasons, but none so compelling as the chance to access funds for badly needed local water projects.

   SB 1473 (Machado), signed into law last year, clarified the Legislature's intent *"that 40% of the [$500 million in] funds made available by the initiative for integrated regional water management projects be made available for projects in Northern California and 40% of the funds be made available for projects in Southern California."* A $200 million earmark for the Colorado River would absorb all the funds intended for regional projects in Southern California and would leave Ventura County with nothing. Calleguas, like many other member agencies, intends to seek project funding from Chapter 8. We strongly support a competitive grant process (as did MWD) for the distribution of these funds and consider any additional earmarks for the Colorado River, official or implied, a raid on the measure.

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Our job as resources managers is to plan for the future needs of this region by carefully developing cost-effective, reliable, quality water supplies. Considering the anticipated cost for this "phantom" surplus water, compared to other water supply options in this state, Calleguas again must question the value of this deal – especially if it relies on funds that could be better invested in local water projects, as the voters intended.

I thank you for your consideration of our comments and ask that you seek additional information to assist us in further evaluating the proposed QSA Agreement.

Sincerely,

Ted Grandsen
President

cc: Ron Gastelum, CEO
MWD Board of Directors
Calleguas Board of Directors

Please click here to return to the previous page.

Press Room

OFFICE OF THE GOVERNOR

PR03:079
FOR IMMEDIATE RELEASE
03/12/2003

GOVERNOR DAVIS, WATER AGENCIES PRESENT COLORADO RIVER WATER TRANSFER PROPOSAL 3/12/2003

State Negotiating Team, Water Agencies Resolve Longstanding Priority and Use Issues

SACRAMENTO

Governor Gray Davis today praised State water negotiators and local water agencies on the successful presentation to the U.S. Department of the Interior of a resolution to address the use of Colorado River water. After the collapse of negotiations last year, Gov Davis convened months of closed-door meetings with a State negotiating team and representatives from four Southern California water agencies to reach this agreement.

"This is a major breakthrough in addressing California's long-term water needs," Governor Davis said. "All the parties at the negotiating table worked diligently to make this a winning situation for everyone in California. This plan meets the needs of urban communities, rural communities and the environment."

The proposed Quantification Settlement Agreement (QSA), with all accompanying legal documents, was presented to the Department of the Interior for its consideration. Approval by Interior Secretary Gale Norton will allow California to continue receiving surplus water until 2015. Portions of the agreement will require legislative action.

Last December, local water agencies missed an earlier deadline to come to terms on a Colorado River water transfer plan. In response, Secretary Gale Norton cut the amount of water California can draw from the river this year by 600,000 acre-feet, enough water for 1.2 million people.

The QSA is an integral part of California's plan to reduce its historic overdependence on the Colorado River. The agreement creates a baseline for implementing water transfers and resolves longstanding disputes regarding priority and use of river water.

"This is major milestone in the history of California water," said Gov. Davis. "It is notable that two largely agricultural irrigation districts were able to find common ground with two urban water districts. "I cannot speak highly enough of the work done to achieve this fair and balanced proposal. I congratulate the state's negotiators for keeping the parties at the table and helping to facilitate this breakthrough."

"This historic agreement shows that agriculture can be part of the solution in assessing California's complex water needs," added Bill Lyons, secretary of the California Department of Food and Agriculture. "The success of these negotiations can be directly attributed to Governor Davis' involvement. His decision to install director Tom Hannigan as mediator was critical. The Governor also recognized the importance of bringing agriculture to the table."

"In the past, water transfers have been opposed because of possible environmental impacts," said Mary Nichols,

secretary of the California Resources Agency. "This agreement makes sure that all of the environmental concerns have been addressed."

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Please click here to return to the previous page.

Proposed QSA Agreement Package

Briefing for Department of the Interior

March 12, 2003

Confidential

Objective of Today's Briefing

- Review actions subsequent to Governor's Office calling local agencies together to facilitate an agreement among them.
- Give DOI preview of complete QSA & related agreements (QSA package). Package substantially eliminates uncertainty of previous off-ramps.
- Develop plan to move forward
- State's goal is reinstatement of ISG special surplus, consistent with ISG benchmarks

QSA purpose

- Integral part of California's Colorado River Water Use Plan to reduce dependency on Colorado River
- Creates a baseline for implementing water transfers
- Enables California to receive Interim Surplus Guidelines' 15-year soft landing
- Resolves long-standing disputes regarding priority and use of river water

Background -- 1999 Key Terms

- Basis for original QSA & IID/SDCWA transfer
- IID to transfer 2 MAF in 1st 15 years, using efficiency-based conservation, no fallowing
- Salton Sea restoration effort independent from QSA & transfer

Background -- Oct. 2002 Hertzberg Term Sheet

- Changed 1999 Key terms
- Reduced SDCWA transfer to 1 MAF in 1st 15 years, MWD offers 390 TAF of PVID water to substitute for part of reduction
- 1.5 MAF of fallowing in Imperial Valley in 1st 15 years, for transfer & mitigation
- Reflects concerns re Imperial Valley fallowing, socioeconomic impacts, Salton Sea impacts

Revised 2003 QSA Package

- Accomplishes original objectives
- Peace treaty among the 4 local agencies
- State provides funding & guarantees
- No federal legislation or appropriations required

Revised 2003 QSA package -- QSA itself

- Basic water budgets, transfer schedules, substitution of PVID water unchanged from October
- ISG benchmarks are still achieved

Revised package -- QSA term

- Maximum potential 75-year duration unchanged, renewal of initial 45-year term for additional 30 years by IID & SDCWA mutual consent
- Minimum duration extended from 30 to 35 years, only SDCWA can trigger termination at year 35 (due to transportation price)

Revised package -- off-ramps reduced

- Now only 2 off-ramps for termination before year 45:
- At year 35, by SDCWA, if SDCWA does not accept MWD's transportation rate for years 36-45.
- If all funds for expected & unexpected environmental costs have been spent.

New State funding reduces risk of early termination

- Previously -- transfer starts, but would terminate if funding/loan guarantees not provided.
- Previously -- only $43 million in local funds for environmental mitigation (was prior to voter approval of Prop. 50)
- Previously -- IID could terminate if HCP developed by three agencies not acceptable

Reduced risk -- con't.

- Now -- Funding & loan guarantee occur before QSA effective date, by July 30, but no later than October 30, 2003
- Now -- $200M growing in interest-bearing account over term of agreement
- Now -- $150M loan guarantee
- Now -- $43M in local funds still available

Reduced risk -- con't

- Now -- IID HCP termination off-ramp eliminated
- Now -- three agencies to produce HCP/NCCP by end of 2005; plan to seek coverage for up to 93 species
- Now -- likelihood of unexpected env. costs causing termination substantially reduced by new funding. (Est. environmental costs of $174M over 45 years.)

Revised package -- effective date subsequent to:

- State legislation -- legislation introduced for fully protected species, appropriation of $200M in Prop. 50 funds
- $150M state loan guarantee
- Grower sign-ups for at least 130 TAF of 300 TAF IID conservation commitment, by July

Revised package -- effective date, con't.

- Settlement & dismissal of *IID v. U.S.* concurrent with QSA effective date
- Reinstatement of ISG's special surplus & inadvertent overrun payback program, concurrent with QSA effective date
- Resolution of 2001 & 2002 overruns concurrent with QSA effective date

Revised package -- Env. Cost-Sharing Agreement

- State grants of $200M in Prop. 50 funds to MWD & SDCWA for eligible non-QSA water management projects
- MWD & SDCWA set aside $200M of local funds in a JPA-controlled interest-bearing account for QSA-related environmental costs
- Local agencies additionally commit $43M from own funds

Env. Cost-Sharing Agreement -- con't.

- State Infrastructure Bank $150M loan guarantee to cover IID's & growers' stranded costs if early termination, also available to help cover unexpected env. costs above the $243M.
- Additionally, State funds of $50M unrelated to QSA commitments available for Salton Sea restoration from Prop. 50

Env. & Regulatory Compliance Status

- EIRs approved for QSA, IID/SDCWA transfer, CV water management plan, PVID/MWD program. (CEQA challenges filed against SWRCB relating to transfer EIR)
- EIS for SIA and EIS for IID/SDCWA transfer (including Section 7 consultation) -- RODs pending
- State take permit to follow legislation

Env. & Regulatory Compliance -- con't

- HCP/NCCP for transfer -- to be developed subsequently
- All-American & Coachella Canal lining projects EIR/Ss approved & RODs signed
- SWRCB order-- required mitigation measures, including 15-year no material increase in projected Salton Sea salinity
- $50M of the $200M from local agencies' JPA to offset Salton Sea salinity impacts

Revised package -- highlights, other agreements

- Form of SIA exhibit to QSA -- draft unchanged from December 2002

Revised package --- highlights, other agreements

- IID/SDCWA transfer -- reduced & extended ramp-up schedule, same as October proposal
- Maximum annual IID/SDCWA transfer amount increased to 200 TAF
- CRA transportation commitment extended from 30 to 45 years

Revised package -- highlights, other agreements

- Renewal of initial 45-year term for additional 30 years, if IID & SDCWA mutually consent
- Recognizes fallowing as efficiency-based conservation

Revised package -- highlights, other agreements

- SDCWA/MWD Exchange Agreement (CRA transportation)
- Exchange Agreement extended 15 years to 45 years, if SDCWA accepts MWD transportation rate
- 390 TAF of MWD/PVID program water substituted for part of reduced IID/SDCWA transfer water

Revised package -- highlights, other agreements

- IID/MWD & IID/CVWD Acquisition Agreements
- IID/CVWD transfer schedule same as October proposal, after ramp-up additional 3 TAF annually
- Recognize fallowing as efficiency-based conservation

Revised package -- highlights, other agreements

- CVWD/MWD agreements: 100 TAF exchange, upper Coachella Valley advance delivery program, potential lower Coachella Valley groundwater storage & conjunctive use

Need to finalize with DOI

- 2001 & 2002 inadvertent overrun payback (final 2002 figures not yet available)
- Decree accounting for transfers, exchanges, inadvertent overruns
- Section 7 conservation agreement
- SIA

Summary

- Full set of final draft agreements completed
- Execution goal in July 2003
- One off-ramp 35 years out; chance of triggering remaining environmental costs off-ramp substantially reduced by new funding
- California submits that this QSA package will enable DOI to reinstate access to ISG special surplus on the effective date

Next step

- Develop a process to move to closure with DOI

Richard Atwater

From: Ivey,Gilbert F [givey@mwdh2o.com]

Sent: Tuesday, March 18, 2003 4:20 PM

To: Aldrete,Isabel; Anthony R. Fellow (E-mail); Bermudez,Carmen; Bonny L. Herman (E-mail); Carol W. Kwan (E-mail); Chin,Dawn; David D. De Jesus (E-mail); Deborah Dentler (E-mail); Ergun Bakall (E-mail); Gary A. Morse (E-mail 2); Gary A. Morse (E-mail); Gastelum,Ronald R; George I. Loveland (E-mail 2); Glen D. Peterson (E-mail); Glenn A. Brown (E-mail); Hugo C. Mejia (E-mail); Ivey,Gilbert F; James M. Rez (E-mail); James Turner (E-mail); John M. Mylne III (E-mail); John T. Morris (E-mail); Jorge G. Castro (E-mail); Judy Abdo (E-mail); Kelly,Brenda Sue; Langdon W. Owen (E-mail); Randy A. Record (E-mail 2); Randy A. Record (E-mail); Regina Murph (E-mail); S. Dale Stanton (E-mail); Thomas,Brian G; Timothy F. Brick (E-mail); Wakiro,Rosalind; Walters,Geraldine J; Wesley M. Bannister (E-mail); Wheeler,Margie; William G. Luddy (E-mail); Wyatt L. Troxel (E-mail)

Cc: Underwood,Dennis B; Ortega Jr.,Adan; Anthony C. Zampiello (E-mail); Anthony Pack (E-mail); Benjamin F. Lewis Jr. (E-mail); Darryl Miller (E-mail); Donald C. Calkins (E-mail); Donald L. Harriger (E-mail); Donald R. Kendall (E-mail 2); Donald R. Kendall (E-mail); Ed Otsuka (E-mail); Edelen,Nona E; Gilbert Borboa (E-mail); James E. Colbaugh (E-mail); John M. Carlson (E-mail); Kevin Wattier; Maureen Stapleton (E-mail); Michael C. Harvey (E-mail); Michael Drake (E-mail); Nazir Qureshi (E-mail 2); Nazir Qureshi (E-mail); Phyllis Currie (E-mail); Richard Atwater; Richard W. Hansen (E-mail); Ronald E. Davis (E-mail 2); Ronald E. Davis (E-mail); Stanley E. Sprague (E-mail); Tait,Joseph E; Thom Coughran (E-mail); Timothy C. Jochem (E-mail); Troncoso (E-mail 2); Troncoso (E-mail); Wiggs (E-mail 2); Wiggs (E-mail)

Subject: Imperial Irrigation District v. The United States of America

MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Date: March 18, 2003

To: Board of Directors

From: Jeffrey Kightlinger, General Counsel

Subject: *Imperial Irrigation District v. The United States of America*

Today Imperial Irrigation District's (IID) motion for preliminary injunction to block the Department of Interior's 2003 Colorado River Water Order was heard in the United States District Court in San Diego. Judge Whelan granted IID's motion based on two grounds:

1. That Interior's procedures to reduce IID's water order did not correctly follow the process outlined for determining the appropriate water use within Interior's own regulations; and

2. That this violation amounted to a breach of IID's contract and the Seven Party Agreement.

The Judge specifically stated that granting the motion was not based on IID's reasonable use of water and the Judge withheld any ruling on IID's water use. The preliminary injunction goes into place immediately. The Judge asked for further briefing on whether or not a new process by the Secretary of

Interior should begin to determine IID's appropriate water use and whether an alternative reasonable beneficial use process should begin in another forum.

This matter will be discussed with the Board in detail at the March 25, 2003 Executive Committee meeting.

Please feel free to call me if you have any questions.

/s/Jeffrey Kightlinger

Jeffrey Kightlinger
General Counsel

IMPERIAL IRRIGATION DISTRICT

NEWS RELEASE

FOR IMMEDIATE RELEASE: March 18, 2003

CONTACT: Susan M. Giller (760) 482-9610, (760) 427-5264 or Ron Hull (760) 427-7917

Federal judge restores IID's water order

San Diego – A U.S. District Court judge today barred the Secretary of the Interior from cutting Imperial Irrigation District's share of the Colorado River by 330,400 acre-feet during 2003.

In granting IID's injunction, the Honorable Thomas J. Whelan ruled that the Department of the Interior violated its own procedures when it cut Imperial's water order. The judge also ruled Interior breached the 7-party agreement, that spells out how water is to be apportioned among the California users of Colorado River water, and is incorporated in IID's 1932 contract with Interior.

IID Board President Lloyd Allen said, "In upholding Imperial Valley's water rights, Judge Whelan protected the lives and livelihoods of the people and the farmers of the Imperial Valley."

He added, "This is a great victory for the Imperial Valley, and all who rely on the law to protect water entitlements that have been in place for years."

IID filed suit against the Department of the Interior in January when the Secretary reduced the District's water order by 330,400 acre-feet after the Southern California water agencies failed to reach unanimous agreement on a voluntary plan to reduce the state's overuse of the river by Dec. 31.

"DOI's actions violated IID's water rights by their attempt to unilaterally impose an unlawful reallocation of Colorado River water to more junior right holders," said John Penn Carter, IID General Counsel.

Despite this victory, IID is committed to the implementation of a Quantification Settlement Agreement with Metropolitan Water District of Southern California and the Coachella Valley Water District. Under the guidance of the governor's office, a QSA signed by all the parties' negotiators was unveiled last week, but will require several months to complete certain state actions.

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San Diego County Water Authority

March 17, 2003

TO: MWD Member Agency Managers

FROM: Robert R. Campbell, Executive Assistant to the General Manager

RE: Water Supply, Financial and Public Policy Benefits of the QSA

During the QSA discussion that took place at last Friday's MWD Member Agency Managers' meeting, there was considerable confusion over how much state funding was being contributed and whether the QSA was a good deal from a business and public policy standpoint. Afterwards, several managers mentioned to me that the comments and concerns raised by them were in part due to the minimal information they had received about the deal. Because of my involvement in the QSA discussions, many of you asked if I could share any additional information regarding the state funding as well as my perspective regarding the benefits of the deal.

With respect to the state funding, $235 million had previously been committed from the state general fund in 1998. This money was the state's contribution toward the lining of the All American and Coachella canals. MWD will receive 77,000 acre-feet annually of the water savings from this project. The state provided this money to help facilitate progress toward achieving the California 4.4 Plan. As a result of the passage of Proposition 50, the state would contribute an additional $200 million of proceeds from the Prop 50 bonds, which will be spent on environmental mitigation costs to achieve the water transfers contemplated in the 4.4 Plan and now included in the QSA. The state, through its Infrastructure Bank, is also providing a loan guarantee of up to $150 million to cover potential stranded costs of conservation programs in the unlikely event that the QSA is terminated early. These funds, if called upon, would not be needed until the latter part of the 45-year initial term of the QSA and so have a very small present value of only a few million dollars.

In all, state funds will comprise about 7% of the total funds that will be committed to the 4.4 Plan and QSA. The remaining 93%, or $6 billion, will come from the California water agencies that benefit from the programs. Contrast this with CALFED's Stage 1 implementation funding to-date, in which 60% of the total funds have come from the state, 8% from the federal government, and only 32% from water agencies. Unlike many water projects, minimal funds are being invested by the state for the QSA, and no federal funding is provided at all. All along, the state has expressed a willingness to contribute state funds toward the QSA in recognition of the public policy benefits derived by the state in securing Colorado River water supplies including avoidance of potential conflicts that would result in the failure of the QSA, and the triggering of large additional demands for water from the State Water Project, Bay-Delta, and other areas of the state.

During the first 15 years of the QSA, California and MWD, in particular, will realize substantial water supply benefits at an extremely attractive per acre-foot price. Attached is a table that quantifies these benefits and costs. As can be seen, the QSA transfers, canal-lining savings and surplus water benefits, will provide supplies of nearly 6.5 million acre-feet. Replacing these

supplies from transfers or other sources, if available, would result in the need for additional investments to be made by MWD of nearly $1 billion just in the next 14 years, and ultimately billions of dollars more during the period that the QSA would run. Because of the state funding and revenues provided by SDCWA for the IID transfer, the cost to MWD is only $39 an acre-foot. Even after factoring in the state funding, the cost per acre-foot is a mere $106. This is compared to the $200 an acre-foot or more that replacing the supplies would cost MWD.

Attached you will also find SB 482 (Kuehl) and SB 1473 (Machado) which provided the funding authorizations for the QSA related projects. These were bills that were drafted last year in anticipation of the state funding that would be required to facilitate the QSA, and received the full support of the four QSA water agencies, including MWD.

I am also attaching a page from the 1989 Approval Agreement for the MWD/IID Conservation Agreement, which in pertinent part sets forth the priorities to which that water shall be charged. Several of you asked me why IID was asserting that the conserved water should come out of MWD's priorities 4 and 5.

I hope this information is helpful in demonstrating the water supply, financial aspects and public policy benefits of the QSA with your boards and constituents. If you have any questions regarding the attached information, please call me at 858-522-6784.

Amounts and Costs of QSA Program Water Through 2016

Supply Source	Amount AF	Unit Cost $/AF	Total Cost to MWD	Cost of QSA Replacement Supplies $/AF	Subtotal	MWD Additional Cost
CR Surplus[1]	3,137,000	$ 0.25	$ 784,250			
IID/SDCWA Transfer[2]	900,000	$ -	$ -			
AAC/CC Linings[3]	777,000	$ -	$ -			
PVID Fallowing[4]	980,000	$ 170	$ 166,600,000			
QSA Subtotal	5,794,000		$ 167,384,250	$ 200	$ 1,158,800,000	$ 991,415,750
1988 IID/MWD[5]	700,000	$ 125	$ 87,500,000	$ 200	$ 140,000,000	$ 52,500,000
Total	**6,494,000**	**$ 39**	**$ 254,884,250**		**$ 1,298,800,000**	**$ 1,043,915,750**

State Funding		
Canal Linings		$ 235,000,000
Prop. 50		$ 200,000,000
Total $/AF	**$ 106**	**689,884,250**

[1] Colorado River Surplus supplies were estimated using the most recent U.S. Bureau of Reclamation Partial Domestic and Full Domestic Probabilities, dated February 9, 2003, over the 14-year interim period.

[2] IID/SDCWA Transfer schedule total for 14-year period.

[3] Supplies allocated to MWD from the All American and Coachella Canal lining waters funded from a $235 million state appropriation.

[4] Pending Metropolitan agreement with the Palo Verde Irrigation District to provide between 25,000 and 110,000 acre-feet annually.

[5] Reduction in MWD's use of conserved water under Section 3.2 of the Approval Agreement for Metropolitan's 1988 Conservation Agreement with Imperial Irrigation District.

be amended, and that shall include as a necessary component the implementation of the Agreement for Transfer of Conserved Water by and between the Imperial Irrigation District and the San Diego County Water Authority, dated April 29, 1998 (IID/SDCWA Transfer Agreement), and as it may be amended, and any QSA-related program that delivers water at the intake of the Metropolitan Water District of Southern California's Colorado River Aqueduct.

(b) It is the intent of the Legislature to allocate fifty million dollars ($50,000,000) from funds available pursuant to the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, if it is approved by the voters at the statewide general election to be held November 5, 2002 (Proposition 50), as a minimum state contribution or matching contribution for federal funds or funds obtained from other sources, to assist in the implementation of the preferred alternative or other related restoration activities, including the program referred to in paragraph (3) of subdivision (d) of Section 2081.7 of the Fish and Game Code, at the Salton Sea or the lower Colorado River, or to assist in the development of a natural community conservation plan that is consistent with the initiative and that is implemented to effectuate the QSA.

(c) The Legislature finds that it is important to the state to meet its commitment to reduce its use of water from the Colorado River to 4.4 million acre-feet per year. The Legislature further finds that it is important that actions taken to reduce California's Colorado River water use are consistent with its commitment to restore the Salton Sea, which is an important resource for the state. The Legislature further finds that species previously designated as fully protected may be taken during activities intended to meet the state's commitment to reduce its use of Colorado River water as long as those activities are found to comply with existing law, including Chapter 1.5 (commencing with Section 2050) of Division 3 of the Fish and Game Code.

(d) California's Colorado River Water Use Plan is a framework developed to allow California to meet its Colorado River needs from within its basic annual apportionment. California will be required to reduce the amount of Colorado River water it uses by up to 800,000 acre-feet per year.

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.

SEC. 2. It is the intent of the Legislature that up to one hundred fifty million dollars ($150,000,000) of the total funds provided by the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, if that measure is approved by the voters at the November 5, 2002, statewide general election, may be used for projects that facilitate water transfers pursuant to the Quantification Settlement Agreement (QSA) and that contribute to achieving the benchmarks of the Interim Surplus Guidelines, provided that the QSA is executed on or before December 31, 2002. It is further the intent of the Legislature that of the funds provided by Section 79560 of the Water Code, as added by that act, if enacted, not less than 40 percent be available for projects in Northern California and not less than 40 percent be available for projects in Southern California for the purpose of funding integrated regional water management projects.

O

Article I

Priority to Use of Water

Section 1.1: The Parties agree that: (i) nothing in this Approval Agreement or the Conservation Agreement shall change the Seven Party Agreement dated August 18, 1931, which provides the schedule of priorities for use of the waters of the Colorado River within California as published in Section 6 of the General Regulations of the Secretary of the Interior (Secretary) dated September 28, 1931, and incorporated in the United States water delivery contracts with the Parties dated December 1, 1932 (IID), September 28, 1931 (MWD), February 7, 1933 (PVID), and October 15, 1934 (CVWD); (ii) IID'S, MWD's, PVID's, and CVWD's use of the Conserved Water shall be in accordance with the terms of the Conservation Agreement, as modified by this Approval Agreement; and (iii) all references in the Conservation Agreement to charging such water to the third priority under the Parties' water delivery contracts with the Secretary are nonoperating. Any Conserved Water used by MWD shall be charged to the fourth or fifth priority set forth in MWD's September 28, 1931 Supplementary Water Delivery Contract with the United States or to MWD's September 9, 1987 Surplus Water Delivery Contract with the United States, as appropriate under the operating conditions in existence at the time the use of Conserved Water by MWD is to be charged.

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

II. BUSINESS ITEM

D. MZ1 MANAGEMENT PLAN EXTENSOMETER INSTALLATION & TESTING

CHINO BASIN WATERMASTER

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Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

STAFF REPORT

DATE: **April 10, 2003**

TO: **Pool Committee Members**

SUBJECT: **Authorization of Funding for Management Zone 1 Management Plan - Extensometer Installation and Testing**

SUMMARY

Issue – Authorization of Funding for Extensometer Installation and Testing - Management Zone 1 (MZ1) Management Plan

Recommendation – Staff recommends authorization of funding in the amount of $ 383,037 for the installation of the Extensometer at Ayala Park, authorization for the CEO to execute contract documents as required, and authorization to the CEO to expend up to $30,276 of contingency funding in the event field changes may be necessary.

Fiscal Impact – As described in discussion below:

Extensometer Installation:	
• Drilling Contract	$302,761
• Building Contract*	40,000
• Instrumentation*	10,000
• Contingency 10%	30,276
Total Costs	$383,037

*Estimated construction costs. The Building and Instrumentation contracts have not been bid.

BACKGROUND

The Court approved the Peace Agreement, the Implementation Plan, and the goals and objectives identified in the Optimum Basin Management Program (OBMP) Phase I Report on July 13, 2000 and ordered Watermaster to proceed in a manner consistent with the Peace Agreement. Program Element 4 in the OBMP Implementation Plan is to develop and implement a comprehensive groundwater management plan for MZ1. The MZ1 Management Plan states:

> The continued occurrence of subsidence and fissuring in MZ1 is not acceptable and must be reduced to tolerable levels or completely abated. However, there is some uncertainty as to the causes of subsidence and fissuring and more information is necessary to distinguish among potential causes An interim management plan must be developed and implemented to:

- minimize subsidence and fissuring in the short-term;
- collect the information necessary to understand the extent and causes of subsidence and fissuring; and
- formulate an effective long-term management plan.

Unless certain actions are taken, unacceptable levels of subsidence and fissuring could continue in the southern end of MZ1. This impediment speaks to a localized subsidence and fissuring problem within the City of Chino and to a potentially larger and similar problem in the southern end of MZ1. This part of the Basin contains a higher fraction of fine-grained materials that originated from sedimentary deposits in the Chino and Puente Hills. This area also consists of a multiple aquifer system. The upper aquifer(s) are moderately high in TDS and are often very high in nitrate. Some producers have drilled wells into the deeper aquifer(s) to obtain better quality water. The storage and hydraulic properties of the deeper aquifers are quite limited relative to the upper aquifer. The correlation of the recent groundwater production in the deep aquifers and the timing of localized subsidence and fissuring, and a review of the hydrogeologic data from the area suggest a linkage may exist between localized deep aquifer production and subsidence.

The proposed piezometer and extensometer installation and monitoring program will collect the information necessary to understand the extent and causes of subsidence and fissuring in the southern end of MZ1, and will be used to develop operating parameters for the long-term MZ1 management plan. The second phase includes the construction of the extensometers to understand aquifer and aquitard responses to changes in hydraulic head within the area of maximum subsidence and ground fissuring.

DISCUSSION

Watermaster must develop and implement an interim management plan for Management Zone 1 to: 1) minimize subsidence and fissuring in the short-term, 2) collect the information necessary to understand the extent and causes of subsidence and fissuring, and 3) formulate an effective long-term management plan. For item 2 above, Watermaster committed in the Peace Agreement to construct extensometers to collect data on the properties of compressible sediments in MZ1. The first step in the construction of the extensometers was the drilling of a test hole and construction of piezometers at the extensometer site. Piezometer construction was completed in October 2002. The Phase 2 of this work is the construction of the extensometers and extensometer building.

To collect the information necessary to understand the extent and causes of subsidence and fissuring in MZ1, Watermaster will install, test, and monitor two nested piezometers and a dual borehole extensometer at Ayala Park in Chino, California. This work will be performed in three separate phases. The Phase 1 is complete and included the construction and logging of a test hole and the installation and testing of two nested piezometers. The Phase 2 includes the installation of a dual borehole extensometer. The Phase 3 includes long-term monitoring of the piezometers and extensometer.

Phase 1 activities including test hole drilling and piezometer installation were completed in October 2002. Piezometer instrumentation was completed and piezometer testing began in November 2002. Phase 2 activities including plan and specification preparation have been completed. Extensometer installation is scheduled to begin in April 2003. Phase 3 long-term monitoring will begin when the extensometer is completed in June 2003.

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

II. BUSINESS ITEM

E. NEW YIELD FROM ADDITIONAL RECHARGE

(Appropriative Pool)

CHINO BASIN WATERMASTER

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Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

STAFF REPORT

DATE: **April 10, 2003**

TO: **Appropriative Pool Committee Members**

SUBJECT: **Calculation of Expected New Stormwater Recharge in the Chino Basin and the Allocation of New Storm Water Recharge**

SUMMARY

Issue - Watermaster must estimate the new stormwater recharge generated by the Recharge Facilities Improvement Project, then allocate that recharge first to meet the replenishment obligation of the desalters and secondly, if the replenishment obligation of the desalter is satisfied, to the members of the Appropriator Pool. Recharge facility improvements will be completed in the next 18 months and some new stormwater recharge could occur in the next fiscal year. The Appropriator Pool has directed staff to estimate the potential new stormwater recharge created by the recharge improvements and to consider crediting the new recharge that will occur in fiscal 2003-04 to the 2003-04 assessments.

Recommendation - Staff does not have a recommendation at this time as staff looks forward to further discussion on the policy issues herein.

Fiscal Impact - Crediting new stormwater recharge that is estimated to occur in 2003-04 to either the desalter replenishment obligation and/or members of the Appropriative Pool may lower assessments to members of the Appropriator Pool in fiscal 2003-04 and may result in cost savings to some appropriators in subsequent years.

BACKGROUND

The Appropriative Pool has directed staff to estimate the potential new yield of the Chino Basin Facilities Improvement Project (CBFIP) and to describe how the new yield provided by the CBFIP could be allocated. Mr. Wildermuth of Wildermuth Environmental (WEI) will present draft findings on potential new yield from new storm water recharge created by the CBFIP. Mr. Wildermuth will also present conceptual alternatives of methods to allocate new recharge based on long-term average recharge estimates and estimates of recharge based on historical basin performance.

DISCUSSION

The Court approved the Peace Agreement, the Implementation Plan, and the goals and objectives identified in the Optimum Basin Management Program (OBMP) Phase I Report on July 13, 2000 and ordered Watermaster to proceed in a manner consistent with the Peace Agreement. Watermaster has moved quickly to implement the expansion of Desalter No 1 and the construction of Desalter No. 2 and the construction of recharge improvements. The expansion of Desalter No. 1 should be operational in 2004 and Desalter 2 should be operational in 2005. Some of the stormwater recharge improvements will be completed in time to provide new recharge in fiscal 2003-04 and the remainder will be completed sometime in 2004.

The desalters have the capacity to increase yield to the Basin by reducing groundwater outflow in the Prado area and by increasing Santa Ana River recharge upstream of Prado. The increase in yield from the desalters has been estimated in the past by various groundwater models. Watermaster staff has developed newer more detailed models that, among other things, can be are being used estimate the increase in yield from desalter production. This increment of new yield is proportional to desalter production.

The recharge improvements will capture urban stormwater and recharge it into the Chino Basin. This is considered new yield if it occurs at rates that are greater than that which occurred prior to the effective date of the Peace Agreement (July 1, 2000). The average annual stormwater recharge to the Basin prior to the effective date of the Peace Agreement was estimated by Watermaster, in the Peace Agreement, to be 5,600 acre-ft/yr. Some of the recharge improvements in the CBWIP will produce new stormwater recharge in fiscal 2003-04. All the recharge improvements in the CBFIP will contribute new stormwater recharge in 2004-05. In contrast to new yield developed by the desalters, new recharge from the recharge improvements will vary significantly from year to year as a function of actual precipitation. At the April 10, 2003 Pool meetings, WEI will present their estimates of the new stormwater recharge that can be expected from the CBFIP using a 50-year daily precipitation time history. These estimates will include the average annual recharge, maximum annual recharge and minimum annual recharge statistics for each basin.

There are two issues that need to be discussed. The first issue is to determine the method by which new yield created from new recharge at the CBFIP needs to be estimated. The second is the timing of the allocation.

There are two basic methods that Watermaster can use to estimate new yield from the CBFIP. The first method is to estimate the long-term average annual recharge performance of the Basin with and without the CBFIP and to calculate the new yield as the difference. Modeling tools would be used to estimate recharge and the new yield estimate would be refined over time if historical observation suggest that assumptions and data in the models needs to be refined. In this approach, the new yield estimate would be stable over time providing certainty to the members of the Appropriative Pool. The yield of the Chino Basin is based on recharge components some of which are highly variable over time (stormwater recharge and deep percolation of precipitation) yet the yield is a constant value. This occurs because the Chino Basin is a large storage reservoir that buffers the effects of wet and dry periods. The use of a long-term average annual estimate of new recharge as the new yield from recharge is consistent with the notion of safe yield of the Chino Basin and other basins that are managed to a safe yield.

The second method would be to estimate the actual recharge annually based on observed data and to estimate what would have recharged if the CBFIP had not been constructed. The difference would be the new yield. In this approach, the new yield estimate would be highly variable over time.

The timing of the allocation of new yield is somewhat specific to the method used to estimate new yield. If long-term annual average method is used then an allocation of new yield could be included in the assessments for fiscal 2003-04 based on the facilities that will be constructed and operational prior to the rainy season. This would provide a one-time benefit to members of the Appropriative Pool in that it accelerates the new yield allocations by one year. Either method of estimating new yield could be used if the allocation of new yield is done after the recharge occurs.

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

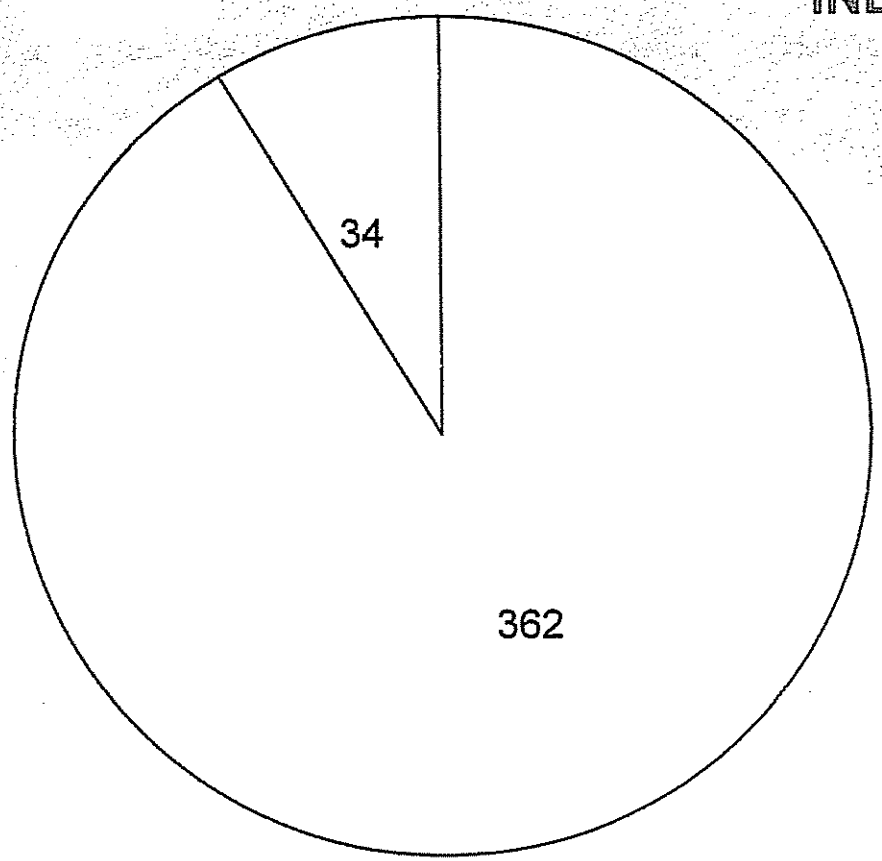
1:00 p.m. – Agricultural Pool

III. REPORTS/UPDATES

B. CEO/STAFF REPORT

1. Meter Installation Program

CHINO BASIN WATERMASTER
INLINE METER PROJECT
Thru March, 2003



Wells assigned to:
Pump Check
Wheeler Meter
Grooman's Pump
Pascal & Ludwig

CHINO BASIN WATERMASTER

April 10, 2003
10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools
1:00 p.m. – Agricultural Pool

III. REPORTS/UPDATES

B. CEO/STAFF REPORT

4. AB 303 Update

FY 2002-2003 AB 303 PRELIMINARY RANKINGS BY AGENCY NAME

3/21/2003

NO.	Agency Name	Project Description	County	Amount Requested	Total Score
17	Denair Community Services District	DCSD proposed to construct two cluster-monitoring wells. Information from these wells, along with other wells, will be used to support advancement of an existing hyrogeologic model.	Stanislaus	$200,000.00	33.0
32	Madera County Resource Management Agency	This applicant will use hydrologic testing, borehole geophysics, geologic mapping, and analysis of groundwater chemistry to develop a conceptual model for flow and recharge of the groundwater system in the Oakhurst area.	Madera	$250,000.00	32.0
52	San Jacinto Mountain Area Water Study Agency	This study will provide a basin-wide groundwater management plan, including monitoring wells, for long-term use of local groundwater and surface water resources.	Riverside	$200,000.00	32.0
22	Fresno Irrigation District	The project expands the current monitoring program by including water level monitoring data, constructing additional monitoring wells, installing water delivery measurement devices, and evaluating the placement of recharge facilities.	Fresno	$250,000.00	31.0
31	Los Osos Community Services District	This application proposes two studies: (1) two monitoring wells to determine extent of salt water intrusion; and (2) determine the source of recharge to the area's deep aquifer.	San Luis Obispo	$220,000.00	31.0
34	Marina Coast Water District	Utilizing data collected from proposed multi-completion monitoring well, critical and strategic new information will be obtained from the Deep Aquifer.	Monterey	$250,000.00	30.5
58	Six Basins Watermaster	The Ground Water Feasibility Study would evaluate the potential to deliver untreated imported water into the San Antonio Spreading Grounds for groundwater recharge	Los Angeles	$250,000.00	29.5
44	Quincy Community Services District	This study will include assessing groundwater development potential at twelve locations in American Valley to use the results for a groundwater management plan.	Plumas	$243,932.00	29.0
14	Cresenta Valley Water District	CVWD plans to conduct a feasibility study to evaluate the potential of developing a recharge and conjunctive use program in the Verdugo Basin.	Los Angeles	$185,000.00	28.0
27	Kaweah Delta Water Conservation District	The project will include the construction of 19 monitoring wells, and the development of a basin-wide numerical groundwater model.	Tulare	$250,000.00	28.0
29	Kings River Conservation District	This proposal would form a Basin Advisory Panel, coordinate groundwater management plans, compile data, and create a new Groundwater Management Plan.	Fresno	$249,958.00	28.0
43	Pleasant Valley Water District	Pleasant Valley Water District wants to establish a regular groundwater quality monitoring program.	Fresno	$247,331.00	28.0
46	Reclamation District 2068	RD 2068 proposes to conduct a study to evaluate the feasibility of using groundwater to offset surface water demand within the District. Two monitoring wells will be installed.	Yolo	$249,614.00	28.0
49	San Bernardino Valley Water Conservation District	Two 400-foot deep dedicated monitoring wells are proposed to be installed in the San Bernardino Valley to evaluate recharge operations and groundwater levels and flow.	San Bernardino	$230,000.00	28.0

FY 2002-2003 AB 303 PRELIMINARY RANKINGS BY TOTAL SCORE

10	Chino Basin Watermaster	The project proposes installing two nested monitoring wells to determine whether groundwater originating in the upper part of the Chino Basin is discharged to the Santa Ana River.	San Bernardino	$250,000.00	27.5
18	Dunnigan Water District	Dunnigan Water District proposes to increase its understanding of its groundwater resource through hydrologic characterization, design and implementation of a monitoring program, conjunctive operations analysis, basin management objectives, and public outreach.	Yolo	$249,830.00	27.5
23	Glenn, County of	Glenn County proposes to install two monitoring wells, convert unused agricultural wells into monitoring wells, install a subsidence monitoring system, and perform aquifer tests.	Glenn	$250,000.00	27.5
28	Kern Water Bank Authority	The Kern Water Bank Authority will install one triple completion monitoring well, 17 data loggers, and continue database development to map the stratigraphy of the Kern Fan.	Kern	$250,000.00	27.5
35	Merced Area Groundwater Pool Interests (MAGPI)	MAGPI will use Merced ID to conduct a survey of all public supply wells within the Merced Groundwater Basin and install 22 monitoring wells to evaluate the influence of eastern Bear Creek on the basin.	Merced	$250,000.00	27.5
45	Rainbow Municipal Water District	The project proposes developing a groundwater basin management plan for Rainbow Valley area by forming a development team, involving stakeholders, and performing basin hydrologic analysis.	San Diego	$199,810.00	27.5
54	Santa Clara Valley Water District	This project proposes installation of nine monitoring wells at eight sites in Coyote and Llagas subbasins to fill data gaps in Santa Clara Valley Water District's groundwater monitoring system.	Santa Clara	$249,320.00	27.5
15	Davis, City of	The project will install monitoring points, collect data, and develop a database to develop a better understanding of the deeper aquifer zone in southern Yolo County.	Yolo	$248,850.00	26.5
60	South Tahoe Public Utility District	The project will involve developing a numerical groundwater model to assist the District in managing its groundwater resources in the presence of known contaminates.	El Dorado	$210,802.00	26.5
62	Squaw Valley Public Service District	The project will install two monitoring wells, and continue monitoring of surface and groundwater characteristics to assist in verifying the basin's groundwater model.	Placer	$249,000.00	26.5
37	Montara Sanitary District	This proposed project will construct nine monitoring wells; install streamflow gaging equipment, build a groundwater model, and develop a groundwater management plan.	San Mateo	$236,195.00	26.0
11	Chowchilla Water District -Red Top City Joint Powers Authority	Chowchilla Water District -Red Top City Joint Powers Authority proposes using STELLA water resource model to analyze different operational schemes with the goal to see if groundwater banking in the basin can increase the yield on the Friant system.	Madera/ Merced	$199,169.00	26.0
20	Eastern Municipal Water District	To better characterize basin hydrology, grant funds would be used to purchase, install, maintain, gather, and enter data into a database from approximately 65 meters on privately owned wells.	Riverside	$188,000.00	26.0
48	Sacramento Groundwater Authority	This study will investigate the hydraulic connection between the American River and the aquifer on both sides of the river in the vicinity of California State Univ., Sacramento.	Sacramento	$250,000.00	26.0
19	Eastern Kern County Water Conservation District	The proposed project consists of filling data gaps identified in the development of the conceptual hydrogeologic model with existing data sources, updating the hydrologic budget, and developing an outreach program for small systems.	Kern	$249,960.00	25.5

SUB TOTAL $4,974 MILLION

CHINO BASIN WATERMASTER

April 10, 2003

10:00 a.m. – Joint Meeting of the Appropriative & Non-Agricultural Pools

1:00 p.m. – Agricultural Pool

III. REPORTS/UPDATES

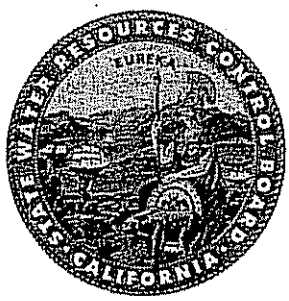
B. CEO/STAFF REPORT

5. AB 599 Update

DRAFT

Assembly Bill 599
Report to the Governor and Legislature

A COMPREHENSIVE GROUNDWATER QUALITY MONITORING PROGRAM FOR CALIFORNIA



State Water Resources Control Board
March 1, 2003

ACKNOWLEDGEMENTS

The State Water Resources Control Board (SWRCB) would like to thank the many individuals from state, federal and local agencies, organizations, and interested parties who participated in the AB 599 stakeholder process.

The SWRCB would like to thank the AB 599 Public Advisory Committee (PAC) members who shared their experiences and expertise: Chair William (Bill) Mills (Orange County Water District); Co-Chair David Beckman (Natural Resources Defense Council); Steve Arita (Western States Petroleum Association); William Bazlen (California Manufacturers & Technology Association/ MFG, Inc); Ivo Bergsohn (South Tahoe Public Utilities District); Fred Douma (Independent Milk Producer); William Gedney (Southern California Water Company); Rick Heimes (U.S. Geological Survey); Keith Hennesay (Tulare County Farm Bureau); Elizabeth Janes (U.S. Environmental Protection Agency); John Rossi (Chino Basin Watermaster); Roger Sherrill (Rio Alto Water District); and Marguerite Young and Lena Brook (Clean Water Action/ Clean Water Fund).

We would also like to acknowledge the important contributions made by the AB 599 Interagency Task Force (ITF) members Dan Gallagher (Department of Toxic Substances Control), Carl Hauge (Department of Water Resources), John Troiano (Department of Pesticide Regulation), Al Vargas (Department of Food and Agriculture), Gary Yamamoto (Department of Health Services), and Lisa Babcock (SWRCB).

A number of SWRCB Division of Water Quality, Groundwater Special Studies Unit management and staff have actively participated and contributed in the one-year project which led to the creation of this report. Those individuals include James Giannopoulos, Lisa Babcock, Angela Schroeter, Brett Wyckoff, and John Borkovich.

We are grateful to Neil Dubrovsky and Ken Belitz of the U.S. Geological Survey (USGS) for their valuable technical contributions to this project. Finally, thanks to Steve Ekstrom (The Results Group) for his fine work facilitating the AB 599 Interagency Task Force and Public Advisory Committee meetings.

TABLE OF CONTENTS

EXECUTIVE SUMMARY
COMPREHENSIVE GROUNDWATER QUALITY MONITORING PROGRAM

California gets approximately 30% of its water supplies from groundwater. During statewide droughts, that reliance can rise to over 40%. Groundwater storage and transfer is being planned and implemented, throughout the state.

Since the mid-1980s, over 8,000 public water supply wells have been shut down, many for water quality reasons. The MTBE scare of the late 1990s is being supplanted by concerns over perchlorate and other emerging chemicals.

In order that California's precious groundwater resources can be managed and protected for the benefit of all citizens, it is imperative that California immediately establish a baseline of groundwater quality and groundwater use for each groundwater basin/subbasin in the state. Such a baseline can then be used as a reference for local management decisions, basin to basin comparisons, as well as establishing regulatory priorities for surface contaminant cleanup.

Recognizing the need to comprehensively address groundwater, the Governor approved Assembly Bill 599 (AB 599), establishing the *Groundwater Quality Monitoring Act of 2001.* The goal of AB 599 is to improve comprehensive groundwater monitoring and increase the availability of information about groundwater quality to the public. AB 599 requires that the SWRCB, in coordination with an Interagency Task Force (ITF) and Public Advisory Committee (PAC), integrate existing monitoring programs and design new program elements, as necessary, to establish a comprehensive statewide groundwater quality monitoring program.

This report, requested by the Legislature in its passage of AB 599 in 2001, presents an implementable plan for comprehensively monitoring and assessing the quality of all groundwater basins/subbasins in the state. The plan has five integrated elements:

- Accelerate the monitoring and assessment program established by the State Water Resources Control Board pursuant to the Budget Act of 1999 and described in Chapter 2. This comprehensive groundwater quality monitoring program relies on enhancing the water quality information collected in existing public supply wells through testing at a subset of those wells for groundwater age-dating and low-level volatile organic compounds (VOCs). This information can then be the basis for developing consistent hydrogeologic assessments for each basin/subbasin or basin groups.

- Conduct the monitoring and assessment program in accordance with the prioritization of basins/subbasins set forth in Chapter 4 of this report. The prioritization is based on water use. A water use criterion places those basins most heavily used for drinking water in first priority.

- Increase coordination among groundwater agencies. To the extent that multiple agencies continue to monitor groundwater quality, efforts should be made to coordinate their roles and share data.

- Maintain groundwater quality information for conducting monitoring and assessments in the SWRCB's Geotracker database as described in Chapter 3. This Internet accessible database already stores all water quality information submitted to the state Department of Health Services (DHS) by public water purveyors as well as groundwater contaminant information for over 40,000 cleanup sites.

- Provide useful access to monitoring and assessment information to the public while maintaining appropriate security measures. Recommendations for public access are described in Chapter 5.

The total multi-year cost for monitoring and assessing each of the state's several hundred basins/subbasins, and basin groups is approximately $92.4 million. The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Proposition 50) provides for up to $50 million for implementation of the plan presented herein and can kick-start implementation for several years.

Finally, this report strongly recommends that the Department of Water Resources (DWR) establish water use budgets to correspond to each of the groundwater water quality assessments for basins/subbasins. Further, this report recommends that a single "Groundwater Report" be jointly and biennially prepared by the SWRCB and DWR.

Benefits of a Comprehensive Groundwater Quality Monitoring Program

Stewardship of the state's groundwater resources is the shared responsibility of all levels of government as well as individual and corporate citizens. The comprehensive groundwater quality monitoring program recommended in this report will provide the following key benefits to enable informed decisions among all responsible participants. The following are possible benefits of AB599 Program:

- Provides for a common base communications medium for agencies to utilize and provide groundwater quality data at multiple levels.

- Provides the mechanism to unite local, regional, and statewide groundwater programs in a common effort. Currently, most local agencies cannot effectively communicate with other local agencies or coordinate common elements on a regional level.

- Knowledge and better understanding of local, regional and statewide water quality issues and concerns will provide agencies at all levels better information to in turn deal with the concerns of consumers and consumer advocate groups.

- Provides groundwater agencies with trends and long term forecasting which is essential for groundwater management plan growth and preparation - if remedial actions become necessary.

- An effective statewide comprehensive groundwater quality program may provide motivation to small and medium-sized agencies to begin their own monitoring programs

- This program may help inter-basin agencies that have basin-wide or regional management objectives. Especially those agencies that have intricate and overlapping jurisdictions via their physical or political location in a basin or aquifer.

- A comprehensive groundwater quality program will improve relationships between state agencies like SWRCB, DWR, DHS, and local agencies. The dissolution of local and state institutional barriers regarding data sharing will benefit all agencies.

CHAPTER 1
INTRODUCTION

Groundwater Quality Monitoring Act of 2001

Groundwater is one of California's most valuable natural resources. Nearly half of California's population depends on groundwater for its drinking water supplies. In addition groundwater is vital to California's agricultural industry. Unfortunately, comprehensive information regarding California groundwater quality is lacking. This lack of information impairs the ability of regulators and the public to protect and manage the state's groundwater basins/subbasins.

Recognizing the importance of maintaining and monitoring a safe groundwater supply for California, in October 2001, Governor Gray Davis signed Assembly Bill 599 (AB 599) – Groundwater Quality Monitoring Act of 2001 (see Appendix A for bill text). Introduced by Assembly Member Carol Liu, the two main goals of AB 599 are to:

- Improve comprehensive groundwater monitoring
- Increase the availability of information about groundwater quality to the public.

This report reviews the current groundwater programs in California and, as requested by the Legislature, presents an implementable plan for comprehensively monitoring and assessing the quality of all groundwater basins/subbasins in the state.

Background

AB 599 requires the SWRCB (see Appendix B for further information on the SWRCB), in coordination with an Interagency Task Force (ITF) and Public Advisory Committee (PAC), to design a Comprehensive Groundwater Quality Monitoring Program that integrates existing groundwater monitoring programs and new program elements, as necessary.

More specifically, AB 599 requires that the SWRCB, in consultation with the ITF shall:

- Integrate existing programs (specifically the SWRCB's Groundwater Ambient Monitoring and Assessment Program - GAMA) and design new elements to establish a program capable of assessing each groundwater basin/subbasin - through direct and other statistically reliable sampling approaches;
- Determine the constituents to be included in the program;
- Incorporate existing data and assess if additional monitoring is necessary;
- Prioritize groundwater basins that supply drinking water;
- Identify measures to increase coordination among state and federal agencies and, as necessary, restructure existing monitoring programs;
- Design a database compatible with Geotracker to support the program;
- Develop a ranked list of actions to increase the effectiveness of monitoring;

- Estimate funding necessary to implement the program and recommend an ongoing source of funds; and
- Identify the means to make monitoring information available to the public.

AB 599 mandated the creation of the ITF to identify actions necessary to establish the Comprehensive Groundwater Quality Monitoring Program along the above mentioned bullet points. The ITF was specified to consist of representatives from of each of the following entities:

- State Water Resources Control Board (SWRCB)
- Department of Water Resources (DWR)
- Department of Health Services (DHS)
- Department of Pesticide Regulation (DPR)
- Department of Toxic Substances Control (DTSC)
- Department of Food and Agriculture (CDFA)

In addition to the ITF, AB 599 specified that a public advisory committee (PAC) be convened. The PAC consists of a membership from a wide array of groundwater stakeholders from the following groups:

- Two representatives of appropriate federal agencies
- Two representatives of public water systems, one of which shall be a representative of a retail water supplier
- Two representatives of environmental organizations
- Two representatives of the business community
- One representative of a local agency that is currently implementing a plan pursuant to Part 2.75 (commencing with Section 10750)
- Two representatives of agriculture
- Two representatives from groundwater management entities

The AB 599 ITF and PAC met on several occasions from February 2002 to February 2003 to provide input on comprehensive groundwater quality monitoring in California. This report is a result of those discussions and presents a Comprehensive Groundwater Quality Monitoring Program for California.

What is Groundwater?

Groundwater is water that is found underground in fractures and voids of rock and soil (i.e., an aquifer). It can be found as shallow as a foot to as deep as hundreds of feet below the surface of the ground.

Rain and snowmelt are the natural means recharging groundwater supplies. However, man-made methods can recharge groundwater supplies with surface water. The depth below the ground surface to groundwater (water table) may rise or drop depending on many natural and artificial factors, including drought and overpumping from water wells.

Groundwater is brought to the surface naturally through a spring or discharges into lakes and streams. It can also be extracted by placing a water well into the aquifer. Wells may go dry if the water table falls below the bottom of the well (see Figure 1).

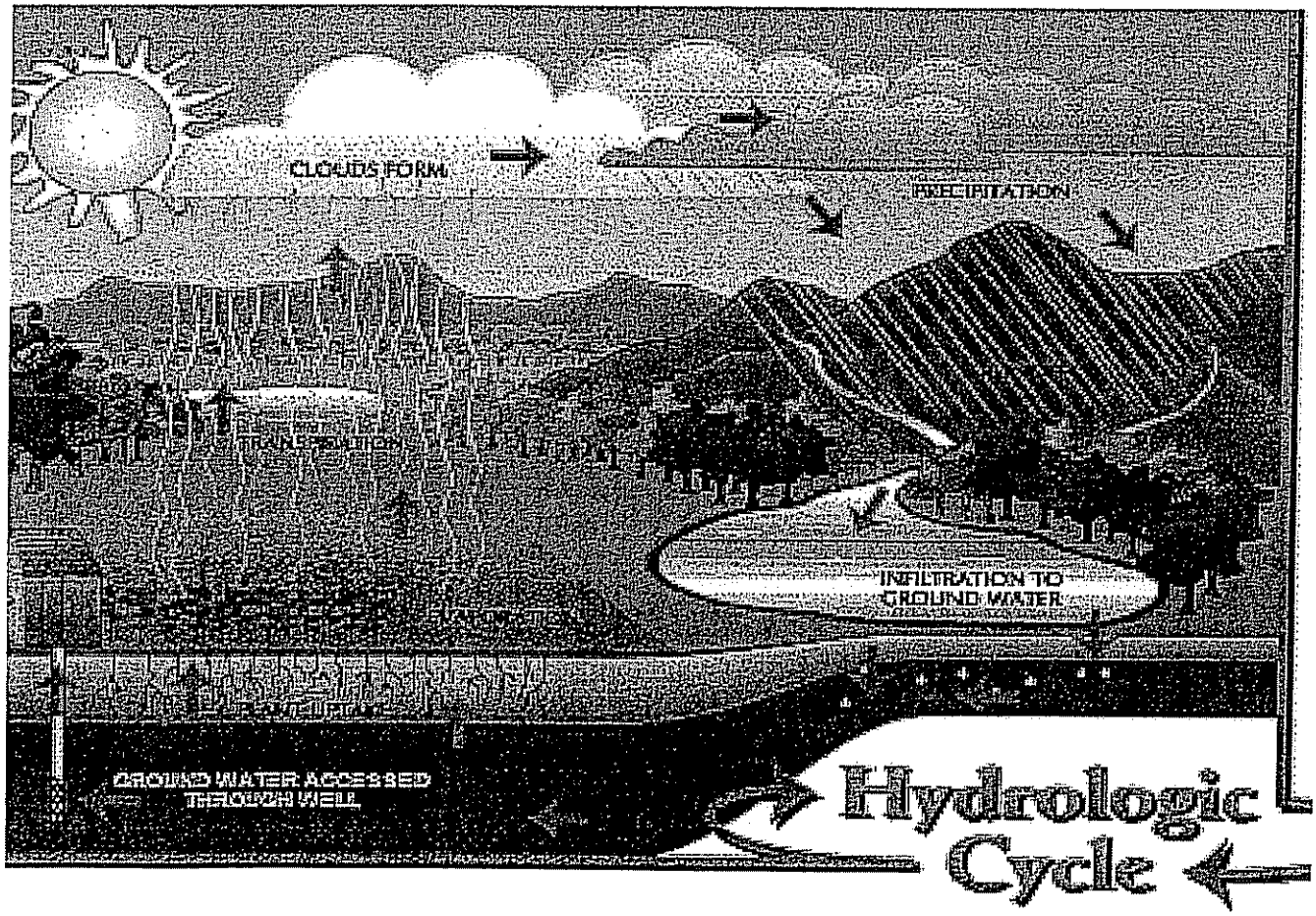


Figure 1: Hydrologic Cycle
Source: http://www.epa.gov/bioindicators/images/hydrocyc.gif (2/2003)

Why is groundwater important?

Groundwater is one of California's most important natural resources. California's cities, farms, and businesses rely on water from both groundwater and surface water. Surface water projects, which capture and deliver rain and snow runoff, provide a major portion of the state's total water supply. California's rapidly growing population -- estimated to reach 47.5 million by 2020 (See Figure 2) -- is putting more pressure on the state's water supplies (DWR Bulletin 160-98).

Groundwater is the source of about 30% of the water for urban and agricultural use in average years and can increase to about 40% when surface supplies are reduced in drought years (See Figure 3). The amount of water stored in California's aquifers is far greater than that stored in the state's surface water reservoirs, although only a portion can be extracted economically and practically (DWR Bulletin 160-98). It is likely that the projected population increase will result in the increased usage of groundwater.

To the extent groundwater basins become unusable due to water quality reasons, additional pressure is placed on surface water supplies. Though groundwater supplies a smaller portion of the total water supply than surface water, if contaminated, it takes longer and is more difficult to cleanup than surface water. In addition, it takes longer, on the order of decades for the water cycle to displace the contaminated groundwater with clean water. On the other hand, surface water, if contaminated, can be displaced with clean water in a few years. To date, most chemical contaminated water sources are groundwater.

Figure 2 - California Water Usage (From DWR Bulletin 160-98 *The California Water Plan Update*)

	1995	*2020 Forecast*	*Change*
Population (millions)	32.1	47.5	15.4
Irrigated crops (million acres)	9.5	9.2	-0.3
Water Use (in million acre-feet)			
Urban	8.8	12.0	3.2
Agricultural	33.8	31.5	-2.3
Environmental	36.9	37.0	0.1

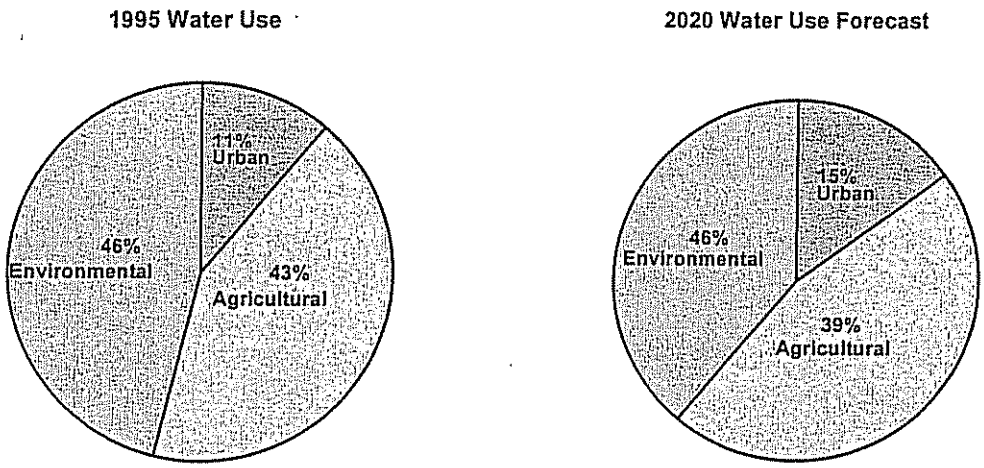


Figure 3

Surface and Groundwater Usage - Agricultural and Urban

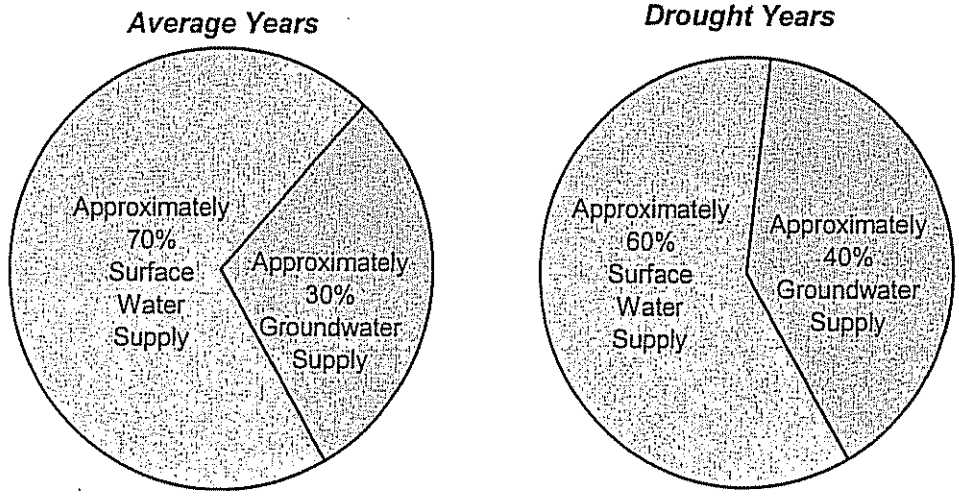


Figure Source Data: DWR Bulletin 160-98, *The California Water Plan Update (Table ES3-1 and text on page ES3-5)*

Why monitor groundwater?

Monitoring is an important component in determining our progress toward preserving, enhancing, and restoring groundwater resources. Monitoring is the tool that helps assess the resource and measure the success of groundwater management and protection programs.

Is all groundwater monitoring the same?

Groundwater monitoring can be defined as a scientifically designed groundwater surveillance system of continuing measurements and observations, including data evaluation procedures. However, depending on the purpose, groundwater monitoring can take different forms.

The U.S. Environmental Protection Agency (USEPA) has identified two types of groundwater monitoring: 1) Ambient and 2) Compliance. Ambient monitoring is focused on assessing the overall quality of groundwater resources, including areas that may be impacted. Compliance monitoring has a more narrow focus on the impacts and the influence of specific activities, may be used to support regulation and enforcement, and tends to be site-specific.

In addition to addressing the needs of a specific groundwater program, the details of a groundwater monitoring program may differ depending on:

- Aquifer Type (Alluvial, Fractured, Karst)
- Size of Area
- Hydrogeologic Conditions (seepage velocity, infiltration, aquifer size)
- Climate
- Land Use (Urban, Agricultural)
- Beneficial Use (Drinking, Irrigation, Industrial)
- Existing Or Potential Contamination
- Available Funding

What is ambient groundwater monitoring?

Ambient groundwater monitoring collects physical, chemical, or biological information and data in order to answer specific questions about the status and trends in those characteristics.

Ambient groundwater monitoring can evaluate the status of groundwater resources, trends of improvement or deterioration in groundwater quality and can focus attention on priority areas where groundwater quality protection or restoration efforts are necessary.

Ambient groundwater monitoring is a long term, continuous process that includes a wide range of groundwater quality parameters and constituents that are sampled at various scales (local, regional, basin-wide, statewide) and frequency (one-time survey, every year, every 10 years).

A detailed analysis of the data are conducted to assess the resource and used to refine future monitoring activities.

What are the uses of ambient groundwater monitoring information?

Ambient groundwater monitoring provides information that enables stakeholders to:

1. Assess the current status of groundwater quality
2. Track long-term spatial and temporal trends in groundwater quality associated with the natural environment and/or changes in land use
3. Identify impacts to groundwater resources
4. Assign priorities for groundwater management
5. Implement groundwater quality management programs
6. Evaluate the effectiveness of groundwater management programs
7. Modify actions to improve groundwater program effectiveness

Goals of a Comprehensive Groundwater Quality Monitoring Program

In addition to the goals identified in AB 599, the ITF and PAC have developed additional goals to be used to develop the Comprehensive Groundwater Quality Monitoring Program. These program goals are as follows:

Goal 1. The Comprehensive Groundwater Quality Monitoring Program must be multi-purpose and useful at various scales.

These scales include:

- Site Specific and Local Scale: A monitoring program should provide information on a site specific (e.g., a specific municipal water well, an underground fuel storage tank site) and local scale.
- Regional Scale: Tools should be developed to assess impacts at larger spatial scales, such as on a regional scale. For example, detections of a constituent of concern could be investigated for an entire groundwater basin/subbasin. These detections could be used to compare the distribution of constituents and its relationship to other variables, such as general soil type. In addition, a query of a geographical information system (GIS) database could evaluate if one or more wells reported detections during a specific timeframe. Using this information, a comparison could be made between soil types and detections of specific constituents of concern.
- Statewide Scale: Monitoring data available from all basins/subbasins statewide should be aggregated, queried, and displayed geographically.

Goal 2. The Comprehensive Groundwater Quality Monitoring Program must provide information for making various groundwater assessments.

Monitoring data should allow for the following assessments to be made:

- Assessment 1 - Describe Groundwater Quality Occurrence and Distribution:
  - Constituents of concern present in the groundwater
  - Location of the constituents of concern
- Assessment 2 - Identify Trends in Groundwater Quality:
  - Current water quality trends
  - Potential future water quality trends
- Assessment 3 - Identify Emerging Constituents of Concern:
  - Focus on areas with potential contaminating activities
  - Consider groundwater flow system and constituent transport
  - Use new laboratory methods with the lowest possible detection limits
  - Use results from new health effects assessments
- Assessment 4 - Relate Groundwater Quality to Human and Natural Factors:
  - Groundwater quality may be influenced by naturally occurring constituents or by human activities.
  - Identify whether constituents result from natural or man-made sources.
  - Identify impacts on industrial, agricultural and urban uses.
- Assessment 5 - Identify Data Gaps:

  Examples of data gaps may include:
  - Lack of sufficient historical data
  - Lack of spatial data coverage.
  - Additional constituents of concern

Goal 3. The Comprehensive Groundwater Quality Monitoring Program must be accessible and "user friendly."

The comprehensive groundwater quality program requires a database that is accessible and usable to not only the "decision makers" and regulators, but to the general public as well. Data Accessibility is described in Chapter 3: *Data Management Needs and Public Access*.

Goal 4. The Comprehensive Groundwater Quality Program must include an on-going process to ensure effective interagency coordination and collaboration on new and existing groundwater issues.

Interagency coordination is addressed in Chapter 2: *Existing Groundwater Monitoring Programs and Interagency Coordination*.

Goal 5. The Comprehensive Groundwater Quality Monitoring Program must include mechanisms for justifying ongoing resource needs.

AB 599 requires an estimate of funding to assess current resource needs to implement Comprehensive Groundwater Quality Monitoring Program based on the recommendations from the ITF. This goal is to ensure an ongoing assessment of resource needs. Some examples of issues associated with resource needs include limited resources and uncertain future funding, innovative funding opportunities, and changing priorities due to state budget reductions.

CHAPTER 2
EXISTING GROUNDWATER MONITORING PROGRAMS AND INTERAGENCY COORDINATION

Existing Groundwater Monitoring and Assessment Programs and Resources

California's groundwater resources are currently regulated by more than one agency. State and federal agencies each approach groundwater quality issues from the perspective of their own mandate. As a result, each agency collects different types of groundwater data and information. Despite the volume of the groundwater-related monitoring statewide, there is very limited, if any, overlap between agencies of actual data collected for groundwater quality.

The state agencies that implement groundwater-related monitoring programs are the SWRCB and Regional Water Boards (RWQCBs), DWR, DHS, DTSC, and DPR. These agencies are represented on the ITF. Federal agencies that implement groundwater-related monitoring programs include the USEPA, Bureau of Reclamation, and the USGS.

ITF agencies have programs and generate data that are critical to the comprehensive evaluation of the state's groundwater resources. The sharing, integration, and evaluation of the rich data repositories of these agencies would be a logical step towards a comprehensive assessment of this vital resource. The ITF agencies are also the state agencies most capable of analyzing data and determining the extent and types of data (spatial and temporal) necessary to adequately specify the nature and details of a comprehensive statewide assessment.

GAMA

The Legislature and Governor, as well as private citizens are very concerned about public water supply well closures due to the detection of chemicals, such as MTBE and perchlorate. Because of the increased awareness toward groundwater quality, the Supplemental Report of the 1999 Budget Act required the SWRCB to develop a comprehensive ambient groundwater monitoring plan.

To meet this mandate, the SWRCB created the GAMA Program. The primary objective of the GAMA Program is to assess the water quality and relative susceptibility of groundwater resources.

The GAMA Program has two sampling components: the California Aquifer Susceptibility (CAS) Assessment which addresses public supply drinking water wells and the Voluntary Domestic Well Assessment Project which addresses private drinking water wells. The GAMA Program is being directed out of the SWRCB's Groundwater Special Studies Unit.

The CAS assessment utilizes low-level VOCs and age-dating analyses to assist in the evaluation of the hydrogeologic conditions within the basin/subbasin.

The GAMA Program is also focused on an effort to identify and centralize the many sources of groundwater data and information available in the state. As part of this effort, the SWRCB has joined with other groundwater agencies to form a Groundwater Resources Information Sharing Team (GRIST). The various groundwater data sets will be made accessible to the public and interested agencies within a Groundwater Resources Information Database (GRID).

Existing ITF Groundwater Monitoring/Assessment Data

The tables in Appendix C describe the various groundwater monitoring and assessment programs at the ITF agencies, including program objectives and the portion of the total resources allocated (amount of staff and annual funding) specifically for groundwater monitoring and assessment activities (such as review and evaluation of groundwater monitoring data). The information presented in these tables was provided by the ITF agencies and provides a general overview of their programs.

These various groundwater monitoring and assessment programs collect a significant amount of groundwater-related data in various coverage and formats (Table 1). Table 2 shows the type of program for which the data are used: Surveys are one-time data collection efforts; Monitoring is ongoing data collection but with limited analysis; and Assessment is ongoing data collection with detailed analysis. In addition, Table 2 provides information on data format (hard copy or electronic), and whether spatial location – geographic information system (GIS) – data are available.

Hard copy data are not easily accessible to other agencies. Data in different electronic formats may not be as valuable as a single database of information. The lack of data comparability and sufficient data sharing significantly hampers oversight of groundwater resources.

It is noteworthy that the DHS public water supply well database is the best available and readily usable source of groundwater data for groundwater quality assessment in the State of California. This database contains results of regular water quality monitoring, required by federal and state laws and regulations, for numerous chemical, radiological, and bacteriological contaminants. The laws and regulations applicable to the public supply wells establish numerical water quality criteria for these contaminants, called Maximum Contaminant Levels (MCLs), to protect public health. The DHS database contains water quality data and locational data for over 16,000 public supply wells in the state. Approximately 12,000 public supply wells are within the DWR-defined alluvial groundwater basins/subbasins. Use of the DHS public supply well data, as part of the Comprehensive Groundwater Quality Monitoring Program, is described in Chapter 4.

Interagency Coordination for Groundwater Monitoring Programs

AB 599 requires that the ITF identify measures that would increase coordination among state and federal agencies that collect groundwater contamination information. Coordination is essential for the success of a Comprehensive Groundwater Quality Monitoring Program. Increased coordination will also benefit all agencies through data sharing, training costs, and project responsibilities.

The emphasis should be on increasing collaboration to effectively expand existing programs to cover a wider range of sampling, analyses, and evaluation efforts. The following measures will result in increased basic interagency coordination and communication on groundwater programs.

- Share data (e.g., GIS Coverages);
- Share data collection responsibilities;
- Develop minimum sampling and analytical protocols;
- Share specialized training;
- Collaborate on data interpretation;
- Share laboratory facilities and share information on laboratory methods;
- Continue the ITF to ensure interagency coordination / communication;
- Meet on a periodic basis to achieve these listed elements; and
- Develop a standardized data format for electronic submittal of groundwater monitoring data.

Lead Agencies for Water Quality and Water Quantity

The SWRCB has the statutory mandate under California Water Code Division 7, Sections 13000 – 14598 to develop statewide water protection plans and establish water quality standards.

Similarly, the DWR is the primary state agency mandated to address water quantity (water supply) information.

CHAPTER 3
DATA MANAGEMENT NEEDS AND PUBLIC ACCESS

Data Management Needs

A data management strategy is a critical component of a Comprehensive Groundwater Quality Monitoring Program. The data management strategy will integrate all of the major factors critical to a successful program, including hardware, software, data, staff, and the collaborating agencies themselves. An effective data management system is an essential component of the Comprehensive Groundwater Quality Monitoring Program. A relational database with a geographic information system (GIS) interface is necessary for the storage, retrieval, and evaluation of the large quantities of complex data needed for the Comprehensive Groundwater Quality Monitoring Program. A distributed relational database structure allows individual agencies to manage their own data locally, while providing a centralized means of uploading the data into a larger data warehouse.

The variety of groundwater data collected by the state agencies involved in groundwater issues is discussed in Chapter 3. The agencies participating in the Comprehensive Groundwater Quality Monitoring Program will maintain ownership of the data that they collect and contribute to the data warehouse. They will also be involved in efforts to ensure the data quality is to the highest possible standard, and that proper data documentation is maintained. One way to accomplish this would be to form a groundwater data subcommittee, comprised of several members of the PAC and ITF. The subcommittee would be able to periodically collaborate on tasks such as:

- Identifying what data sets are needed and can be added to the data warehouse;
- Resolve data ownership/stewardship issues;
- Creation of a metadata library;
- Oversee data updates; and
- Make notifications to users.

The hardware and software required to handle all of the needs of a Comprehensive Groundwater Quality Monitoring Program must have a range of capabilities that can meet the needs of each government agency and its general public stakeholders. Not only must they be able to act as a storage place for the large and diverse sets of groundwater data generated in the state, but they also must allow for data transactions such as data input, data querying, data visualization, data analysis, and data download. Since groundwater data has a strong spatial nature, GIS functionality is a valuable and essential component to the data management system.

Geotracker

AB 599 specifies that the database to support the Comprehensive Groundwater Quality Monitoring Program is to be compatible with Geotracker. Geotracker is an Internet accessible environmental management database system. The Geotracker database structure was created by Lawrence Livermore National Laboratory (LLNL) for the SWRCB [pursuant to AB 592/ SB

1189 (Kuehl/Hayden, 1997)] and was applied to support the SWRCB's Underground Storage Tank (UST) program.

The ITF, at the request of the PAC, examined different types of web-enabled data management systems. Geotracker was compared to other well-known systems such as USEPA's EnviroMapper, and the Environmental Defense Council's ScoreCard. All three systems use Oracle software for their underlying database platform and ESRI GIS software (ESRI's ArcIMS or Map Objects) for the user interface. The web-based GIS client software allows for network connectivity and e-commerce or e-government applications.

Geotracker was found to have the most functionality out of the systems examined. All systems are scalable in terms of raw storage and processing ability, as well as the types of tools and functions available to users.

Geotracker provides flexibility in the available data dissemination methods. Users can upload or download data to the Geotracker database by File Transfer Protocol (FTP) technology. General users can visualize data through the thin client web-based GIS software, while more technical users can download whole data files for incorporation into more powerful GIS software programs and more intensive analysis.

Specifically, groundwater data management system should have the following functionality:

- Facilitates electronic data exchange
- Facilitates the use of data standards
- Assures data quality
- Includes description of data source
- Spatially-referenced
- Incorporates tools for all user communities, including:
  - Consumer's / Private Citizens
  - Water Purveyors
  - Regulators
  - Local / State / Federal Agencies
  - Researchers
  - Legislators
- Includes historical retention of records and the ability to analyze data over various timeframes
- Provides public access to groundwater data and information
- Supports business to government transactions

To achieve the functionality outlined above, the PAC approved using the SWRCB's Geotracker. Geotracker has the following features:

- Data Warehouse (Geotracker, Oracle-based)
- GIS Capabilities (Geotracker, ESRI-based)
- Internet Accessible 24 hours a day (Geotracker, ESRI-based)
- Integrates data from multiple programs and agencies

- Case management capabilities for state agencies

Both the ITF and PAC concluded that Geotracker was a system capable of handling the Comprehensive Groundwater Quality Monitoring Program. Geotracker already effectively integrates groundwater data from multiple state agencies (for example, public water system data from DHS, and leaking UST data and GAMA program ambient groundwater quality and vulnerability data from SWRCB). While Geotracker does not currently have the capability to handle all groundwater data anticipated for the Comprehensive Groundwater Quality Monitoring Program, it is easily expandable to meet those eventual needs and accommodate the tools that will help manage and analyze the data.

Geotracker already provides effective tools to allow users to analyze data over the Internet. One very useful and powerful tool in Geotracker is its relational database query capabilities. For example, the attribute tables of a selected set of features can be queried and those features that meet the specified criteria can be visualized in map format on the screen.

Another useful tool is being able to select a feature such as a public water supply well from a map on the computer screen, automatically retrieving previous data and regulatory compliance records for the well, and then plotting detected chemical trend graphs.

Intrinsic functions/tools in Geotracker include:

- Zoom and pan around an on-screen map
- Identify and select features
- Create buffer zones around features
- Query attribute tables
- Measure approximate distances
- Print Maps
- Export Maps and Images
- Extract reports/data from links

Future Database Flexibility

New tools and applications can be programmed into Geotracker, providing flexibility for the future. The SWRCB is currently looking at adding new tools for GAMA on Geotracker, including multiple criteria querying capability.

Some of the necessary additions to Geotracker identified by the ITF to meet the needs of the comprehensive groundwater quality program include:

- Database Query Tools:
  - Ability to query a large set of groundwater quality data (e.g. constituent, concentration, area, time, depth to groundwater, screened interval) with the user able to specify single or multiple fields for the query.
  - Ability to query by DWR hydrogeologic subbasins.

- Data/Information:
  - Additional GIS coverages as necessary for analysis (e.g. land use, rainfall).
  - Groundwater elevation data, well construction data, lithology, etc.
  - Non-UST contaminant sites (e.g. landfills, wastewater ponds; all other cleanup sites with local, state, and federal regulatory lead).
  - Potential contaminating activities (DHS's Drinking Water Source Assessment and Protection Program (DWSAP) data and/or business plan data for hazardous materials storage).

- Consumer Information:
  - Links to DHS / USEPA websites.
  - Links to local water agency websites.
  - Demonstration web page on local groundwater quality.
  - Links to groundwater assessment reports (e.g. SWRCB's groundwater quality portion of the USEPA's 305b Report; DWR's Bulletin 118; SWRCB's GAMA assessments).

- Once established, representatives from the PAC/ITF agencies contributing data should meet periodically to:
  - Address maintenance duties and needs
  - Evaluate the performance and progress
  - Interface with other stakeholders.

Public Access Requirements

The Internet has been selected as the optimal route of access to the database included in the Comprehensive Groundwater Quality Monitoring Program. The Internet provides access to the data warehouse by a large portion of the user community. Potential users that do not have access to a computer or the Internet, should be able to access the data at their local public library, most of which have publicly available computers linked to the Internet.

Public Access

Some of the data contributed by participating agencies may be considered sensitive due to security or other concerns. Access to specified portions of the data warehouse content can be regulated by the database administrator at the request of the agency/entity contributing data. An example of this capability can currently be observed on Geotracker. Due to heightened security concerns, DHS requested that the geographic coordinates of the public water supply wells be removed from general public access. The SWRCB promptly complied with the request, but kept the information available to registered users (such as regulatory agency staff), who had an important need for the information, through password access.

Data Security Tiers

Data security concerns can be addressed by creating levels or "tiers" of access to the database. On the basic end of access capabilities, a consumer/private citizen access tier can be created and accessed through an Internet address that links software application to the database. This basic access level would have a general assortment of the most commonly used database and GIS tools, and access to only non-sensitive data, available to the user. The agency responsible for the data (e.g. DHS for water well locations) will make the determination on the level of security and access for their specific portion of the dataset.

Passwords will only be known to the individuals who are granted access to confidential data. The data will be managed by the agency that contributes that piece of data. Database users would be able to download data with their level of password clearance. Data download would likely occur by FTP access and allow the user to receive packets of data in a format that can be imported into the most common database, spreadsheet, and GIS software programs. In this fashion, users will have the potential to subject the data to even more analytical tools than the standard tools available on the web client, which will likely benefit those with such needs as regulators, consultants, and academia.

Public access to detailed location information may pose a risk to these public water supplies. The ITF acknowledged that a strictly controlled, tiered password protocol was essential for this type of database. It would be possible to visually represent the location data in a modified manner through the GIS, such that even the most general user can evaluate the data associated with those locations, and draw regional conclusions, without being given the exact location of the features.

The web client application can be developed such that it is accessible by a common Internet browser. The application would be platform independent, as to be accessible by users with various computer operating systems. Geotracker is currently outfitted with this type of functionality.

CHAPTER 4
COMPREHENSIVE GROUNDWATER QUALITY MONITORING PROGRAM

Program Summary and Scope

In order to make informed decisions concerning sustained groundwater use, including groundwater transfers and groundwater banking, it is imperative that a baseline for both groundwater quality and quantity be established for groundwater basins/subbasins in the state. This chapter presents a plan to effectively monitor, assess, and report to the public on a continuing, regular basis the quality of groundwater in California. In addition, a discussion is included which summarizes a plan by the DWR to establish water use budgets for the groundwater basins/subbasins in the state.

More specifically, this chapter describes, in detail, the approach to the Comprehensive Groundwater Quality Monitoring Program and includes guidelines for the selection of groundwater monitoring points, monitoring network design, and sampling density. In addition, a method for groundwater basin/subbasin prioritization is presented to ensure that the highest priority groundwater basins/subbasins are assessed first. Because it is not feasible to sample for all constituents everywhere, a tiered approach to target constituents is also recommended. The tiered approach to target constituents applies various intensity levels of constituents to various percentages of monitoring points. The "high intensity" constituent tier, in which the greatest amount of constituents is sampled in a subset of wells, would aid in evaluating groundwater quality trends. Finally, data gaps and additional data needs are identified.

It is important to note that the emphasis of the program presented in this chapter is on the used groundwater resource, as represented by public and private water supplies.

Program Goal

The primary goal of the Comprehensive Groundwater Quality Monitoring Program is to:

1. Improve comprehensive groundwater monitoring and,
2. Increase the availability of groundwater quality information to the public

The program goals are described in detail in earlier chapters.

Program Benefits and Products

Consistent with AB 599, implementing the Comprehensive Groundwater Quality Monitoring Program has the following benefits.

- Improves comprehensive groundwater quality monitoring;
- Increases the coordination among agencies that monitor groundwater;
- Takes maximum advantage of existing resources and data;
- Identifies existing groundwater monitoring data gaps;
- Enhances the understanding of groundwater;
- Creates a database to provide tools to aid in making groundwater assessments; and
- Maximizes cost savings associated with monitoring the resource.

In addition to the benefits identified above, implementing the Comprehensive Groundwater Monitoring Program will yield the following products:

- Biennial California Groundwater Report
  A single report that regularly reviews the condition of California groundwater will include the groundwater quantity information provided in the DWR Bulletin 118 and the groundwater quality information from the SWRCB deliverable to the USEPA 305(b) Report.
- Groundwater Basin Assessments
  Groundwater basin/subbasin assessments will be completed for each individual priority basin/subbasin. It is estimated that approximately 5 to 10 priority basin/subbasin assessments will be completed per year over a ten-year period. The resulting assessments will be made available to the public.
- Groundwater Database (Geotracker)
  Groundwater quality information and data (including the Biennial Groundwater Report and basin/subbasin assessments) will be made available in a centralized groundwater database that is accessible via the Internet.
- Interagency/Stakeholder Coordination Groups
  The PAC and the ITF will continue to meet to discuss groundwater issues and promote interagency and stakeholder coordination.

Comprehensive Groundwater Quality Monitoring Program Approach

Consistent with AB 599, the Comprehensive Groundwater Quality Monitoring Program addresses the following objectives:

- The program should be multi-purpose and useful at various scales - local, regional, and statewide;
- The program monitoring network design should be able to make various groundwater quality assessments; and
- The program should maximize the use of existing groundwater resources and data.

The ITF and PAC identified the types of assessments that should be conducted to achieve these objectives with the data collected by the Comprehensive Groundwater Quality Monitoring Program. These include:

- Status: Assessments that describe the quality of the groundwater resource;
- Trends: Assessments that detect changes in water quality, including emerging contaminants; and
- Impacts: Assessments that relate groundwater quality impacts to human and/or natural sources.

Each of these types of groundwater quality assessments is most efficiently accomplished by applying uniform and consistent study design and data collection protocols to the entire state. Past research has shown that it is extremely difficult to conduct a meaningful assessment by aggregating groundwater quality data collected for different purposes. These difficulties result from the differences in sample collection and analytical methods, as well as the variability introduced by differences in the type and location of the sampling point.

Groundwater Monitoring Network Design: Randomized Network of Public Supply Wells

One of the first steps to designing a groundwater quality monitoring program is to develop a network or "map" of the points at which you plan to collect samples. The Comprehensive Groundwater Quality Monitoring Program will select sampling points using a spatially distributed, randomized network of public supply wells throughout the state.

Groundwater quality data will be collected in groundwater basins/subbasins. These groundwater basin scale data can be aggregated to conduct regional and statewide assessments and groundwater quality in basins/subbasin and regions can be compared.

In order to collect data that will allow the various types of assessments to be made on different scales, the Comprehensive Groundwater Quality Monitoring Program will employ a consistent study design in all basins/subbasin. Important groundwater monitoring elements that will be consistent among basins/subbasins include:

- well type,
- spatial density,
- sample collection protocols,
- analytical methods, and
- temporal frequency.

This consistency will permit assessment at a variety of scales by producing data sets that address the basic objectives at the basin/subbasin scale, but more importantly, can be aggregated to produce regional and statewide assessments. The ability to aggregate data for groups of basins/subbasin is critical because groundwater resource planning issues are mainly regional in nature and involve groups of basins/subbasins. This aggregation is best accomplished by using a spatially distributed, randomized sample of wells in each basin/subbasin. Similarly, many important findings will only be evident by making

comparisons among basins/subbasins or groups of basins, which also requires a consistent and random design. Deviating from a randomized selection approach will compromise the ability to conduct meaningful assessments on groups of basins, and hence it will not be able to answer questions of regional and statewide importance.

While a randomized approach is the basis of the study, many basins/subbasins may have local considerations for which a more spatially targeted well selection would be better suited. These local considerations may be hydrologeologic in nature (focused recharge or systematic changes in geology) or related to potential contaminant sources. Regulatory monitoring programs address local groundwater quality questions related to contaminant sources. These are usually small scale, and often too numerous to address individually.

Some of these local considerations may be common to groups of basins/subbasins within a major aquifer system, and hence be relevant to regional assessment. As a result, the monitoring network may consider evaluating a preeminent local feature or gradient in up to 25% of the wells in that specific basin/region. Results of these local assessments will contribute to understanding groundwater contaminant sources and transport, and understanding contrasts in groundwater quality between basins/regions.

Groundwater Monitoring Points and Sampling Density

Once a monitoring network has been designed, monitoring points must then be selected. AB 599 places a relative emphasis on groundwater basins/subbasins that supply drinking water. Thus, the Comprehensive Groundwater Quality Monitoring Program relies on existing public supply wells as monitoring points for the major groundwater aquifers. From a technical standpoint, public supply wells are appropriate monitoring points because they generally have extensive well screen lengths (i.e., screened intervals) and high pumping capacities, and sample a larger volume of the aquifer than wells with shorter screened intervals (domestic and monitoring wells). Public supply wells are also widely distributed wherever there are population centers. In addition, public supply well data (locations and drinking water quality compliance data) are available in electronic format in the DHS database.

Information from monitoring and domestic water supply wells is also important and should be reviewed. Available information for these wells should be incorporated into the SWRCB's Geotracker database, as has been done for monitoring wells under the SWRCB Underground Storage Tank (UST) Program and public supply wells in the DHS database. This is especially true for domestic wells, as they are an important source of drinking water. Past investigations have shown that data from domestic wells can be used to make meaningful assessments, and examination of the DHS public supply well database has shown the great value of a statewide digital database. Various groundwater programs sample domestic wells. The following programs monitor domestic wells and are valuable sources of data for a domestic well database: SWRCB GAMA – Voluntary Domestic Well Assessment Program, DPR Groundwater Protection Program, DTSC

Cleanup Sites, DWR Groundwater Information Database, and the USGS National Water Quality Assessment Program (NAWQA).

Just as state agency data are being incorporated into a comprehensive database, local groundwater quality data may also assist in basin/subbasin and larger scale assessments. It is anticipated that the amount of local data is significant in some basins/subbasins. However, additional effort is necessary to identify the types of local data available and to assess whether or not incorporating these data into a central groundwater database is beneficial. Partnerships and effective coordination with the local agencies will be an important part of the Comprehensive Groundwater Quality Monitoring Program.

The sampling or monitoring density describes how many monitoring points are to be chosen for each groundwater basin/subbasin for assessment purposes. To optimize data collection, the Comprehensive Groundwater Quality Monitoring Program uses the following sampling density:

Comprehensive Groundwater Quality Monitoring Program Sampling Density
• Wells will be sampled at a density of **one well per 25 square kilometers** (9 square miles).
• For basins less than 500 square kilometers (180 square miles), the recommended sampling density would provide fewer than 20 wells). However, to achieve statistically significant results, **no fewer than 20 wells** will be sampled in any priority basin.
• For basins/subbasins larger than 1500 square kilometers (540 square miles), the recommended sampling density would require sampling more than 60 wells. However, to maintain cost-effectiveness, **no more than 60 wells** will be sampled in any priority basin/subbasin.

Prioritization of Groundwater Basins/Subbasins and Other Areas

In a state as large as California, it is important that the Comprehensive Groundwater Quality Monitoring Program establish a methodology to prioritize groundwater basins/subbasins for assessment purposes. Hydrogeologic provinces help provide a basis for prioritizing groundwater basins/subbasins, and for evaluating the groundwater resource that occurs outside of mapped groundwater basins/subbasins (see Figure 4). Hydrogeologic provinces are large regions that share similar climatic, geologic, and hydrologic characteristics. Ten hydrogeologic provinces have been recognized: Northern Coast Ranges, Klamath Mountains, Northern California Volcanics and Quaternary Sediment, Central Valley, Sierra Nevada, Southern Coast Ranges, Transverse and selected Peninsular Ranges, Basin and Range, San Diego Drainages, and Desert.

DWR recognizes 525 groundwater basins and subbasins in California (see Figure 5). It is important to note that groundwater use also occurs outside these mapped groundwater basins/subbasins. For the purposes of prioritization, and with the exception of the Sacramento and San Joaquin Valleys, groundwater subbasins were evaluated as part of the larger groundwater basin that contains it. In the Sacramento and San Joaquin Valleys, subbasins are relatively large, and therefore the subbasins were evaluated as if they were basins. This results in 472 basin areas that are further evaluated for prioritization.

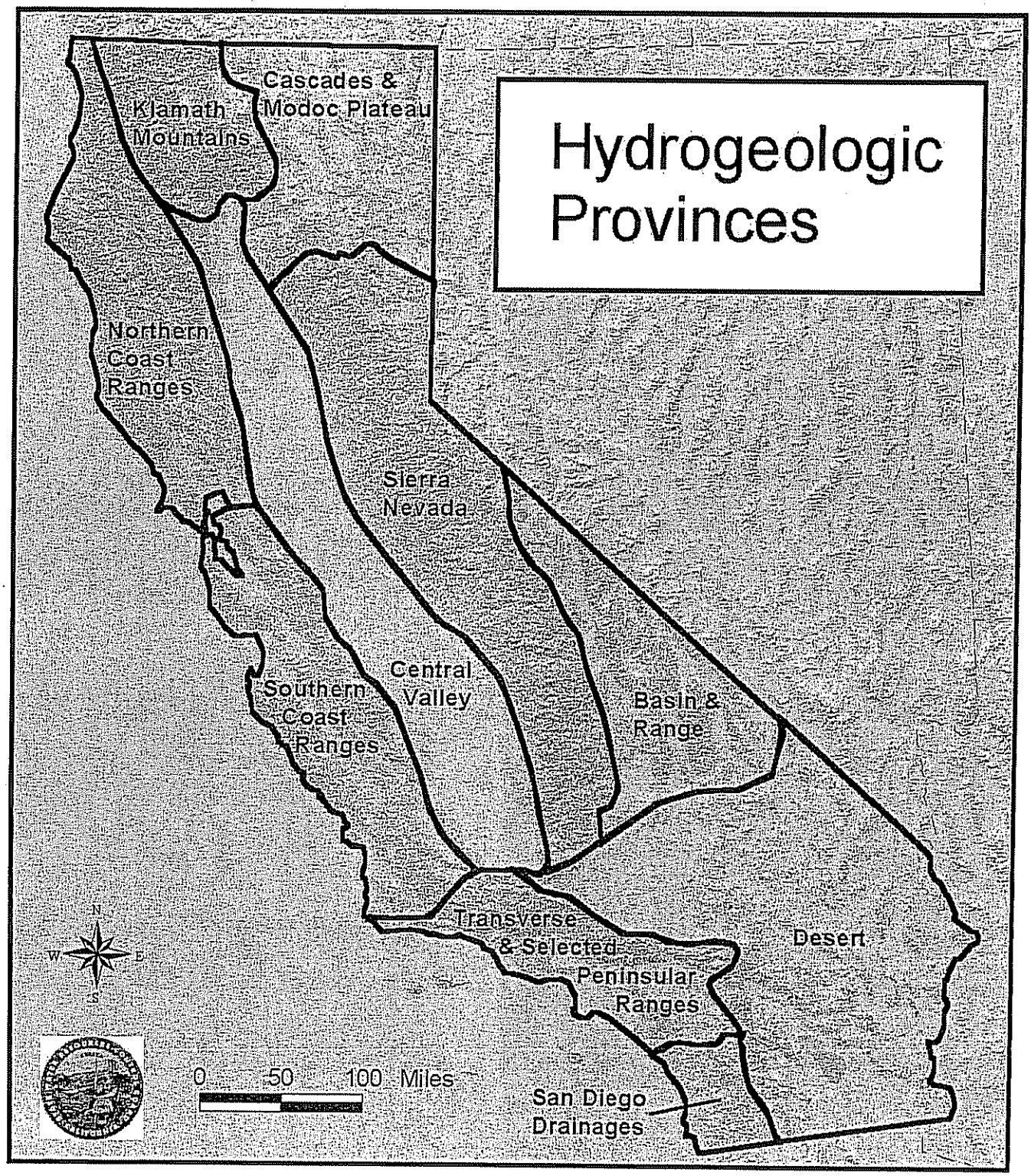


Figure 4 - California's Hydrogeologic Provinces (USGS)

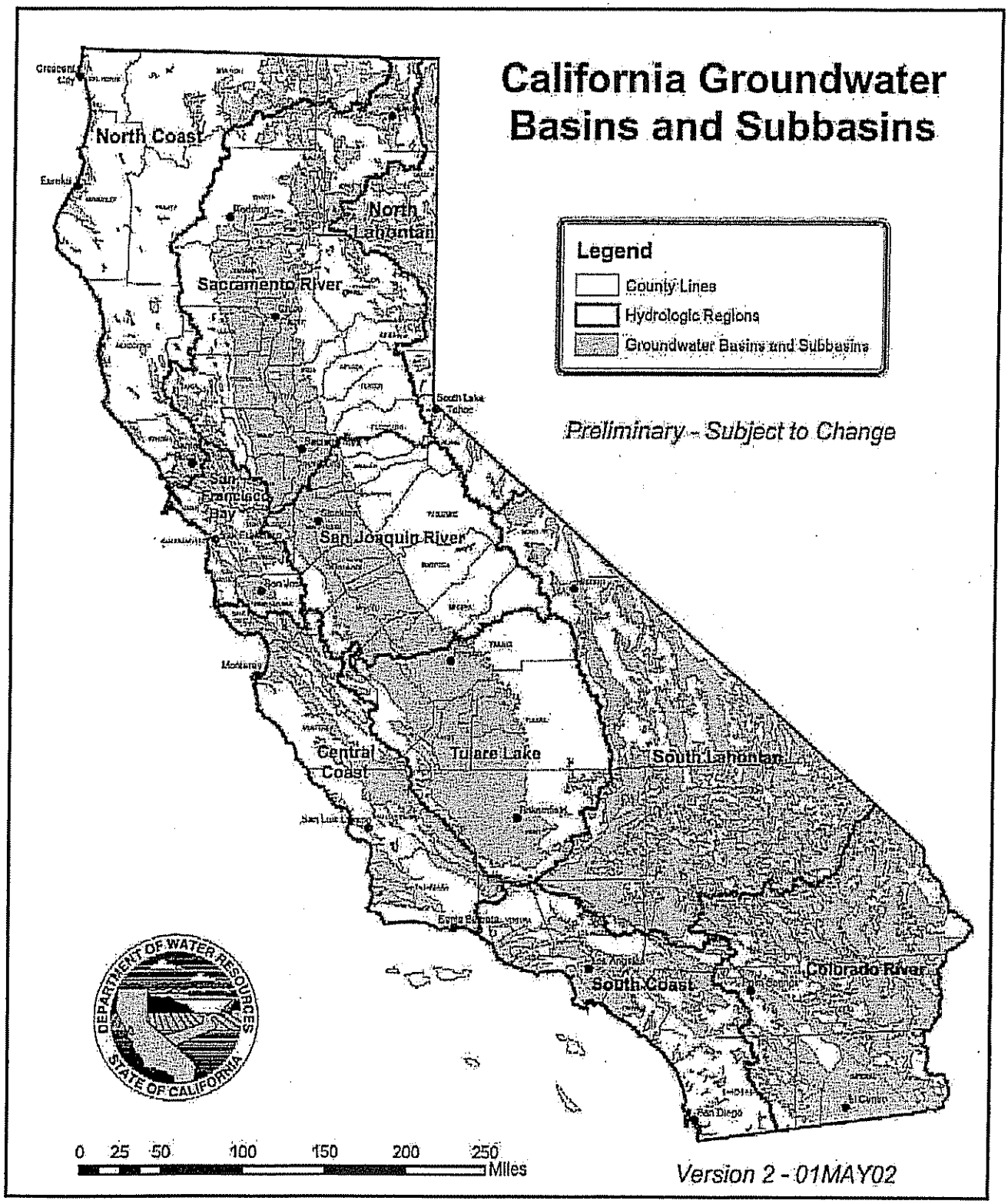


Figure 5 - California's 525 Groundwater Basins (DWR)

Several characteristics are useful when considering a groundwater basin/subbasin prioritization scheme. The number of public supply wells, the population using groundwater, and the volume of agricultural pumping each provide information relevant to the currently used groundwater resource. The number of leaking USTs and sections with pesticide applications provides information on the potential impact of human activity on the groundwater resource. In addition, the areal extent of a groundwater basin/subbasin provides some information on the volume of the groundwater resource. The Comprehensive Groundwater Quality Monitoring Program Basin/Subbasin prioritization factors are shown below:

Groundwater Basin/Subbasin Prioritization Factors
1. Number of Public Supply Wells
2. Population Relying on Groundwater
3. Volume of Agricultural Pumping
4. Number of Leaking Underground Storage Tanks (USTs)
5. Number of Pesticide Application Sections

The number of public supply wells within a basin/subbasin is chosen as the primary factor for prioritizing basins/subbasins because it is a direct present measure of the importance of groundwater as a drinking water resource. In addition, public supply well information is relatively comprehensive and readily available in the DHS database.

Other factors that contribute to the groundwater basin/subbasin prioritization are representation of the range of hydrogeologic conditions in the state and efficiencies associated with grouping neighboring basins/subbasins.

Using the factors described above, six categories have been developed for the purposes of basin prioritization. These categories are shown below:

Prioritization Category	**Basis for Prioritization**
1 and 2 (Priority Basins)	Number of Public Supply Wells
3 and 4 (Priority Basins)	Number of Public Supply Wells, plus additional factors.
5	Non-Basin Areas
6	Low-Use Basins

Four categories of priority basins were recognized (see table in Appendix D). Category 1 and 2 basins were selected based on the number of public supply wells. Category 3 and 4 basins were selected based on the number of wells and based on secondary factors.

The four priority categories include 116 basins. These 116 basins include 75% of all public supply wells in California, and 95% of all public supply wells that are located in groundwater basins. The 116 priority basins also include 98% of the municipal pumping, nearly 90% of the agricultural pumping, 70% of the USTs, and 70% of the square-mile sections with pesticide applications.

A fifth, "non-basin areas," category accounts for the groundwater resource that occurs "outside" of mapped basins (e.g., mountainous regions of the state). About 20% of all public supply wells in California are located outside of mapped groundwater basins. In addition, about 20% of the leaking tanks and 20% of the square mile sections with pesticide applications are located outside of mapped groundwater basins.

A sixth category is recognized to account for the 356 low-use basins. Although these basins account for about 40% of the total area mapped as groundwater basins, they account for lesser amounts of the used or potentially impacted resource. These low-use basins account for about 5% of the public supply wells, 2% of the municipal pumping, 12% of the agricultural pumping, 10% of the leaking underground fuel tanks, and 10% of the square-mile sections with pesticide applications. About 200 of the 356 low-use basins have no public supply wells.

Groundwater Quality Constituents

A variety of constituents may be sampled in groundwater. A tiered approach that targets constituents is recommended that balances analytical intensity with spatial coverage and cost, and is iterative in time to allow reconsideration of the analytical objectives of the Comprehensive Groundwater Quality Monitoring Program.

The constituents considered for analyses address three specific goals:

- Protection of beneficial uses, including use as drinking water or for agriculture;
- Interpretation of processes controlling water quality and groundwater flow (using environmental tracers such as age-dating and environmental isotopes and low-level VOC analyses); and
- Detection of unregulated compounds (unregulated chemicals requiring monitoring or UCRMs) that have been identified as potential concerns, the so-called "emerging contaminants."

AB 599 requires the Comprehensive Groundwater Quality Monitoring Program to maximize the use of existing data, cover drinking water contaminants, and be comprehensive. Existing groundwater programs collect data on some of the above categories, but no statewide program collects data on all of these categories.

One example of a groundwater program that samples for a broad range of constituents is the SWRCB's GAMA Program. As described in Chapter 2, GAMA was designed to assess the water quality and relative susceptibility of groundwater to surface contamination that serves as a source for public drinking water supplies. The SWRCB, with assistance from the USGS and LLNL, collects data to evaluate the use of environmental tracers, including groundwater age-dating and low-level VOC concentrations, as indicators of the susceptibility of groundwater to contamination. Age-dating provides information on the presence of young, presumably more susceptible to contamination, groundwater and low-level VOC analysis provides an "early warning" for potential VOC contamination.

The three tiers of constituent coverage intensity identified for the Comprehensive Groundwater Quality Monitoring Program are shown below:

Tier	Constituent Coverage
1	**Low Intensity for all Program Wells –** Samples analyzed for constituents already required by DHS;
2	**Moderate Intensity for 75% of the Program Wells –** Samples analyzed for constituents to aid in interpretation of chemical processes and groundwater flow (environmental tracers), in addition to DHS required constituents;
3	**High Intensity for 25% of Program Wells –** Samples analyzed for emerging contaminants, in addition to constituents to aid in interpretation of chemical processes and groundwater flow, and DHS required constituents.

The three tiers of constituent coverage intensity (mentioned above) are proposed for the statewide groundwater monitoring network. Due to the high cost of laboratory analyses for some environmental tracers and emerging contaminants, it is not feasible to be comprehensive for both spatial and analytical intensity. Tiering the constituent intensity balances the need to achieve comprehensive spatial coverage with the desire to obtain comprehensive constituent coverage.

This tiering will result in spatially comprehensive data for DHS required constituents, which are currently analyzed for at public supply wells, and somewhat decreased spatial coverage for Tiers II and III. Data necessary for protection of beneficial uses will be the most spatially comprehensive. Environmental tracers will be sufficiently dense to develop an understanding of processes controlling the geochemical evolution and groundwater flow on a regional and basin scale; and the ability to identify threats of emerging contaminants to groundwater quality will be attained on a regional scale.

Groundwater Quality Trend Assessment

Assessing whether or not groundwater quality is improving or degrading requires a systematic approach. Because of the relatively slow rate of groundwater movement in some basins, frequent sampling is often unnecessary. There is the potential for seasonal variability in shallow systems with rapid transport, but these cases are generally rare and beyond the scope of the Comprehensive Groundwater Quality Monitoring Program. To assess groundwater quality trends, re-sampling a subset of the wells analyzed with the "high intensity" constituent tier every three years will provide a general picture of the change (improvement or degradation) in groundwater quality.

A potential source of water quality data is not being acquired from wells that are degraded by poor water quality, including wells that exceed MCLs. These wells are removed from service and placed on inactive status or in some cases, destroyed. To date, approximately one-third of the state's public supply wells has been taken off-line (approximately 8,000 of 24,000 public supply wells). Because these wells are no longer monitored, it gives the impression that the number of wells exceeding MCLs is declining. A means to continue to monitor these wells is necessary, especially for the Comprehensive Groundwater Quality Monitoring Program wells.

The effort to describe trends makes extensive use of the second tier of analytical intensity: constituents analyzed to aid in interpretation of chemical processes and groundwater flow (i.e.: low-level VOCs and age-dating). The trends assessment will also be greatly enhanced when comprehensive water quality for wells in the shallower portion of the major aquifers (domestic and monitoring wells) are available in digital format.

The GAMA program recognized the value of public supply wells used in a monitoring network to assess groundwater that is used for drinking water purposes. By enhancing the analytical information already collected by the local purveyors, GAMA further analyzes for low-level VOCs and age-dating in order to assist in assessing the hydrogeology in areas that are vulnerable to surface contamination as well as be an early warning indicator of impacts. The GAMA program has already begun to assess these high priority areas as shown on Figure 6.

Groundwater Resource Assessment

In addition to water quality data, water use information is essential for making informed decisions in both protecting and optimizing the use of the groundwater resource. Despite California's reliance on groundwater, basic water use information is lacking for many of the state's groundwater basins. For example, how much groundwater is stored in the basin or what is known about the actual quantity of groundwater extracted from the basin? Developing this information on a statewide basis is the responsibility of DWR.

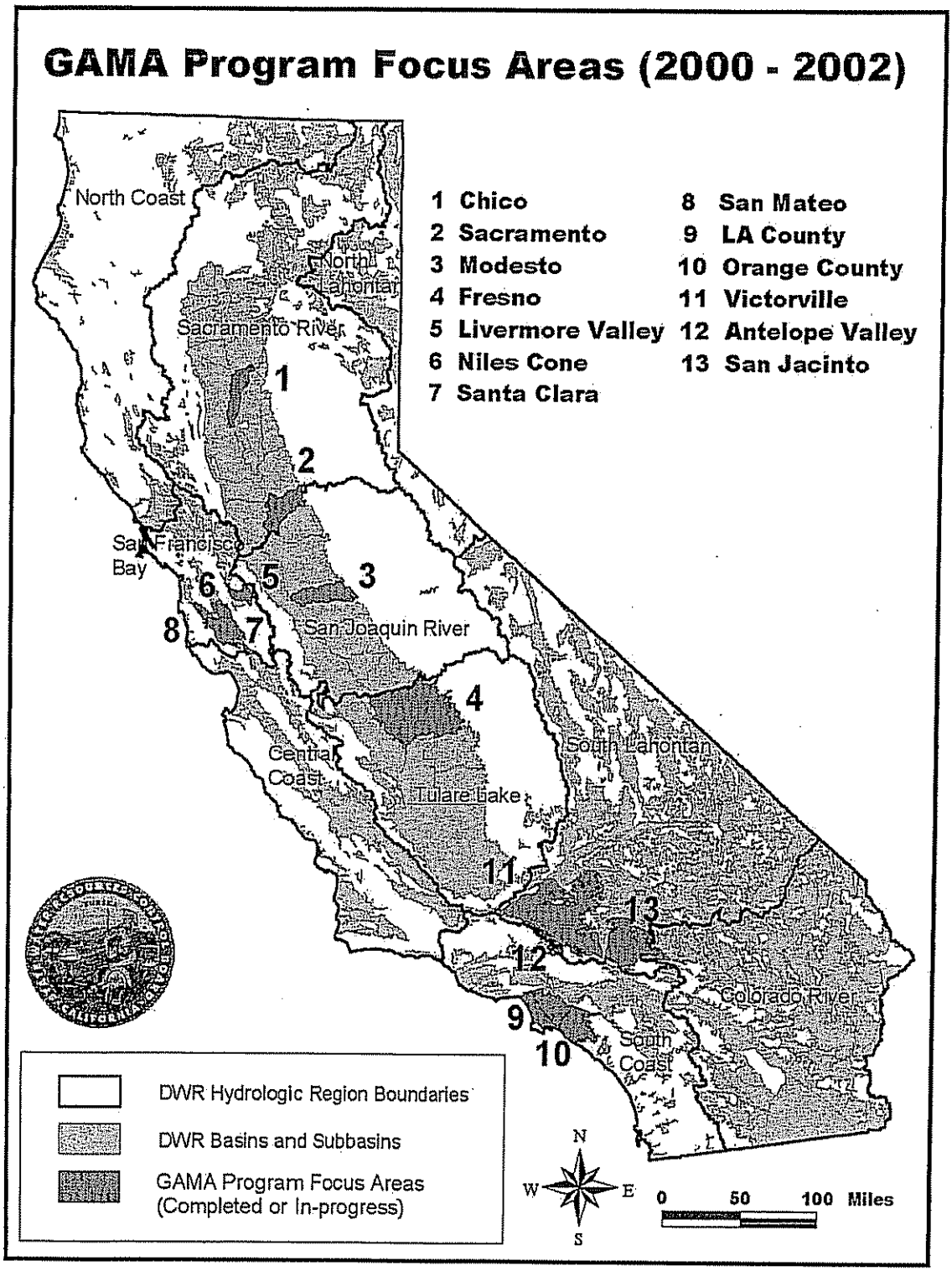


Figure 6 – SWRCB GAMA (CAS) Focus Areas

The Bulletin 118 report prepared by DWR evaluates the quantity of the groundwater resource statewide. *California's Ground Water – Bulletin 118* was originally published in 1975 and represented the first comprehensive attempt to summarize available resource information on California's groundwater basins. The Bulletin contains a summary of technical information for the majority of identified groundwater basins including maps showing their location and surface extent.

In the Budget Act of 1999, the California Legislature mandated that DWR prepare a statewide update of the Bulletin 118 inventory of groundwater basins. The information specified by the Legislature can complement the AB 599 water quality assessments including:

- review and summary of boundaries and hydrographic features
- well yield data
- well production characteristics
- water level monitoring
- development of a water budget for each groundwater basin
- recharge capability

The information on groundwater basins which will be presented in the forthcoming Bulletin 118 Update 2003 is mostly limited to the acquisition and compilation of existing data previously developed by federal, state, and local water agencies.

While the data provided by Bulletin 118 Update 2003 will serve as a useful starting point for understanding the "quantity" part of a basin assessment, there is still a significant amount of work needed for statewide basin assessments. For example, because of a lack of data DWR was unable to compile a groundwater budget for each basin or subbasin. Instead, DWR reported on the level of water budget information available by creating three categories: 1) basins with enough information to estimate most basin inflows and outflows; 2) basins where only groundwater extraction could be estimated based on overlying land-use information; and 3) basins where almost no budget-related information was available. Preliminary estimates indicate that only about 20% of the state's basins and subbasins have a high level of budget information, about 20% have an estimate of groundwater extraction, and about 60% have little or no budget information. The adequacy of the resource-related data from Bulletin 118 will need to be evaluated for each basin when the basin undergoes its water quality assessment.

In summary, water budget information is an essential component to understanding, protecting and optimizing use of groundwater resources. Completion of water budgets should parallel completion of AB 599 groundwater quality assessments.

Data Gaps and Additional Data Needs for a Comprehensive Groundwater Quality Assessment

The Comprehensive Groundwater Quality Monitoring Program focuses on areas of groundwater use. Areas do exist in California where groundwater occurs but is not significantly used.

The approach described in this report aims to provide the most comprehensive groundwater quality assessment in a cost-effective manner. It is not feasible, nor possible, to detect every constituent everywhere. Thus, the Comprehensive Groundwater Quality Monitoring Program is limited by the constituents it samples for at specific detection limits. Additional constituents of concern are likely to occur and go undetected. Similarly, constituents may occur at concentrations below which they can be detected. It is important to recognize these as potential data gaps.

Furthermore, any groundwater quality assessment will be limited if no ancillary (additional) data are available. At a minimum, well characteristics are necessary for a basic groundwater assessment, including well depth, screened interval, and other related data. Some of these data have been added to the DHS database, as part of the DWSAP program. To raise the level of assessment, hydrogeologic and hydrologic information is necessary (i.e., depth to groundwater level measurements, aquifer characteristics, sources of recharge, and water use). Much of this information is available on well driller's logs and recent efforts by DWR to scan well logs are a helpful first step, which should be followed by a systematic digital representation of the scanned logs (database). This will be take a significant amount of time and should be prioritized to support the sequence of basin/subbasin assessments.

It may be possible to enlist the aid of geology graduate students from the University of California and California State University to digitize water well log information as part of the preparation of the hydrogeologic assessments. Digitized data could then be input into Geotracker. Funding higher education in this manner would benefit both the student and the citizens of the state.

In addition, information on the location of potential contaminant sources is essential. State regulatory programs currently collect data on the location of contaminant (point) sources, and these data should be digitally available. Spatial distribution of nonpoint sources has been difficult to quantify in the past. The exception to this is the outstanding database on pesticide application created by DPR that has proved to be of enormous value to investigators in a variety of environmental fields. The location of other nonpoint source contaminants is usually inferred from land use, and the current digital coverage of past land use created by DWR is invaluable in this regard. Because past land use practices may have had a lasting impact on groundwater quality it is recommended that DWR digitize historical land use information for use in future water quality assessments. Appendix E provides a more detailed technical explanation by the USGS on the Comprehensive Groundwater Quality Monitoring plan described in this chapter.

CHAPTER 5:
FINDINGS AND RECOMMENDATIONS

As discussed in Chapter 1, AB 599 identifies specific tasks to be accomplished in preparation of a comprehensive groundwater monitoring program. As directed by AB 599, the SWRCB convened an Interagency Task Force and a Public Advisory Committee to address these tasks in greater detail. Based on the data and analyses presented in earlier chapters, in order to better understand – and thereby enable ourselves to better manage and protect – California's vital groundwater resources, the ITF and PAC make specific findings and recommendations discussed in detail at the end of this chapter. These specific findings and recommendations are captured in the following five integrated elements:

- **Accelerate the groundwater ambient monitoring and assessment (GAMA) program established by the SWRCB**. This program relies on enhancing the water quality information collected in existing public supply wells through age-dating and testing at a subset of those wells for very low levels of organic chemicals. The GAMA program methodology should be the basis for developing consistent hydrogeologic assessments for each basin/subbasin in accordance with the prioritization set forth in Chapter 4.

- **Conduct the monitoring and assessment program in accordance with the prioritization of basins/subbasins** set forth in Chapter 4 of this report. The prioritization is based on water use. Water use criterion places those basins most heavily used for drinking water in first priority.

- **Increase coordination among groundwater agencies**. To the extent that multiple agencies continue to monitor groundwater quality, efforts should be made to coordinate their roles and share data.

- **Maintain groundwater quality information for conducting monitoring and assessments in the SWRCB's Geotracker database** as described in Chapter 3. This Internet accessible database already stores all water quality information submitted to the Department of Health services by public water purveyors as well as groundwater contaminant information for over 40,000 cleanup sites.

- **Provide the public with useful access to groundwater monitoring and assessment information**, while maintaining appropriate security measures. Recommendations for public access are described in Chapter 5.

The specific findings and recommendations put forward by the PAC and ITF that support these elements are discussed in detail below.

I. Integrate existing programs and design new elements to establish a program capable of assessing each groundwater basin through direct and other statistically reliable sampling approaches.

Findings:

1. There are several state agencies (DHS, DWR, DPR, SWRCB, and DTSC) that monitor or collect groundwater information as identified in Chapter 2.
2. Only SWRCB (GAMA Program) and DPR conduct ambient groundwater assessments.
3. The information from these programs is valuable and in many instances is comprehensive within their scope.
4. A comprehensive groundwater quality monitoring and assessment program includes three elements: data management, monitoring (sampling and analyses of water wells), and groundwater basin assessment.
5. The Comprehensive Groundwater Quality Monitoring Program (as described in Chapter 4) is capable of assessing each groundwater basin in the state through integrating information from existing programs and adding new elements where necessary.

Recommendations:

1. Expand existing groundwater programs, by implementing the Comprehensive Groundwater Monitoring Program, described in Chapter 4.
2. Fund collection of data from existing wells in the shallow groundwater zone (DPR, DTSC, SWRCB, and RWQCBs).
3. Fund and offer training to local agencies for interpretation and assessment of their local groundwater information.

II. Determine the constituents to be included in the recommended program

Findings:

1. DHS requires public supply wells to be sampled for a wide range of constituents in order to protect public health.
2. SWRCB's GAMA program has determined that age-dating and low-level VOC analyses provide good indicators for well vulnerability as well as a better understanding of hydrogeologic conditions.
3. Constituents of interest will vary based upon the water quality concerns of each groundwater basin.

Recommendation:
Rely primarily on the water quality constituents that are currently required and those that are proposed for analysis by DHS. Consistent with the GAMA Program, develop a monitoring regime for a subset of wells, to include age-dating, lower detection levels for VOCs and a broader range of constituents based on the water quality concerns of a given groundwater basin.

III. Incorporate existing data and assess if additional monitoring is necessary

Findings:

1. The DHS database contains detailed water quality information for over 11,000 of the 16,000 public supply wells. Additional groundwater quality information is available from local agencies and other state agencies. Most of this information is in printed-paper format.
2. As part of SWRCB's Geotracker, electronic data are now available from tens of thousands of groundwater monitoring wells, linked to sites with contamination.
3. Public supply wells that have poor water quality, including exceeding MCLs, are usually taken out of service and placed on inactive status. In some cases, the wells are destroyed. This action results in a reduction of wells monitored for water quality and leads to an impression that the water quality in the basin is improving.
4. Additional monitoring wells may need to be installed; consistent with criteria identified in Chapter 4 and elsewhere in this report, as necessary to supplement monitoring in some areas of the state.

Recommendations:

1. Compliment existing groundwater data with a broader range of constituents. Monitoring for a larger suite of analytes at lower detection limits and using innovative analyses,such as age-dating, will aid in the detection of emerging contaminants of concern.
2. Evaluate and incorporate historical groundwater data in an electronic format, as resources become available to perform this task. These data will compliment the existing groundwater data already captured in Geotracker
3. Provide incentives or funding to water purveyors to maintain inactive wells for monitoring purposes.

IV. Prioritize groundwater basins that supply drinking water.

Findings:

1. Of the more than 16,000 public supply wells, approximately 75% are located in 472 groundwater basins (and subbasins). The remaining wells are located outside groundwater basins, typically in mountainous areas.
2. The 472 groundwater basins, as well as areas outside of these basins, can be prioritized using a variety of factors including: groundwater use, population served, number of wells per basin, and number of potentially contaminating activities (number of leaking USTs, and number of sections having pesticide application).
3. Regardless of the factor chosen, the resulting prioritization of basins, , tended to remain the same (see discussion in Chapter 4).

Recommendations:

1. Conduct groundwater basin monitoring and assessments consistent with prioritization of basins described in Chapter 4.
2. Complete monitoring and assessments for priority basins (Categories 1-4, 116 basins), every 10 years, as described in Chapter 4. In the first three years, complete assessments for at least two groundwater areas outside prioritized basins (Category 5). For basins that have been assessed, implement three-year trend monitoring at 10% of selected wells and conduct five-year assessment reviews of basins analyzed to date.
3. Monitor and assess Category 6 (low-use basins) and remaining areas outside basins (Category 5), as funding becomes available. Individual Category 6 basins could move up in priority depending on future use and vulnerability.

V. Identify measures to increase coordination among state and federal agencies and as necessary restructure existing groundwater monitoring programs.

Findings:

1. All state agencies with groundwater monitoring programs participate in the current Interagency Task Force. Each of the existing groundwater monitoring programs address specific legislative mandates. As part of a Comprehensive Groundwater Quality Monitoring Program, it is important to increase coordination effort among the various groundwater agencies. Groundwater monitoring information and data results primarily from compliance and assessment monitoring.. For example, water purveyors supply water quality data to DHS while parties responsible for the clean up of contamination sites provide monitoring well data to regulatory agencies (DTSC, RWQCB).

2. Statewide groundwater quality data are described in two reports: SWRCB's 305(b) report and DWR's Bulletin 118. Section 305(b) of the Clean Water Act does not require that states conduct or report on groundwater quality assessments. However, SWRCB's most recent 305(b) report describes groundwater quality for each basin showing drinking water standard exceedences in public supply wells. DWR's Bulletin 118 was published in 1975 and is being updated in 2002. Like the 305b report, the update includes a compilation of groundwater quality data by basin.

Recommendations:

1. The SWRCB, in consultation with the PAC and ITF, should implement the Comprehensive Groundwater Quality Monitoring Program (as described in this report). In coordination with Cal/EPA, the SWRCB should hold periodic program implementation reviews.
2. Permanently establish the Interagency Task Force of state agencies with groundwater responsibilities to ensure ongoing integration of existing programs.
3. Permanently establish the Public Advisory Committee to provide policy level recommendations to the SWRCB. The legislature should consider that the PAC meets at least quarterly or as deemed necessary.
4. Replace and incorporate the elements of SWRCB's 305(b) and DWR's Bulletin 118 reports into a single document (California Groundwater Report). The report would be prepared biennially and jointly by DWR (groundwater use) and SWRCB (groundwater quality). The report would include both statewide and basin-specific descriptions and assessments.
5. The DWR should complete water budgets in conjunction with the AB 599 water quality assessments of groundwater basins.
6. As monitoring and assessments are completed and subsequent to notifying the well owners, the information should be posted on the Internet.
7. The Comprehensive Groundwater Quality Monitoring Program should provide for the use of common groundwater terminology in California.
8. The monitoring program activities should be implemented in close coordination with local agencies.

VI. Design a database compatible with Geotracker to support the program

Findings:

1. Millions of dollars are spent annually by public and private organizations to collect and maintain groundwater data.
2. Government agencies and organizations that collect, maintain and provide groundwater data, independently adopt their own data collection standards and database structures. Uniform data collection, data management, and data transfer standards would bridge the gap between user and provider. Uniform

standards would greatly reduce the time required to transform and reformat, would reduce the possibility of misinterpretation of data by the use of conventions or standards, and maximize the utility of all these data in the future.

3. Efficient maintenance of a comprehensive groundwater quality database requires electronic submittal of data.
4. SWRCB's groundwater quality database (Geotracker) is capable, with appropriate modifications, of supporting the Comprehensive Groundwater Quality Monitoring Program.
5. SWRCB regulations require responsible parties of leaking underground storage tank cleanup sites to submit groundwater monitoring well data in a specific electronic data format.
6. State agencies provide grant funds to local agencies for groundwater management activities. Groundwater monitoring is often a component of these activities.
7. Groundwater basin assessments require a hydrogeologic understanding of the basin. Hydrogeologic understanding is based on interpretation lithologic logs of wells in the basin. DWR is currently making electronic scan of these logs. However, the information from the logs needs to be entered into a database and interpreted.
8. Many groundwater supply agencies lack the available resources to analyze and fully integrate their own monitoring programs.
9. Some local agency well data are not part of the DHS database. Local agencies should consider voluntarily providing groundwater monitoring data to the statewide database.
10. Data management and compatibility are the foundation to the program. This will lead to better assessments, increased knowledge, and better coordination with agencies.
11. The DHS water quality database (WQM/WQI) receives most of its data from water suppliers. All water suppliers are required to submit water analyses data electronically.
12. There are inefficiencies from the lack of coordination among agencies.

Recommendations:

1. Expand the SWRCB's Geotracker as the database for housing, managing, and assessing groundwater information for the Comprehensive Groundwater Quality Monitoring Program.
2. Require that groundwater data associated with state funding be submitted to the appropriate state agency.
3. Require that all groundwater data supplied to state agencies be submitted electronically in a consistent format.
4. Provide database query tools in Geotracker to groundwater supply agencies. Additionally, a data analysis "tool kit," which shall be public domain, should be written in commercially available software.
5. Modify Geotracker to be the Program's comprehensive database.

6. Populate Geotracker with data from multiple agencies and programs within one year of the inception of the Program. Update the database at least annually thereafter.
7. Input well construction and digitized lithologic information from the scanned well logs into a database compatible with Geotracker.
8. ITF should conduct a review of SWRCB's adopted data format for groundwater monitoring at sites with contamination for application to groundwater monitoring for basin assessment.
9. Develop a standard data format for electronic submittal of groundwater monitoring data May 1, 2004. And begin a stakeholder process to find the best format to develop the implementation of the electronic format.
10. Develop and adopt data collection and transfer methods and formats. The methods should include tabular groundwater and geologic data, and spatial mapping. Spatial mapping includes groundwater level contours, aquifer yield, and contaminant plume maps usually stored in a GIS or computer aided drafting systems (CAD).
11. The state should provide incentives or make funding available to the local agencies to cover costs associated with groundwater data submittal.

VII. Identify the means to make monitoring information available to the public.

Findings:

1. All water supply agencies are required to annually prepare Consumer Confidence Reports that summarize water quality information on supplied water. All water supply agencies that serve 100,000 or more persons are required to post their Consumer Confidence Report on the Internet. In addition, several smaller agencies have voluntarily posted their report on the Internet. A link to the water supply agencies is provided on the DHS website.
2. While access to public supply well location and well log information is confidential, all water quality data are available to the public.
3. All water supply agencies are required to have a source water assessment done on each of their sources by May 2003. These assessments are required to be available to the public through the water system or the DHS (for smaller water suppliers). A brief description of the assessment for the water supply agency will be provided in the Consumer Confidence Report and will provide information on the major potential contaminating activities located in close proximity to the sources.

Recommendations:

1. Continue to make groundwater quality information from public supply wells available on the Internet through Geotracker.
2. Make water quality assessments of groundwater basins easily accessible to the public.

3. Create a groundwater quality information webpage with links to statewide documents such as the 305(b) report, Bulletin 118, and other published documents. When available, provide a weblink to the California Groundwater Report.
4. Guide users to appropriate weblinks depending on public or domestic supply and use existing links to the water purveyor's consumer confidence reports.
5. Refer groundwater quality questions from the public back to the appropriate water purveyor or state or local agency.
6. Present groundwater data and information to the public in the proper context and in layperson language.

VIII. Estimate funding necessary to implement the program and recommend an ongoing source of funds

Findings:

1. The State Budget appropriated funding for state programs. Funding sources for water quality programs typically include fees levied on permittees, federal grants, storage fees (UST Cleanup Fund), reimbursements from responsible parties for regulatory cleanup oversight, bonds approved by the voters, and general funds from tax revenues.
2. Ambient groundwater monitoring and assessment activities have been supported by state General Funds.
3. A Comprehensive Groundwater Quality Monitoring Program requires a stable funding source.
4. Propositions 40 and 50 of 2002 provide funding for groundwater monitoring.
5. Acquisition of new monitoring wells is necessary only for Category Level 5 and 6 low-use groundwater basins as described in Chapter 4. The specific need for new monitoring wells in these basins is dependent on a detailed evaluation of the adequacy of existing wells.
6. The Comprehensive Groundwater Quality Monitoring Program is described in Chapter 4. The total cost estimate for the program for all groundwater basins in the state is an additional $92.4 million (year 2003 value) over the first ten year period. (see IX Recommendations Table below).

Recommendations:

1. **Use funds from Proposition 50 to support the Comprehensive Groundwater Quality Monitoring Program for the first 10 years. The minimum effort for the Comprehensive Groundwater Quality Monitoring Program should be the $53.3 M program (PAC recommended), as described in Chapter 4.**
2. By Year 3, the PAC should recommend ongoing funding sources for program operation.

IX. Develop a ranked list of actions to increase the effectiveness of monitoring.

Findings:

1. The current level of groundwater monitoring is not adequate to comprehensively assess the quality of groundwater basins of California.
2. The Comprehensive Groundwater Quality Monitoring Program must be implemented over a number of years. A list of actions prioritizes activities necessary to implement the program described in Chapter 4.
3. The SWRCB endorses the recommended Comprehensive Groundwater Quality Monitoring Program (Chapter 4) and implementation plan.
4. The PAC and the ITF should annually review the Comprehensive Groundwater Quality Monitoring Program status and recommend appropriate revisions, if necessary, to the SWRCB.

Recommendations: (See next page)

IX. Recommendations:

The SWRCB recommends the following monitoring program:

STATUS	ACTIONS	LEAD AGENCIES	COSTS
Proposed New	**Conduct Groundwater Basin Monitoring and Assessments Consistent with Prioritization of Basins (Categories 1 – 4)** (IV, Rec #1 & #2)		
	Data Collection and Management	SWRCB	$4M
	Monitoring		$29.1M ($240K/basin)
	Groundwater Basin Assessment		$18.3M ($150K/basin)
	Ongoing Monitoring & Trend Assessment		Monitoring $1.2M ($120K/yr) Midterm Assessment $700K
	Ten Year Costs		$53.3M
	Monitor & Assess Category 6 (low-groundwater-use basins) and remaining areas outside basins (Category 5). (IV, Rec #3)		
	Data Collection and Management	SWRCB	--
	Monitoring		$31.9M ($135K/basin)
	Groundwater Basin Assessment		$1.4M ($150K/basin-province)
	Ongoing Monitoring & Trend Assessment		Monitoring $5M ($500K/yr) Assessment $800K/Midterm
	Ten Year Costs		$42.6M
	TOTAL Ten Year Costs		**$92.4M**
STATUS	**ACTIONS**	**LEAD AGENCIES**	**COSTS**
Current	**Continue to maintain and fund the existing groundwater assessment programs.** (I, Rec #1)	DPR, DWR, SWRCB	See Tables in Appendix

STATUS	ACTIONS	LEAD AGENCIES	COSTS
Proposed New	**Improve Groundwater Information Management**		
	• Provide to water supply agencies database query tools in Geotracker. Additionally, a database analyses tool kit, which shall be public domain, should be written in commercially available software. Provide training (or FAQs) for laboratories and water suppliers. (VI, Rec #9)	SWRCB	Existing Program
	• Continue to populate Geotracker data from multiple agencies and programs. (VI, Rec #4)	SWRCB	Existing Program
	• Require that groundwater data associated with state funding be submitted to the appropriate state agency. (VI, Rec #1)	DWR, SWRCB	--
	• Require that all groundwater data supplied to state agencies be submitted electronically. (VI, Rec #2)	DWR, SWRCB DTSC, DHS	--
	• ITF should conduct a review of SWRCB's adopted data format for groundwater monitoring at sites with contamination for application to groundwater monitoring for basin assessment. ITF should recommend a standard data format for electronic submittal of groundwater monitoring data for basin assessment. (VI, Rec #6,7)	DWR, DTSC, DHS	Costs to laboratories and water suppliers
	• Put into electronic format well log data (lithology and construction) for public supply wells. Populate Geotracker with these data in addition to monitoring well data from DTSC and RWQCB cleanup sites and local water agency data, where available. (VI, Rec #5)	SWRCB, DWR (UC/CSU)	$4M

STATUS	ACTIONS	LEAD AGENCIES	COSTS
Proposed New	**Make Groundwater Information Available to Public**		
	• Create a California Groundwater Quality information webpage with link to 305(b) report, and Bulletin 118, and other published documents. (VII, Rec #1)	SWRCB	Existing Program Staff
	• Guide user to appropriate weblinks depending on public or private domestic supply. (VII, Rec #2)	SWRCB	
	• Provide weblink to California Groundwater Report. (IX, Rec #4)	SWRCB	
	Increase Coordination among State and Federal Agencies		
	• Continue the Interagency Task Force to ensure ongoing integration of existing programs in accordance with the AB 599. (V, Rec #3)	ITF Agencies	Existing Programs
	• Continue the Public Advisory Committee to provide input to the Interagency Task Force. (V, Rec #4)	PAC Member Agencies	$10K
	• Replace and incorporate the elements of SWRCB's 305(b) and DWR's Bulletin 118 reports into a single document (California Groundwater Report). The report would be prepared jointly by DWR (groundwater use) and SWRCB (groundwater quality). The report would include both statewide and basin-specific descriptions and assessments. (V, Rec #5)	DWR SWRCB	SWRCB: Existing Staff DWR: $1.2M/yr for 10 yrs*

STATUS	ACTIONS	LEAD AGENCIES	COSTS
Proposed New	**Pursue Ongoing Funding Mechanism (VIII, Rec #1,2)** • Use funds from Proposition 50 to support the Program for the first 10 years. • Within the first three years of the recommended Program, the PAC will recommend ongoing funding sources for program operation beyond the tenth (10^{th}) year.	SWRCB	--

LIST OF ABBREVIATIONS

AB	Assembly Bill
Cal/EPA	California Environmental Protection Agency
CAS	California Aquifer Susceptibility Assessment
DHS	Department of Health Services
DPR	Department of Pesticide Regulation
DWR	Department of Water Resources
DWSAP	Drinking Water Source Assessment and Protection (i.e.: DHS SWAP)
FY	Fiscal year
GAMA	Groundwater Ambient Monitoring and Assessment Program
GIS	Geographic information system
ITF	Interagency Task Force
ITFM	Intergovernmental Task Force on Monitoring
LLNL	Lawrence Livermore National Laboratory
LUFT	Leaking Underground Fuel Tanks
MCL	Maximum Contaminant Level
MTBE	Methyl tertiary-butyl ether
NAWQA	National Water Quality Assessment Program
NPDES	National Pollutant Discharge Elimination System
OEHHA	Office of Environmental Health Hazard Assessment
PAC	Public Advisory Committee
PY	Personnel year
QA/QC	Quality Assurance/Quality Control
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WDR	Waste discharge requirements

GLOSSARY

ABANDONED WELL: A groundwater well that is no longer used. (See destroyed well)

ACRE-FEET: A common unit of measure in hydrology that defines the amount of water required covering one acre one foot deep. Abbreviated as ac-ft.

ACTION LEVEL (AL): health-based advisory level established by DHS for chemicals in drinking water that lack a maximum contaminant level (MCL). Chemicals for which ALs are established may eventually be regulated by MCLs, depending on the extent of contamination, the levels observed, and the risk to human health.

AMBIENT MONITORING: Any activity in which information about the status of the physical, chemical, and biological characteristics of the environment is collected to answer specific questions about the status and trends in the characteristics.

ASSESSMENT REPORT: A comprehensive record of historical, existing and projected water quality conditions of a watershed.

AQUIFER: A saturated permeable geologic unit that yields usable quantities of water to wells or springs.

BENEFICIAL USE OF WATER: Regulatory definitions of the resources, services, and qualities of specific water bodies that are the ultimate goals of protecting and achieving high water quality. These include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

CAS: SWRCB's GAMA Program "California Aquifer Susceptibility" assessment.

CDFA: State of California Department of Food and Agriculture.

CHLORINATED HYDROCARBONS: A group of chemicals containing chlorine. These include primarily types of insecticides and industrial solvents.

COMPLIANCE MONITORING: Monitoring to determine if a specific discharger is meeting the requirements established in Waste Discharge Requirements WDRs, NPDES permits, or water quality certifications.

CONCENTRATION: Amount of material dissolved in a solution; a common unit is mg/L (milligrams of dissolved material in a liter of solution).

CONFINED GROUNDWATER: A body of groundwater (aquifer) covered (overlain) by a confining layer of low permeability geologic material.

CONTAMINATION: An impairment of the quality of the waters of the state by waste which creates a hazard to the public health.

DESTROYED WELL: An abandoned well that has been destroyed in accordance with California State Well Standards in order to protect groundwater bodies.

DLR – DETECTION LIMIT FOR REPORTING PURPOSES: for contaminants with MCLs are listed in 22 CCR §64432 and §64445.1. DLRs define the analytical detection of a contaminant in drinking water supplies, identifying the level at which DHS is confident about the quantification of the chemical's presence.

DHS: State of California Department of Health Services

DPR: State of California Department of Pesticide Regulation

DRINKING WATER: Water used for human consumption

DTSC: State of California Department of Toxic Substances Control

DWR: State of California Department of Water Resources

DWSAP: DHS's Drinking Water Source Assessment and Protection Program

GROUNDWATER HYDROLOGY: The branch of hydrology that deals with groundwater; its occurrence and movements, its replenishment and depletion, the properties of geologic materials that control groundwater movement and storage, and the methods of investigation and utilization of groundwater.

GROUNDWATER BASIN: An aquifer or aquifer system in which groundwater is stored. The water may be placed in the aquifer by artificial or natural means.

GROUNDWATER: The supply of fresh water found beneath the Earth's surface (usually in aquifers) which is often used for supplying wells and springs. Groundwater is a major source (30 to 40%) of California's water supply.

HYDROGEOLOGY: See Groundwater Hydrology

HYDROLOGIC CYCLE: The process by which water travels in a sequence from the air (condensation) to the earth (precipitation) and returns to the atmosphere (evaporation).

INDICATOR: The tools used to assess and measure water quality. Indicators must be measurable with available technology, scientifically valid, and useful for providing information for management decision making. Environmental indicators include tools for assessment of chemical, physical, and biological conditions and processes.

ITF: Interagency Task Force created by AB 599 legislation. Members include representatives from SWRCB, DWR, DHS, DPR, CDFA, and DTSC.

INFILTRATION: The gradual downward flow of water from the surface into soil material.

LANDFILL: A disposal facility where waste is placed in or on land.

LEAKING UNDERGROUND FUEL STORAGE TANK: Those underground storage tanks that have been identified as a leaking (LUFT).

LRL: Laboratory Reporting Level

MCL: Maximum Contaminant Levels: enforceable regulatory standards under the Safe Drinking Water Act and must be met by all public drinking water systems to which they apply

MRL: Method Reporting Limit

Mg/L: Milligrams per liter.

MONITORING: Periodic or continuous collection of environmental information to assess the status or changes in the environment over time. It can be short or long term in duration and is typically driven by statutory, policy or other regulatory requirements.

PAC – "Public" Advisory Committee created by AB 599 legislation. Members include one representative from a local water agency and two representatives from each of the following: federal agencies; public water systems; groundwater management entities; environmental organizations; business community, and agriculture.

PARTS PER BILLION (PPB): The number of parts by weight of a substance per billion parts of water – Often referred as micrograms per Liter (μg/L).

PARTS PER MILLION (PPM): The number of parts by weight of a substance per million parts of water – Often referred as Milligrams per Liter (mg/L).

PARTS PER TRILLION (PPT): The number of parts by weight of a substance per trillion parts of water – Often referred as nanograms per Liter (ng/L).

PERMEABILITY: The ability of a water bearing material to transmit water. It is measured by the quantity of water passing through a unit cross section, in a unit time, under 100% hydraulic gradient.

pH: A way of expressing both acidity and alkalinity on a scale of 0 to 14, with 7 representing neutrality; numbers less than 7 indicate increasing acidity and numbers greater than 7 indicate increasing alkalinity.

PHG: Public Health Goal set by California State Office of Environmental Health Hazard Assessment (OEHHA).

POINT SOURCE POLLUTION: This type of water pollution results from the discharges into receiving waters from easily identifiable point(s).

POLLUTION: An alteration of the quality of the waters of the State by waste to a degree which unreasonably affects either the waters for beneficial uses.

RECHARGE, ARTIFICIAL: The infusion of surface water into wells; seepage of water into soil or gravelly areas for storage.

RECHARGE: The addition of water into a groundwater system.

SATURATED ZONE: The subsurface zone below the water table where pores within the geologic unit are filled with water and fluid pressure is greater than atmospheric (groundwater).

SURFACE WATER: Lakes (fresh and saline), reservoirs, bays, harbors, rivers, streams, estuaries, and wetlands (fresh and tidal).

SWAP: See DWSAP

SWRCB: California State Water Resources Control Board

UCRM - UNREGULATED CHEMICALS REQUIRING MONITORING: "unregulated" in that they lack drinking water maximum contaminant level (MCLs). These chemicals are included in a regulation —Title 22 of the California Code of Regulations §64450.

USEPA: United States Environmental Protection Agency

UNCONFINED AQUIFER: are the saturated portions of the upper soil profile located above a confining layer. Their upper surface is in direct contact with the atmosphere through porous materials. This upper surface is known as the water table.

UNDERGROUND FUEL STORAGE TANK (UST): Any one or combination of underground tanks and any connecting underground pipes used to contain an accumulation of regulated substances, the volume of which, including the volume of the connecting underground pipes, is 10% or more beneath the surface of the ground.

µg/L: Micrograms per liter (parts per billion)

VOLATILE ORGANIC COMPOUNDS (VOCs): VOCs include light alcohols, acetone, trichloroethylene, tetrachloroethylene, dichloroethylene, benzene, vinyl chloride, toluene, and

methylene chloride. These chemicals are used as solvents, degreasers, paints, thinners, and fuels. They readily evaporate into the air and have low water solubility.

VADOSE ZONE: The subsurface zone above the water table and the capillary fringe in which pores within the geologic matrix are partially filled with air and partially filled with water, and fluid pressure is less than atmospheric (unsaturated zone).

WATER FLOW: The rate of flow of water measured in volume and time.

WATER LEVEL: The water surface elevation of a particular water body.

WATER TABLE AQUIFER: See UNCONFINED AQUIFER

WATER TABLE: The upper surface of a zone of saturation; the upper surface of the groundwater.

WATER QUALITY: A term used to describe the chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

WATER SUPPLY: Any quantity of available water.

WATER WELL (Driller's) REPORT: A report which a water well contractor or landowner who is constructing his own well submits to the Department Water Resources. It includes the location and dimensions of the well, its flow, a record of geologic materials encountered in drilling, and other data.

WATER: The liquid that descends from the clouds as rain; forms streams, lakes, and seas, and is a major constituent of all living matter; odorless, tasteless, colorless, slightly compressible liquid.

WATERSHED: Lands that drain to a common place. As physical systems, watersheds consist of hill slopes, valleys, and drainage networks.

WELL DRILLERS: Individuals who have the equipment and ability to drill or dig wells.

WELL LOGS: A record that is kept during well drilling of the various formations and rock materials and the depths at which they are encountered.

WELL SCREEN INTERVAL: A series of small openings (perforations) in water well casing which allow water to flow from the water bearing formation into the well.

YIELD: The quantity of water expressed either as a continuous rate of flow (cubic feet per second, etc.) or as a volume per unit of time. It can be collected for a given use, or uses, from surface or groundwater sources on a watershed.

References

1) State Water Resources Control Board, Plan for Implementing a Comprehensive Program for Monitoring Ambient Surface and Groundwater Quality, (Supplemental Report of the 1999 Budget Act), January 2000.

2) State of California Department of Water Resources, Bulletin 160-98: California Water Plan California Department of Water Resources http://www.waterplan.water.ca.gov/b160/previous/b160updates.htm.

3) State of California Department of Health Services Division of Drinking Water and Environmental Management http://www.dhs.ca.gov/ps/ddwem/chemicals/mcl/mclindex.htm.

4) Basic Ground-Water Hydrology, Ralph Heath, U.S. Geological Survey Water Supply Paper 2220, 1987.

5) Desert Basins of the Southwest, U.S. Geological Survey Fact Sheet 086-00, August 2000.

6) Study Manual for the California Geology Registration Exam, Osiecki and Dirth, 1993.

7) The Texas Environmental Center (TEC) http://www.tec.org/tec/terms2.html.

8) Groundwater Remediation Technologies Analysis Center (GWRTAC) http://www.gwrtac.org/html/glossary.html.

9) Intergovernmental Task Force On Monitoring Water Quality (ITFM), USGS, August 1997, http://water.usgs.gov/wicp/itfm.html.

APPENDIX A

AB 599 Bill Text

BILL NUMBER: AB 599 CHAPTERED
BILL TEXT

CHAPTER 522
FILED WITH SECRETARY OF STATE OCTOBER 5, 2001
APPROVED BY GOVERNOR OCTOBER 4, 2001
PASSED THE SENATE SEPTEMBER 12, 2001
PASSED THE ASSEMBLY SEPTEMBER 12, 2001
AMENDED IN SENATE SEPTEMBER 6, 2001
AMENDED IN SENATE AUGUST 28, 2001
AMENDED IN SENATE AUGUST 20, 2001
AMENDED IN SENATE JULY 19, 2001
AMENDED IN SENATE JULY 5, 2001
AMENDED IN ASSEMBLY MAY 31, 2001
AMENDED IN ASSEMBLY APRIL 26, 2001

INTRODUCED BY Assembly Member Liu
(Coauthors: Assembly Members Calderon, Chavez, Robert Pacheco, and Strom-Martin)
(Coauthors: Senators Kuehl and Romero)

FEBRUARY 22, 2001

An act to add Part 2.76 (commencing with Section 10780) to Division 6 of the Water Code, relating to water.

LEGISLATIVE COUNSEL'S DIGEST

AB 599, Liu. Groundwater contamination: quality monitoring program.

Existing law declares that groundwater is a valuable natural resource in the state and should be managed to ensure its safe production and its quality. Existing law authorizes specified local agencies to adopt and implement groundwater management plans.

This bill would require the State Water Resources Control Board to integrate existing monitoring programs and design new program elements, as necessary, for the purpose of establishing a comprehensive monitoring program capable of assessing each groundwater basin in the state through direct and other statistically reliable sampling approaches, and to create an interagency task force to identify actions necessary to establish the monitoring program and to identify measures that would increase coordination among state and federal agencies that collect groundwater

contamination information. The bill would require the state board to convene a described advisory committee to the task force. The bill would require the state board, in consultation with other specified agencies, to submit to the Governor and the Legislature, on or before March 1, 2003, a report that includes a description of a comprehensive groundwater quality monitoring program for the state.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares the following:

(a) The importance of maintaining and monitoring a safe groundwater supply in this state for purposes of maintaining a healthy environment and a safe supply of drinking water cannot be minimized.

(b) The lack of information about groundwater contamination greatly impairs the ability of regulators and the public to protect and restore the state's groundwater basins.

(c) The Groundwater Quality Monitoring Act of 2001 enacted by this act is necessary to protect and restore groundwater as a valuable natural resource in California.

SEC. 2. Part 2.76 (commencing with Section 10780) is added to Division 6 of the Water Code, to read:

PART 2.76. GROUNDWATER QUALITY MONITORING

10780. This part shall be known and may be cited as the Groundwater Quality Monitoring Act of 2001.

10781. In order to improve comprehensive groundwater monitoring and increase the availability to the public of information about groundwater contamination, the state board, in consultation with other responsible agencies, as specified in this section, shall do all of the following:

(a) Integrate existing monitoring programs and design new program elements as necessary to establish a comprehensive monitoring program capable of assessing each groundwater basin in the state through direct and other statistically reliable sampling approaches. The interagency task force established pursuant to subdivision (b) shall determine the constituents to be included in the monitoring program. In designing the comprehensive monitoring program, the state board, among other things, shall integrate projects established in response

to the Supplemental Report of the 1999 Budget Act, strive to take advantage of and incorporate existing data whenever possible, and prioritize groundwater basins that supply drinking water.

(b) (1) Create an interagency task force for all of the following purposes:

(A) Identifying actions necessary to establish the monitoring program.

(B) Identifying measures to increase coordination among state and federal agencies that collect information regarding groundwater contamination in the state.

(C) Designing a database capable of supporting the monitoring program that is compatible with the state board's geotracker database.

(D) Assessing the scope and nature of necessary monitoring enhancements.

(E) Identifying the cost of any recommended measures.

(F) Identifying the means by which to make monitoring information available to the public.

(2) The interagency task force shall consist of a representative of each of the following entities:

(A) The state board.

(B) The department.

(C) The State Department of Health Services.

(D) The Department of Pesticide Regulation.

(E) The Department of Toxic Substances Control.

(F) The Department of Food and Agriculture.

(c) Convene an advisory committee to the interagency task force, with a membership that includes all of the following:

(1) Two representatives of appropriate federal agencies, if those agencies wish to participate.

(2) Two representatives of public water systems, one of which shall be a representative of a retail water supplier.

(3) Two representatives of environmental organizations.

(4) Two representatives of the business community.

(5) One representative of a local agency that is currently implementing a plan pursuant to Part 2.75 (commencing with Section 10750).

(6) Two representatives of agriculture.

(7) Two representatives from groundwater management entities.

(d) (1) The members of the advisory committee may receive a per diem allowance for each day's attendance at a meeting of the advisory committee.

(2) The members of the advisory committee may be reimbursed for actual and necessary travel expenses incurred in connection with their official duties.

10782. On or before March 1, 2003, the state board, in consultation with the other task force agencies specified in Section 10781, shall report to the Governor and the Legislature. The multiagency report shall include all of the following:

(a) A detailed description of a comprehensive groundwater quality monitoring program for California that accomplishes the goals and objectives of the act adding this part.

(b) A description of how the program takes maximum advantage of existing information and an assessment of additional monitoring necessary to support the program.

(c) A specific set of recommendations for coordinating and, as necessary, restructuring existing monitoring programs to efficiently achieve the goals of this part.

(d) An estimate of funding necessary to implement the comprehensive program and the factual basis for the estimate.

(e) Recommendations with regard to an ongoing source of funds to pay for the program.

(f) A ranked list of actions that, if implemented independently, would increase the effectiveness of monitoring efforts.

10782.3. The state board shall use existing resources to carry out this part, and the operation of the program set forth in this part shall not supplant the operation of any other program required to be undertaken by the state board.

APPENDIX B

Why the SWRCB was chosen as the lead agency for AB 599

The following text from the "History of the State Water Resources Control Board" (summarized on the SWRCB webpage at: http://www.swrcb.ca.gov/about/history.html provides some background on why the SWRCB is responsible for regulating water quality for the state.

In 1949, the Legislature found that existing laws were cumbersome and often unreasonable. To address this, the Legislature drafted the Dickey Water Pollution Act creating the State Water Pollution Control Board and the nine regional water pollution control boards.

The State Water Rights Board, created in 1956 as part of the same legislation that created the Department of Water Resources (DWR), recognized that the DWR would both hold water rights and operate water project facilities. The Legislature created an independent board to administer the water right functions of state government thus avoiding a potential conflict of interest by the DWR. When the State Water Project was planned and developed, the DWR recognized that water quality was important. The Water Pollution Control Board was subsequently strengthened by being charged with the broader scope of water quality and consequently was renamed the State Water Quality Control Board.

In 1965, the Little Hoover Commission examined the numerous boards and commissions within the Resources Agency. To streamline government and reduce costs, the Commission recommended that the water quality program be turned over to the DWR. During the next two years, legislative and executive branch staff discussed these recommendations and alternatives. Recognizing that there would be serious conflicts of interest if the DWR were mandated to protect water quality (as chief regulator) and develop its purvey simultaneously, it was instead proposed that the Water Quality Control and Water Rights Boards be merged. Because of these efforts, the two water boards were merged as one and as a result the SWRCB was created in 1967.

Porter-Cologne: California's cornerstone of water protection law

The Assembly then asked a panel of industrial, agricultural, and state and local government members to report on needed revisions to existing water quality laws. In 1969, the State Legislature enacted the Porter-Cologne Water Quality Control Act, the cornerstone of today's water protection efforts in California (California Water Code Division 7, Sections 13000 – 14598).

Porter-Cologne, named for Assemblyman Carly V. Porter and Senator Gordon Cologne, was recognized as one of the nation's strongest pieces of anti-pollution legislation. Through it, the SWRCB and the nine RWQCBs were entrusted with broad duties and powers to preserve and enhance all beneficial uses of the state's complex waterscape. This state law was so influential that the U.S. Congress used sections of Porter-Cologne as the basis of the Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act).

Currently, the SWRCB allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine

RWQCBs located in the major watersheds of the state. The RWQCBs serve as the frontline for state and federal water pollution control efforts. A Basin Plan, or "Water Quality Control Plan", tailored to its unique watershed and providing scientific and regulatory basis for each RWQCB's water protection efforts guides each Board.

In summary, there is a historical and practical reason the agencies are set up as they are today. They have been created, in the case of the SWRCB, because of years of revisions and upgrades to address the needs of the public with respect to water issues.

APPENDIX C

TABLES

Table 1: Existing Groundwater Data Summary

	DTSC	SWRCB	DWR	DPR	DHS	USGS
Chemical analyses						
Field parameters: pH, electrical conductivity, dissolved oxygen, alkalinity	✓ Statewide (site-specific)	✓ Statewide (site-specific)	✓ Statewide (Northern/Central Districts) Bull. 118	✓ Statewide to Local	✓ Statewide (Title 22 – Safe Drinking Water Act – CSDWA)	✓ Statewide to Local (NAWQA)
Major ions and total dissolved solids	✓ Statewide (site-specific)	✓ Statewide (site-specific)	✓ Statewide (Northern/Central Districts) Bull. 118	✓ Statewide to Local	✓ Statewide-CSDWA	✓ Statewide to Local (NAWQA)
Volatile organic compounds	✓ Statewide (site-specific)	✓ Statewide (focus areas) Low-level (GAMA)		✓ Statewide to Local	✓ Statewide-CSDWA	✓ Statewide to Local (NAWQA)
Pesticides	✓ Statewide (site-specific)	✓ Statewide (site-specific)		✓ Statewide to Local	✓ Statewide-CSDWA	✓ Statewide to Local (NAWQA)
Trace elements	✓ Statewide (site-specific)	✓ Statewide (site-specific)	Statewide (Northern/Central Districts) Bull. 118		✓ Statewide - CDDWA	✓ Statewide to Local (NAWQA)
Stable isotopes (tracers of water sources)		✓ Statewide (focus areas) (GAMA)				✓ Statewide to Local (NAWQA)
Tritium and helium (tracers and age-dating)		✓ Statewide (focus areas) (GAMA)				✓ Statewide to Local (NAWQA)
Newly Identified Constituents: pathogens, pharmaceuticals, hormones, personal care products, waste-water indicators					✓ Statewide (Title 22) for some new constituents	

	DTSC	SWRCB	DWR	DPR	DHS	USGS
Key interpretative results						
New exceedences of drinking water standards are identified		✓ GAMA		✓	✓ CSDWA	✓ NAWQA
New occurrences of compounds of concern are identified		✓ GAMA		✓	✓ CSDWA	✓ NAWQA
Flow system is defined at the basin-scale to enable interpretation of data		✓ GAMA				✓ NAWQA
Hydrogeologic Data						
		✓ Hydrogeologic Vulnerability Areas	✓ Bulletin 118 (Hardcopy)	✓ California Vulnerability (CALVUL)		✓ NAWQA
Databases						
		✓ Geotracker (electronic/ Oracle/ spatial data available)	✓ (Bulletin 118 – Water Quality Network)	✓ Well Inventory Database ✓ Pesticide Use Report Database ✓ Pesticide Chemistry Database	✓ PICME, WQMI (Public Supply Well Databases)	✓ NAWQA

TABLE 2: Groundwater Monitoring/Assessment Data

Types of Groundwater Data Collected	Spatial Coverage (Statewide/Regional/ Local)	Type of Sampling (Survey – one time effort, Monitoring – ongoing data collection but limited analysis, or Assessment – ongoing data collection and detailed analysis)	Data Format (Hard copy or Electronic; Application - Oracle, Access, Dbase, Excel, etc.)	Spatial Data (GIS) Availability
Dept. of Health Services (DHS)				
Public Water Well Locations and Water Quality	Statewide	Monitoring, Assessment	Electronic (Access); Hardcopy	Yes
Source Water Assessment Program Data	Statewide	Survey, Assessment	Electronic (Access)	Yes
Well Data	Statewide	Monitoring	Electronic (Access); Hardcopy	Yes
Water System Water Quality Monitoring Plan	Statewide	Monitoring, Assessment	Hardcopy	No
Groundwater Recharge with Recycled Water Monitoring Programs	Local	Survey, Monitoring	Hardcopy	No
Dept. of Pesticide Regulation (DPR)				
Well Inventory Database – Mandated by law that other state agencies report their pesticide well monitoring results to DPR. Other federal and local agencies are contacted for submission of data	Statewide	Collects survey and monitoring data	Electronic - Oracle	Yes. All databases are indexed according to the USGS Public Land Survey Coordinate System - Township/ Range/Section (TRS)

Types of Groundwater Data Collected	Spatial Coverage (Statewide/Regional/ Local)	Type of Sampling (Survey – one time effort, Monitoring – ongoing data collection but limited analysis, or Assessment – ongoing data collection and detailed analysis)	Data Format (Hard copy or Electronic; Application - Oracle, Access, Dbase, Excel, etc.)	Spatial Data (GIS) Availability
Well Sampling Investigations - Well sampling conducted to comply with Pesticide Contamination Prevention Act. Study objectives are to: 1. Identify pesticide active ingredients in groundwater; 2. Identify vulnerable areas; 3. Determine relationship of detections with agronomic and geographic variables; 4. Determine trends in concentration to measure effective of regulations	Local to Statewide	Surveys and monitoring	Electronic - Oracle (captured in the Well Inventory Database)	Yes. Indexed to TRS
Pesticide Use Report Database – Beginning in 1990, all agricultural uses of pesticides are reported to DPR by Township, Range, and Section via the County Agricultural Commissioner	Statewide	Assessment (used to identify potential sampling sites)	Electronic - Oracle	Yes. Indexed to TRS
California Vulnerability Model (CALVUL) – Identify soil, climatic, depth to groundwater and other geographic properties of vulnerable areas	Statewide	Assessment (used to identify potential sampling sites)	Electronic - Oracle or Access	Yes. Indexed to TRS
Pesticide Chemistry Database – Registrants of pesticide active ingredients are required to submit data on the physical and chemical properties of pesticides including water solubility, soil adsorption coefficient (KOC), hydrolysis half-life, aerobic and anaerobic soil metabolism and dissipation of pesticides	Not Applicable	Assessment (used to identify potential sampling sites)	Electronic - Oracle or Access	Not Applicable
Dept. of Toxic Substances Control (DTSC)				
Hazardous Waste Management Program - Facility Permitting Division	Statewide (mostly urbanized areas)	Survey, Monitoring	Hard copy only	No. Spatial well information is not available
Site Mitigation Program - Statewide Cleanup Operations Division	Statewide (mostly urbanized areas)	Survey, Monitoring	Hard copy only	No. Spatial well information is not available

Types of Groundwater Data Collected	Spatial Coverage (Statewide/Regional/ Local)	Type of Sampling (Survey – one time effort, Monitoring – ongoing data collection but limited analysis, or Assessment – ongoing data collection and detailed analysis)	Data Format (Hard copy or Electronic; Application - Oracle, Access, Dbase, Excel, etc.)	Spatial Data (GIS) Availability
Site Mitigation Program - Emergency Response and Statewide Operations Division	Statewide (mostly urbanized areas)	Survey, Monitoring	Hard copy only except for Stringfellow site (data are currently in Access and will be moved to Equis in the near future)	Yes. for Stringfellow site. Otherwise, spatial well information is not available
Site Mitigation Program - Office of Military Facilities	Statewide (military bases)	Survey, Monitoring	Hard copy only	No. Spatial well information is not available
Dept. of Water Resources (DWR)				
Bulletin 118 groundwater basin and subbasin boundaries and associated numbers based on basin and subbasin data (some data in GIS)	Statewide	NA	ArcView	limited
Groundwater levels, available in hydrograph and tabular format on DWR's web page	Statewide	Monitoring	Hardcopy, electronic, Oracle, Access	limited
Groundwater quality analyses, available in tabular format on DWR's web page	Regional, Local	Monitoring, Assessment	Oracle, Access	limited
Inelastic and elastic subsidence	Regional, Local	Monitoring	Access	none
AB 303 Data (WC §10750)—The statute requires that any data collected as a result of the grant must be submitted to DWR.	Local	Survey, Monitoring, Assessment	Hardcopy, Electronic: (various applications)	Yes, varies with project
Well Completion Reports, commonly called Well Logs (DWR 188)	Statewide	NA	Electronic: Access	Yes, limited
Watermaster data for Central and West Coast Basins (Southern District)	Local, Regional	Monitoring	Electronic: Excel	No
Prop 13 Groundwater Storage and conjunctive management project specific data	Local, Regional	Survey, Monitoring, Assessment	Hardcopy, Electronic: (various applications)	Yes, varies with project

Types of Groundwater Data Collected	Spatial Coverage (Statewide/Regional/ Local)	Type of Sampling (Survey – one time effort; Monitoring – ongoing data collection but limited analysis; or Assessment – ongoing data collection and detailed analysis)	Data Format (Hard copy or Electronic; Application - Oracle, Access, Dbase, Excel, etc.)	Spatial Data (GIS) Availability
State and Regional Water Boards (SWRCB/RWQCBs)				
Groundwater Ambient Monitoring and Assessment (GAMA) Program, California Aquifer Susceptibility (CAS) Assessment - Low-level VOCs, groundwater age data	Statewide	Survey, Assessment	Oracle	Yes
GAMA Program, Voluntary Domestic Well Assessment Project - Private domestic drinking water well location and water quality data	Local	Assessment	Access	Yes
Location, release, water quality, and water level data for Leaking UST sites (Geotracker)	Leaking UST sites located statewide	Monitoring	Hard copy and Electronic: Oracle	Yes
Location, water quality, and water level data for Land Disposal Program sites	Land Disposal sites located statewide	Monitoring	Location (hard copy, limited electronic: Excel); Water quality (hard copy, limited electronic: Excel); Water level data (hard copy, limited electronic Excel)	Yes (Land Disposal site locations)
Location, water quality, and water level data for Dept. of Defense (DOD), Leaking Landfills, and Spills Leaks, Investigations, and Cleanup (SLIC) sites	DOD, landfills, and SLIC sites located statewide.	Monitoring	Electronic UST data in Geotracker. In general, site location (hard copy, limited electronic: Excel); Water quality (hard copy, limited electronic: Excel); Water level data (hard copy, limited electronic: Excel)	In progress
Hydrogeologic Vulnerability Areas (GIS) delineated based on published hydrogeologic data and information	Statewide	NA	Electronic: GIS	Yes

Types of Groundwater Data Collected	Spatial Coverage (Statewide/Regional/ Local)	Type of Sampling (Survey – one time effort, Monitoring – ongoing data collection but limited analysis, or Assessment – ongoing data collection and detailed analysis)	Data Format (Hard copy or Electronic; Application - Oracle, Access, Dbase, Excel, etc.)	Spatial Data (GIS) Availability
RWQCBs specific efforts: San Francisco Bay Regional Water Quality Control Board – Electronic Solvent Plume Reporting Project. Others – To be determined	Regional	Survey, Monitoring, Assessment	(San Francisco Bay Regional Water Quality Control Board, Electronic Solvent Plume Reporting Project - Excel)	Yes (San Francisco Bay Regional Water Quality Control Board, Electronic Solvent Plume Reporting Project)

TABLE 3: State Agencies Conducting Groundwater Quality Monitoring and Assessment Programs

Agency	Number of PYs Budgeted to Groundwater Monitoring/Assessment	Budget allocated to Groundwater Monitoring/Assessment ($/Year)
Dept. of Pesticide Regulation (DPR)	8.5 PYs	$925,000/Year
Dept. of Water Resources (DWR)	3 PYs	$300,000/Year
State Water Board (SWRCB)	5.5 PYs	$650,000/Year
Department of Health Services (DHS)	5 PYs	$500,000/Year

TABLE 4: Existing Groundwater Programs

Agency	Groundwater Programs	Groundwater Monitoring/ Assessment Objectives	Number of PYs Budgeted to Groundwater Monitoring/Assessment	Budget allocated to Groundwater Monitoring/Assessment ($/Year)
Department of Health Services (DHS)	California Safe Drinking Water Act	1. Ascertain quality of all PWS sources for compliance with MCLs; 2. Complete source water assessments of all sources by May 2003; 3. A source water assessment is required for all new sources before receiving a DHS permit.	DWSAP – 10 (through 5/03); LAB – 2; FOB – Estimated to be 15; MEU – 3.0;	Personnel*: $3,000,000
		TOTAL (DHS)	**28* PYs**	**$3,000,000/year; 2,000,000/year after May 2003**
Department of Pesticide Regulation (DPR)	Groundwater Contaminate Identification	1. Determine potential for movement of pesticide residues to groundwater based on their physical/chemical properties. 2. Conduct well sampling to identify new pesticide active ingredients in groundwater. 3. Provide monitoring data to determine trends in pesticide concentrations in contaminated basins.	1 SERS, 2 AERS	Personnel*: $300,000 Method Development Costs: 1 chemicals at $15,000 each = $15,000 Sample Analysis: 200 wells at $300 = $60,000 Subtotal: $375,000
	Vulnerable Area Identification	1. Determine the spatial extent of contamination for residues already detected in groundwater. 2. Use monitoring, soil, depth to groundwater, climate and other geographic or agronomic factors to identify areas vulnerable to pesticide contamination of groundwater.	0.5 SERS, 1 AERS	Personnel*: $150,000
	Mitigation Measure Development and Implementation	1. Identify and test mitigation measures to prevent movement of residues to groundwater. 2. Implement mitigation measures to prevent continued movement of pesticides to groundwater.	1.0 ERS	Personnel*: $100,000
	Well Inventory Database	Input well monitoring data into a statewide database and prepare an annual report to the legislature on the detection of pesticides in groundwater.	1.0 ERS	Personnel*: $100,000
	Review of Registrant data	Determine potential for contamination	0.5 SERS, 0.5 ERS	Personnel*: $100,000

Agency	Groundwater Programs	Groundwater Monitoring/ Assessment Objectives	Number of PYs Budgeted to Groundwater Monitoring/Assessment	Budget allocated to Groundwater Monitoring/Assessment ($/Year)
	Backflow and Chemigation Education and Training Program	Prevent the backflow of residues into groundwater when they are applied through injection into irrigation water.	1 ERS	Personnel*: $100,000
		TOTAL (DPR)	8.5 PYs	$925,000/Year
Department of Toxic Substances Control (DTSC)	Hazardous Waste Management Program - Facility Permitting Division	Evaluation of groundwater contamination at RCRA storage, treatment, and disposal facilities	9	Personnel: $900,000*
	Site Mitigation Program - Statewide Cleanup Operations Division	Evaluation of groundwater contamination at superfund, brownfield, and voluntary cleanup sites	8	Personnel: $800,000*
	Site Mitigation Program - Emergency Response and Statewide Operations Division	Evaluation of groundwater contamination at superfund, brownfield, and voluntary cleanup sites (technical support)	2	Personnel: $200,000* Stringfellow groundwater monitoring: $125,000 per year (100 wells sampled twice a year)
	Site Mitigation Program - Office of Military Facilities	Evaluation of groundwater contamination at military sites	5	Personnel: $500,000*
		TOTAL (DTSC)	24* PYs	$2,525,000/Year

Agency	Groundwater Programs	Groundwater Monitoring/ Assessment Objectives	Number of PYs Budgeted to Groundwater Monitoring/Assessment	Budget allocated to Groundwater Monitoring/Assessment ($/Year)
Department of Water Resources (DWR)	Bulletin 118	Update of groundwater basin boundaries and basin characteristic	10 PYs /3 years	$ 1 mil/year; Funds end after FY 01-02
	Water Quality & Quantity (Water & Environmental Monitoring)	Long-term water quality and Well level data	15 PYs	$2.3 mil
	Local and Regional Studies	Miscellaneous groundwater studies addressing local groundwater issues	Not Available	Cooperative funding within Rural Counties Assistance and Water Management Programs
	Groundwater Quantity for Updating the State Water Plan	State's water supply and demand budget	Not Available	Funded within the Water Plan Update
	State Water Project Conjunctive use program (OSWPP)	Basin monitoring associated with SWP conjunctive use projects	Not Available	Not Available
	Integrated Storage Investigations Conjunctive Use Program (DPLA), and Grants and Loans	Data collection, monitoring, & evaluation, feasibility studies for GW recharge and storage	10 PYs and consultants	Personnel: $1,000,000* Contracts to external agencies (limited funding for groundwater monitoring and assessment): Loans and Grants: (local agencies) Water Bond $18.5 mil; AB303 $5 mil; ISI Partnerships $4 mil in 2001; Water Bond $100 mil, AB303 $4 mil, Partnerships $4 mil in 2002
	Water Data Management Systems	Water Data Library: on-line access to hydrologic data	1 PY current; 2 additional PYs planned	Personnel: $300,000* Funding uncertain; limited
	Subsidence Monitoring	Monitoring along CA Aqueduct; special studies as needed	Not Available	SWP funded for Aqueduct; no direct funding for special studies
		TOTAL (DWR)	38* PYs	$4,600,000/Year

Agency	Groundwater Programs	Groundwater Monitoring/ Assessment Objectives	Number of PYs Budgeted to Groundwater Monitoring/Assessment	Budget allocated to Groundwater Monitoring/Assessment ($/Year)
State and Regional Water Boards (SWRCB/ RWQCBs)	Groundwater Ambient Monitoring and Assessment (GAMA) Program	The primary objective of the GAMA Program is to assess statewide groundwater quality and aquifer susceptibility.	5.5 PYs	Personnel*: $550,000 Contracts: $100,000
	Underground Storage Tank (UST) Program	The primary objective of the UST Program is to preserve and enhance the quality of California's water resources by regulating USTs and providing cleanup oversight.	12 PYs	Personnel*: $1,200,000
	Land Disposal Program	The Land Disposal Program imposes statewide requirements for siting, operation, and closure of waste disposal sites through issuance of waste discharge requirements and compliance and enforcement efforts to ensure adequate protection of water quality.	20 PYs	Personnel*: $2,000,000
	Spills, Leaks, Investigations, and Cleanup (SLIC) Program (reimbursed cleanup program)	Oversees the investigation and remediation of sites associated with unauthorized releases that may impact water quality.	4 PYs	Personnel*: $400,000
	Department of Defense Program (DOD)	The SWRCB and RWQCBs partner with the US Dept. of Defense (DOD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities. The over 200 military facilities require environmental cleanups that range from a few UST cleanups to complex Superfund cleanups.	5 PYs	Personnel*: $500,000
	Regional Board specific efforts	A few Regional Water Boards have special projects to address groundwater monitoring outside the core regulatory programs described above. Region 2 – Groundwater Basin Evaluations, Electronic Reporting of Solvent Plume Maps	Reg. 2 = .2 PYs	Reg. 2 Personnel*: $20,000

Agency	Groundwater Programs	Groundwater Monitoring/ Assessment Objectives	Number of PYs Budgeted to Groundwater Monitoring/Assessment	Budget allocated to Groundwater Monitoring/Assessment ($/Year)
Dept. of Food and Agriculture (CDFA)	Not Applicable	The Food and Agriculture Code (Section 33515) provides that the water supply for the milk house and dairy barn to have a bacterial quality that conforms to the requirements of the State Board of Health for public supplies of drinking water. These requirements are that the water supply be free of total coliform (<1.1 MPN), fecal coliform, or E. coli. The Department of Food and Agriculture (CDFA) enforces these provisions through the dairy sanitation inspection program. Water samples are collected from the dairy water distribution system and analyzed for most probable number (MPN) coliform count. Water supply for most dairies is groundwater. The monitoring is also conducted to satisfy Federal Food and Drug Administration regulations, which require that dairy water supply be evaluated every three years. Nine counties, most of which have high concentrations of dairies are approved to conduct their own inspection program. These counties also conduct water monitoring and maintain their own records.	The Milk and Dairy Foods Branch of CDFA has 39 staff dedicated to inspecting dairies and milk processing plants. It is unknown how many are needed just for dairy inspections and just to conduct the water monitoring aspect of the inspection.	Funding for the dairy inspections and water monitoring is covered by an annual assessment to the dairy. The portion which is just for the monitoring is unknown.
		TOTAL (CDFA)	**0.2 PYs**	**$20,000**

* 1 PY estimated at $100,000.

APPENDIX D

GROUNDWATER BASIN PRIORITIZATION TABLES

GW ID	GW BASIN (Category 1)	Province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Basins with more than 260 wells									
8-2	UPPER SANTA ANA VALLEY	Transverse and Selected Peninsular Range	1,932	788	883,891	0	972	270	0.79
5-22.01	SAN JOAQUIN VALLEY	Central Valley	2,862	750	224,431	581.59	745	813	0.52
5-22.08	SAN JOAQUIN VALLEY	Central Valley	3,949	692	695,806	895.22	660	1419	1.00
5-22.14	SAN JOAQUIN VALLEY	Central Valley	7,872	552	369,175	3303.19	708	1878	0.84
3-4	SALINAS VALLEY	Southern Coast Ranges	4,025	511	129,158	0	297	777	1.00
4-11	COASTAL PLAIN OF LOS ANGELES	Transverse and Selected Peninsular Range	1,274	478	3,578,031	0	3223	112	0.66
5-22.02	SAN JOAQUIN VALLEY	Central Valley	998	353	135,552	154.02	222	257	0.61
2-9	SANTA CLARA VALLEY	Southern Coast Ranges	1,470	351	588,085	0	4663	113	0.33
5-22.11	SAN JOAQUIN VALLEY	Central Valley	1,803	327	213,101	514.23	257	679	0.98
5-21.64	SACRAMENTO VALLEY	Central Valley	1,377	326	25,482	313.04	524	289	0.11
7-21	COACHELLA VALLEY	Desert Mountains	1,964	324	46,097	0	306	231	0.55
6-44	ANTELOPE VALLEY	Desert Mountains	4,488	313	100,243	86.34	282	169	0.46
8-1	COASTAL PLAIN OF ORANGE COUNTY	Transverse and Selected Peninsular Range	899	269	839,857	29.51	2242	182	0.66
Grouped basins with more than 260 wells in group									
4-13	SAN GABRIEL VALLEY	Transverse and Selected Peninsular Range	513	365	474,266	2.7	795	59	0.72
4-23	RAYMOND	Transverse and Selected Peninsular Range	106	79	78,180	0	65	8	0.44
	group totals		619	444	552,446	2.7	860	67	
1-55	SANTA ROSA VALLEY	Northern Coast Ranges	409	200	227,480	0	535	107	1.00
1-59	WILSON GROVE FORMATION HIGHLANDS	Northern Coast Ranges	350	56	10,274	1.71	89	75	1.00
2-1	PETALUMA VALLEY	Northern Coast Ranges	186	25	49,957	0.26	129	28	1.00
	group totals		946	281	287,711	1.97	753	210	
6-42	UPPER MOJAVE RIVER VALLEY	Desert Mountains	1,671	193	91,090	10.54	118	30	0.57
6-40	LOWER MOJAVE RIVER VALLEY	Desert Mountains	1,155	55	850	7.69	111	49	1.00
6-41	MIDDLE MOJAVE RIVER VALLEY	Desert Mountains	855	16	3,988	12.84	21	13	1.00
	group totals		3,681	264	95,928	31.07	250	92	
4-4	SANTA CLARA RIVER VALLEY	Transverse and Selected Peninsular Range	775	216	64,006	0	702	200	0.27
4-6	PLEASANT VALLEY	Transverse and Selected Peninsular Range	87	14	25,986	7.65	85	29	0.40
4-8	LAS POSAS VALLEY	Transverse and Selected Peninsular Range	171	30	8,790	14.97	46	63	0.27
	group totals		1,034	260	98,782	22.62	833	292	

GW ID	GW BASIN (Category 1)	Province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Basins with less than 260 wells but in category 1 because of Province representation									
6-12	OWENS VALLEY	Basin and Range	2,675	115	6,052	66.15	85	63	1.00
5-25	KERN RIVER VALLEY	Sierras	321	110	0	1.98	14	12	0.00
6-5	TAHOE VALLEY	Sierras	93	80	32,240	0	87	1	0.73
9-5	TEMECULA VALLEY	San Diego	355	68	49,160	3.08	27	69	0.57
1-4	SHASTA VALLEY	Northern California Volcanics and Q Sed	793	43	1,363	0	42	79	0.12

GW ID	GW BASIN (Category 2)	Province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
basins with more than 100 wells									
5-22.03	SAN JOAQUIN VALLEY	Central Valley	1,405	251	109,398	199.77	173	458	1.0(
5-21.65	SACRAMENTO VALLEY	Central Valley	1,003	211	107,720	122.36	664	168	0.2(
5-22.15	SAN JOAQUIN VALLEY	Central Valley	1,396	209	35,408	232.07	223	413	0.21
3-3	GILROY-HOLLISTER VALLEY	Southern Coast Ranges	745	187	113,714	0	179	199	1.0(
5-22.13	SAN JOAQUIN VALLEY	Central Valley	1,898	184	57,698	404.95	123	657	1.0(
4-12	SAN FERNANDO VALLEY	Transverse and Selected Peninsular Range	586	180	123,352	0	704	28	0.3(
5-22.04	SAN JOAQUIN VALLEY	Central Valley	1,987	172	110,738	265.49	240	536	1.0(
3-12	SANTA MARIA	Southern Coast Ranges	745	142	14,643	190.76	105	197	0.17
5-21.67	SACRAMENTO VALLEY	Central Valley	914	140	99,823	87.27	224	320	0.77
5-21.66	SACRAMENTO VALLEY	Central Valley	1,720	125	34,245	156.8	166	584	0.3(
5-22.07	SAN JOAQUIN VALLEY	Central Valley	3,021	123	29,559	1264.65	188	931	1.0(
5-6	REDDING AREA	Central Valley	1,579	123	41,794	0	212	95	0.41
5-22.06	SAN JOAQUIN VALLEY	Central Valley	1,591	110	45,986	226.94	127	498	0.9(
5-21.52	SACRAMENTO VALLEY	Central Valley	3,717	108	25,717	1904.73	88	1216	1.0(
5-22.12	SAN JOAQUIN VALLEY	Central Valley	2,120	100	82,728	448.99	136	701	0.8(

GW ID	GW BASIN (Category 4)	Province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Basins with more than 24 wells (+ 1 other significant factor)									
5-21.62	SACRAMENTO VALLEY	Central Valley	532	63	135	66.11	60	193	0.00
5-21.57	SACRAMENTO VALLEY	Central Valley	504	61	0	46.86	51	114	0.00
1-21	FORT BRAGG TERRACE AREA	Northern Coast Ranges	98	31	0	27.14	69	13	0.00
5-55	SACRAMENTO VALLEY EASTSIDE	Northern California Volcanics and Q Sed	2,052	27	0	68.02	44	58	0.00
Grouped basins with more than 24 wells (+ 1 other significant factor) in group									
7-12	WARREN VALLEY	Desert Mountains	96	18	0	0.25	9	0	0.00
7-62	JOSHUA TREE	Desert Mountains	110	18	0	0.22	0	1	0.00
7-20	MORONGO VALLEY	Desert Mountains	29	6	0	0.34	1	0	0.00
	group totals		235	42	0	1	10	1	
3-13	CUYAMA VALLEY	Southern Coast Ranges	978	14	0	56.92	5	56	0.00
5-82	CUDDY CANYON VALLEY	Southern Coast Ranges	13	8	2,365	0.07	1	0	1.00
5-84	CUDDY VALLEY	Southern Coast Ranges	14	8	0	0.08	7	1	0.00
5-29	CASTAC LAKE VALLEY	Southern Coast Ranges	14	6	624	0.08	20	0	1.00
5-83	CUDDY RANCH AREA	Southern Coast Ranges	17	6	0	0.09	0	0	0.00
	group totals		1,037	42	2,989	57	33	57	
Basins with more than 24 wells (+ no other significant factors)									
1-60	LOWER RUSSIAN RIVER VALLEY	Northern Coast Ranges	27	31	0	0.41	20	5	0.00
1-54	ALEXANDER VALLEY	Northern Coast Ranges	126	29	7,750	0	53	38	1.00
7-24	BORREGO VALLEY	Desert Mountains	617	27	0	7.23	9	11	0.00
5-21.54	SACRAMENTO VALLEY	Central Valley	76	26	0	7.13	17	23	0.00
6-67	MARTIS VALLEY	Sierras	147	25	12,800	0	40	0	1.00
Grouped basins with more than 24 wells (+ no other significant factors) in group									
5-28	TEHACHAPI VALLEY WEST	Sierras	73	33	10,337	0.39	9	10	1.00
5-27	CUMMINGS VALLEY	Sierras	41	18	0	0.22	0	9	0.00
6-45	TEHACHAPI VALLEY EAST	Sierras	97	11	0	0.72	0	4	0.00
	group totals		210	62	10,337	1	9	23	
Basins with more than 12 wells (+ 2 or more other significant factors)									
5-22.05	SAN JOAQUIN VALLEY	Central Valley	644	22	6,800	86.85	28	234	1.00
5-22.09	SAN JOAQUIN VALLEY	Central Valley	2,590	18	8,000	556.03	30	935	0.58
Basins with more than 12 wells (+ 1 other significant factor)									

GW_ID	GWBASIN (Category 3)	province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Basins with more than 24 wells (+ 2 or more other significant factors)									
3-15	SANTA YNEZ RIVER VALLEY	Southern Coast Ranges	828	95	46938	147.39	280	146	1.00
5-22.16	SAN JOAQUIN VALLEY	Central Valley	1,135	69	8500	251.35	52	236	0.73
5-21.61	SACRAMENTO VALLEY	Central Valley	423	53	11513	79.71	141	115	1.00
5-21.59	SACRAMENTO VALLEY	Central Valley	1,074	44	8007	305.03	71	307	0.32
5-21.60	SACRAMENTO VALLEY	Central Valley	418	36	12320	49.65	69	124	1.00
5-21.50	SACRAMENTO VALLEY	Central Valley	1,079	35	14347	101.41	59	106	1.00
5-21.58	SACRAMENTO VALLEY	Central Valley	735	32	81515	110.52	46	237	1.00
2-10	LIVERMORE VALLEY	Southern Coast Ranges	282	31	43628	0.1	162	65	0.31

GW ID	GW BASIN (Category 2)	Province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Grouped basins with more than 100 wells in group									
3-2	PAJARO VALLEY	Southern Coast Ranges	357	146	49,310	92.75	148	119	0.87
3-21	SANTA CRUZ PURISIMA FORMATION	Southern Coast Ranges	163	23	0	26.62	6	29	0.00
3-1	SOQUEL VALLEY	Southern Coast Ranges	10	13	45,000	0	27	1	1.00
3-26	WEST SANTA CRUZ TERRACE	Southern Coast Ranges	32	10	1,988	1.4	109	4	0.02
	group totals		561	192	96,298	120.77	290	153	
2-23	NAPA-SONOMA VOLCANIC HIGHLANDS	Northern Coast Ranges	1,010	76	0	38.45	57	224	0.00
2-2	NAPA-SONOMA VALLEY	Northern Coast Ranges	530	52	9,860	0	441	140	0.10
2-3	SUISUN-FAIRFIELD VALLEY	Northern Coast Ranges	541	15	0	3.18	127	56	0.00
2-19	KENWOOD VALLEY	Northern Coast Ranges	21	9	0	0.13	6	7	0.00
	group totals		2,101	152	9,860	42	631	427	
1-10	EEL RIVER VALLEY	Northern Coast Ranges	298	30	14,075	6.08	88	30	0.93
1-1	SMITH RIVER PLAIN	Northern Coast Ranges	164	22	15,316	7.89	80	12	1.00
1-14	LOWER KLAMATH RIVER VALLEY	Northern Coast Ranges	28	20	0	8.94	9	3	0.00
1-9	EUREKA PLAIN	Northern Coast Ranges	151	13	28,234	0.02	188	13	1.00
1-27	BIG LAGOON AREA	Northern Coast Ranges	54	12	0	0	12	2	0.00
1-8	MAD RIVER VALLEY	Northern Coast Ranges	160	10	42,500	0	107	8	0.18
	group totals			107				107	
basins with less than 100 wells but in category 2 because of province representation									
6-54	INDIAN WELLS VALLEY	Basin and Range	1,545	81	36,319	3.92	59	7	1.00

GW ID	GWBASIN (Category 3)	province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Grouped basins in category 3 because of province representation									
3-9	SAN LUIS OBISPO VALLEY	Southern Coast Ranges	51	39	1018	29.47	46	17	0.02
3-8	LOS OSOS VALLEY	Southern Coast Ranges	28	18	0	0	1	9	0.00
	group		80	57	1,018	29	47	26	
9-7	SAN LUIS REY VALLEY	San Diego	120	17	0	18.84	18	38	0.00
9-4	SANTA MARGARITA VALLEY	San Diego	32	15	0	0.59	0	4	0.00
	group		152	32	0	19	18	42	

GW_ID	GWBASIN (Category 3)	province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Grouped basins with more than 24 wells (+ 2 or more other significant factors) In group									
8-5	SAN JACINTO	Transverse and Selected Peninsular Range	758	70	4200	156.82	138	192	0.14
8-4	ELSINORE	Transverse and Selected Peninsular Range	104	27	0	9.88	15	7	0.00
	group		862	97	4,200	167	153	199	
3-16	GOLETA	Transverse and Selected Peninsular Range	37	47	0	6.85	73	9	0.00
3-49	MONTECITO	Transverse and Selected Peninsular Range	25	19	2658	0	15	11	0.19
3-53	FOOTHILL	Transverse and Selected Peninsular Range	13	13	0	2.32	25	2	0.00
3-17	SANTA BARBARA	Transverse and Selected Peninsular Range	25	11	1901	0	120	5	0.02
3-18	CARPINTERIA	Transverse and Selected Peninsular Range	33	5	14600	0.08	17	14	1.00
	group		133	95	19,159	9	250	41	
7-38	PALO VERDE VALLEY	Desert Mountains	295	25	0	0	27	117	0.00
7-39	PALO VERDE MESA	Desert Mountains	910	14	0	4.37	134	94	0.00
	group			39	0	4.37	161	211	
Basins in category 3 because of province representation									
8-9	BEAR VALLEY	Transverse and Selected Peninsular Range	79	52	7000	2.01	31	1	1.00
6-4	HONEY LAKE VALLEY	Northern California Volcanics and Q Sed	1,261	38	2741	29.87	16	51	0.30
5-34	MOUNT SHASTA VOLCANIC AREA	Northern California Volcanics and Q Sed	85	31	3680	0.1	26	1	1.00
9-8	WARNER VALLEY	San Diego	97	29	0	7.61	4	0	0.00
5-67	CLEAR LAKE PLEISTOCENE VOL. AREA	Northern Coast Ranges	280	27	2000	74.87	8	16	0.69
1-52	UKIAH VALLEY	Northern Coast Ranges	152	22	12289	2.31	115	52	0.48
1-5	SCOTT RIVER VALLEY	Klamath	258	12	0	28.1	19	56	0.00
7-36	YUMA VALLEY	Desert Mountains	502	12	0	1.31	11	37	0.00
7-44	NEEDLES VALLEY	Desert Mountains	356	9	6000	0	26	9	1.00
9-17	SWEETWATER VALLEY	San Diego	24	9	0	0.49	152	2	0.00

4-3	VENTURA RIVER VALLEY	Transverse and Selected Peninsular Range	51	22	0	0	84	13	0.00
5-21.51	SACRAMENTO VALLEY	Central Valley	832	21	6,272	69.5	36	162	1.00
2-35	WESTSIDE	Southern Coast Ranges	103	19	14,820	0.15	473	4	0.17

Basins with priority lowered due to low density of wells

5-33	MODOC PLATEAU PLEISTOCENE VOL. AREA	Northern California Volcanics and Q Sed	5,010	27	3,040	351.79	9	94	1.00

GW_ID	GW BASIN (Category 5, Low-Use)	province	Area (km2)	No. of Public Wells	Municipal Pop'n	Ag pumping Wells (10Mgpd)	No. Of LUFTs	No. of Pesticide (sq. miles)	Proportion of Drink Water from GW
Basins with more than 11 wells, no other significant factors									
6-43	EL MIRAGE VALLEY	Desert Mountains	307	22	0	2	11	4	0.00
7-19	LUCERNE VALLEY	Desert Mountains	597	21	0	1.2	4	13	0.00
5-2	ALTURAS AREA	Northern California Volcanics and Q Sed	737	18	2,982	0	6	31	1.03
6-7	ANTELOPE VALLEY	Basin and Range	81	18	0	10.06	2	6	0.00
6-47	HARPER VALLEY	Desert Mountains	1,657	16	0	26.04	7	13	0.00
4-5	ACTON VALLEY	Desert Mountains	33	15	0	2.11	1	1	0.00
5-12	SIERRA VALLEY	Sierras	515	14	0	0	2	11	0.00
6-46	FREMONT VALLEY	Desert Mountains	957	14	0	7.08	3	1	0.00
5-10	AMERICAN VALLEY	Sierras	28	13	6,228	0.75	17	3	1.00
6-20	MIDDLE AMARGOSA VALLEY	Basin and Range	1,577	13	0	0.01	2	1	0.00
7-5	CHUCKWALLA VALLEY	Desert Mountains	2,434	13	0	5.23	2	2	0.00
3-27	SCOTTS VALLEY	Southern Coast Ranges	3	12	0	0.24	13	0	0.00
Basins with 1 to 11 wells and 1 or more other significant factors									
1-2	KLAMATH RIVER VALLEY	Northern California Volcanics and Q Sed	653	10	1,500	0	8	154	1.00
1-3	BUTTE VALLEY	Northern California Volcanics and Q Sed	323	10	886	5.47	2	59	1.00
5-21.63	SACRAMENTO VALLEY	Central Valley	417	6	0	83.42	13	160	0.00
1-24	MODOC PLATEAU PLEISTOCENE VOL. AREA	Northern California Volcanics and Q Sed	2,107	5	0	384.99	1	38	0.00
2-33	ISLAIS VALLEY	Southern Coast Ranges	24	4	45,616	0.01	162	0	0.44
4-10	CONEJO	Transverse and Selected Peninsular Range	76	4	0	6.64	69	4	0.00
4-9	SIMI VALLEY	Transverse and Selected Peninsular Range	49	4	2,612	4.31	93	7	0.03
1-23	MODOC PLATEAU RECENT VOLCANIC AREA	Northern California Volcanics and Q Sed	1,194	3	0	98.74	0	29	0.00
6-103	MODOC PLATEAU PLEISTOCENE VOL. AREA	Northern California Volcanics and Q Sed	1,505	3	0	199.33	6	7	0.00
7-30	IMPERIAL VALLEY	Desert Mountains	3,876	3	0	0	164	831	0.00
5-32	MODOC PLATEAU RECENT VOLCANIC AREA	Northern California Volcanics and Q Sed	1,376	2	0	147.46	1	7	0.00
5-22.10	SAN JOAQUIN VALLEY	Central Valley	589	1	15,400	248.48	38	151	0.55

Basins with 1 to 11 wells, no other significant factors, but with a nonzero entry for one or more other factors

1-19	ANDERSON VALLEY	Northern Coast Ranges	20	11	0	0.18	13	8	0.00
3-14	SAN ANTONIO CREEK VALLEY	Southern Coast Ranges	331	11	0	43.66	7	35	0.00
3-7	CARMEL VALLEY	Southern Coast Ranges	21	11	0	0	8	3	0.00
7-16	AMES VALLEY	Desert Mountains	439	11	0	0.88	0	0	0.00
2-22	HALF MOON BAY TERRACE	Southern Coast Ranges	37	10	0	0	40	9	0.00
5-14	SCOTTS VALLEY	Northern Coast Ranges	30	10	4,486	1.97	22	9	0.98
5-15	BIG VALLEY	Northern Coast Ranges	98	10	2,588	6.51	8	28	0.45
5-21.56	SACRAMENTO VALLEY	Central Valley	134	10	0	12.47	0	21	0.00
5-4	BIG VALLEY	Northern California Volcanics and Q Sed	373	9	442	9.46	5	30	1.00
7-13	DEADMAN VALLEY	Desert Mountains	479	9	0	0	0	0	0.00
7-41	CALZONA VALLEY	Desert Mountains	326	9	0	0	0	0	0.00
2-26	PESCADERO VALLEY	Southern Coast Ranges	12	8	0	0	6	4	0.00
3-6	LOCKWOOD VALLEY	Southern Coast Ranges	243	8	0	34.37	7	11	0.00
4-2	OJAI VALLEY	Transverse and Selected Peninsular Range	28	8	5,690	2.54	32	10	1.00
5-60	HUMBUG VALLEY	Sierras	40	8	2,200	1.3	12	0	1.00
									5
5-9	INDIAN VALLEY	Sierras	119	8	0	9.72	9	1	0.00
6-8	BRIDGEPORT VALLEY	Basin and Range	131	8	600	12.44	0	5	1.00
9-11	SANTA MARIA VALLEY	San Diego	50	8	0	1.04	25	4	0.00
9-15	SAN DIEGO RIVER VALLEY	San Diego	40	8	0	0.83	54	3	0.00
1-57	BODEGA BAY AREA	Northern Coast Ranges	11	7	0	0	0	0	0.00
3-42	CHORRO VALLEY	Southern Coast Ranges	6	7	0	0	0	2	0.00
6-11	LONG VALLEY	Basin and Range	291	7	0	11.97	30	0	0.00
7-29	COYOTE WELLS VALLEY	Desert Mountains	589	7	0	6.9	2	1	0.00
1-53	SANEL VALLEY	Northern Coast Ranges	23	6	0	0.34	11	10	0.00
2-27	SAND POINT AREA	Northern Coast Ranges	6	6	0	0	0	0	0.00
2-4	PITTSBURG PLAIN	Southern Coast Ranges	47	6	6,660	0.2	53	1	0.12
2-5	CLAYTON VALLEY	Southern Coast Ranges	72	6	0	0.31	37	3	0.00
4-7	ARROYO SANTA ROSA VALLEY	Transverse and Selected Peninsular Range	15	6	0	1.32	2	6	0.00
5-11	MOHAWK VALLEY	Sierras	77	6	0	2.48	0	1	0.00
5-85	MIL POTRERO AREA	Southern Coast Ranges	9	6	0	0.05	1	0	0.00
6-18	DEATH VALLEY	Basin and Range	3,725	6	0	0	0	0	0.00
6-25	BICYCLE VALLEY	Desert Mountains	362	6	0	2.19	0	0	0.00
6-30	IVANPAH VALLEY	Desert Mountains	801	6	0	5.08	3	0	0.00
6-36	LANGFORD VALLEY	Desert Mountains	121	6	0	0	0	0	0.00
9-1	SAN JUAN VALLEY	San Diego	68	6	3,250	0	49	8	0.10
1-11	COVELO ROUND VALLEY	Northern Coast Ranges	66	5	0	8.97	8	5	0.00
1-61	FORT ROSS TERRACE DEPOSITS	Northern Coast Ranges	34	5	0	0.28	23	0	0.00
5-63	STONYFORD TOWN AREA	Northern Coast Ranges	26	5	0	0	0	2	0.00
6-38	CAVES CANYON VALLEY	Desert Mountains	295	5	0	1.86	0	0	0.00

8-6	HEMET LAKE VALLEY	T not Desert Mountains	68	5	0	9.19	2	1	0.00
9-2	SAN MATEO VALLEY	San Diego	12	5	0	0.15	0	1	0.00
1-16	SEIAD VALLEY	Klamath	9	4	0	0	1	0	0.00
1-26	REDWOOD CREEK AREA	Northern Coast Ranges	8	4	650	2.04	0	0	1.00
1-7	HOOPA VALLEY	Klamath	16	4	0	0	0	1	0.00
3-25	TRES PINOS VALLEY	Southern Coast Ranges	14	4	0	2.67	0	5	0.00
3-41	MORRO VALLEY	Southern Coast Ranges	3	4	0	1.49	3	1	0.00
4-21	CONEJO-TIERRA REJADA VOLCANIC	Transverse and Selected Peninsular Range	232	4	0	33.66	11	16	0.00
5-21.55	SACRAMENTO VALLEY	Central Valley	112	4	0	10.25	5	13	0.00
6-2	MADELINE PLAINS	Northern California Volcanics and Q Sed	632	4	0	4.11	1	16	0.00
6-33	SODA LAKE VALLEY	Desert Mountains	1,538	4	0	9.69	8	0	0.00
7-11	COPPER MOUNTAIN VALLEY	Desert Mountains	123	4	0	0.25	0	0	0.00
9-3	SAN ONOFRE VALLEY	San Diego	5	4	0	0.06	0	0	0.00
1-31	WEOTT TOWN AREA	Northern Coast Ranges	15	3	0	2.13	0	1	0.00
2-7	SAN RAMON VALLEY	Southern Coast Ranges	29	3	0	0.12	35	1	0.00
3-28	SAN BENITO RIVER VALLEY	Southern Coast Ranges	98	3	0	15.6	0	10	0.00
5-18	COYOTE VALLEY	Northern Coast Ranges	26	3	0	1.35	2	4	0.00
5-21.68	SACRAMENTO VALLEY	Central Valley	101	3	0	20.7	0	31	0.00
5-30	LOWER LAKE VALLEY	Northern Coast Ranges	10	3	0	0.65	2	1	0.00
5-69	YOSEMITE VALLEY	Sierras	30	3	0	0	0	1	0.00
6-1	SURPRISE VALLEY	Northern California Volcanics and Q Sed	924	3	650	75.33	0	37	1.00
7-2	FENNER VALLEY	Desert Mountains	1,831	3	0	3.68	2	0	0.00
7-35	OGILBY VALLEY	Desert Mountains	539	3	0	14.18	0	1	0.00
7-40	QUIEN SABE POINT VALLEY	Desert Mountains	102	3	0	0	0	2	0.00
7-47	JACUMBA VALLEY	Desert Mountains	10	3	0	0.12	4	0	0.00
7-9	DALE VALLEY	Desert Mountains	860	3	0	1.73	0	1	0.00
9-10	SAN PASQUAL VALLEY	San Diego	18	3	0	0.38	0	4	0.00
1-28	MATTOLE RIVER VALLEY	Northern Coast Ranges	13	2	0	0	0	0	0.00
1-32	GARBERVILLE TOWN AREA	Northern Coast Ranges	9	2	0	0	7	0	0.00
1-35	HYAMPOM VALLEY	Klamath	5	2	0	0	0	0	0.00
1-49	ANAPOLIS OHLSON RANCH FM HIGHLANDS	Northern Coast Ranges	35	2	0	0	9	2	0.00
1-51	POTTER VALLEY	Northern Coast Ranges	33	2	0	0.51	9	10	0.00
3-19	CARRIZO PLAIN	Southern Coast Ranges	852	2	0	1.33	0	27	0.00
3-20	ANO NUEVO AREA	Southern Coast Ranges	8	2	0	0.17	0	2	0.00
4-16	HIDDEN VALLEY	Transverse and Selected Peninsular Range	9	2	0	0.06	4	1	0.00
4-17	LOCKWOOD VALLEY	Southern Coast Ranges	88	2	0	10.11	0	0	0.00
5-13	UPPER LAKE VALLEY	Northern Coast Ranges	29	2	0	1.95	4	6	0.00
5-19	COLLAYOMI VALLEY	Northern Coast Ranges	26	2	5,766	1.34	5	3	1.00
5-35	MCCLOUD AREA	Northern California Volcanics and Q Sed	86	2	0	0	6	1	0.00
5-48	BURNEY CREEK VALLEY	Northern California Volcanics	10	2	5,240	0.07	9	0	1.00

5-5	FALL RIVER VALLEY	and Q Sed							
5-7	LAKE ALMANOR VALLEY	Northern California Volcanics and Q Sed	219	2	0	1.54	6	51	0.00
5-87	MIDDLE FORK FEATHER RIVER	Northern California Volcanics and Q Sed	29	2	2,600	0.47	4	1	1.00
6-16	EUREKA VALLEY	Sierras	18	2	0	1.11	0	0	0.00
6-51	PILOT KNOB VALLEY	Basin and Range	521	2	0	0	0	0	0.00
6-56	ROSE VALLEY	Desert Mountains	561	2	0	0	0	0	0.00
6-6	CARSON VALLEY	Basin and Range	172	2	0	0.02	0	0	0.00
7-10	TWENTYNINE PALMS VALLEY	Sierras	43	2	0	18.94	4	0	0.00
7-28	VALLECITO-CARRIZO VALLEY	Desert Mountains	252	2	0	0.51	6	0	0.00
7-42	VIDAL VALLEY	Desert Mountains	493	2	0	5.77	0	0	0.00
1-12	LAYTONVILLE VALLEY	Desert Mountains	557	2	0	5.22	0	0	0.00
1-25	PRAIRIE CREEK AREA	Northern Coast Ranges	20	1	1,000	0	5	0	1.00
1-30	PEPPERWOOD TOWN AREA	Northern Coast Ranges	81	1	0	0	0	0	0.00
1-34	DINSMORES TOWN AREA	Northern Coast Ranges	25	1	0	7.44	5	8	0.00
1-37	COTTONEVA CREEK VALLEY	Northern Coast Ranges	9	1	0	2.69	0	1	0.00
1-50	KNIGHTS VALLEY	Northern Coast Ranges	3	1	0	0.03	2	0	0.00
2-11	SUNOL VALLEY	Northern Coast Ranges	17	1	0	0.25	0	4	0.00
2-30	NOVATO VALLEY	Southern Coast Ranges	67	1	0	0.02	6	15	0.00
3-29	DRY LAKE VALLEY	Northern Coast Ranges	83	1	43,450	0.1	56	2	0.79
3-30	BITTER WATER VALLEY	Southern Coast Ranges	6	1	0	1.12	1	1	0.00
3-32	PEACH TREE VALLEY	Southern Coast Ranges	130	1	0	18.9	0	14	0.00
3-5	CHOLAME VALLEY	Southern Coast Ranges	40	1	0	5.61	0	5	0.00
4-1	UPPER OJAI VALLEY	Southern Coast Ranges	161	1	0	1.65	0	4	0.00
4-15	TIERRA REJADA	Transverse and Selected Peninsular Range	15	1	0	1.24	1	3	0.00
5-1	GOOSE LAKE	Transverse and Selected Peninsular Range	19	1	0	6.52	4	2	0.00
5-23	PANOCHE VALLEY	Northern California Volcanics and Q Sed	220	1	0	0	0	4	0.00
5-50	NORTH FORK BATTLE CREEK	Southern Coast Ranges	134	1	0	2.32	0	1	0.00
5-66	CLEAR LAKE CACHE FORMATION	Northern California Volcanics and Q Sed	52	1	0	0.09	0	1	0.00
5-95	MEADOW VALLEY	Northern Coast Ranges	120	1	0	8	4	0	0.00
6-15	DEEP SPRINGS VALLEY	Sierras	23	1	0	0.63	0	0	0.00
6-22	UPPER KINGSTON VALLEY	Basin and Range	121	1	0	0	0	0	0.00
6-32	BROADWELL VALLEY	Desert Mountains	715	1	0	1.44	1	0	0.00
6-74	HARRISBURG FLATS	Desert Mountains	372	1	0	2.43	0	0	0.00
6-75	WILDROSE CANYON	Basin and Range	101	1	0	0	0	0	0.00
6-9	MONO VALLEY	Basin and Range	21	1	0	0	0	0	0.00
7-18	JOHNSON VALLEY	Basin and Range	700	1	0	0	3	0	0.00
7-26	TERWILLIGER VALLEY	Desert Mountains	453	1	0	0	0	0	0.00
7-31	OROCOPIA VALLEY	Desert Mountains	32	1	0	0.38	0	5	0.00
		Desert Mountains	389	1	0	4.28	0	0	0.00

7-33	EAST SALTON SEA	Desert Mountains	789	1	0	9.23	3	31	0.00
7-43	CHEMEHUEVI VALLEY	Desert Mountains	1,101	1	0	0.06	0	0	0.00
7-51	LOST HORSE VALLEY	Desert Mountains	70	1	0	0.14	0	0	0.00
7-59	MASON VALLEY	Desert Mountains	22	1	0	0.26	0	0	0.00
7-6	PINTO VALLEY	Desert Mountains	738	1	0	1.77	0	0	0.00
8-7	BIG MEADOWS VALLEY	Transverse and Selected Peninsular Range	57	1	0	1.5	3	0	0.00
9-22	BATIQUITOS LAGOON VALLEY	San Diego	3	1	0	0.24	4	1	0.00
9-28	CAMPO VALLEY	San Diego	14	1	0	0.25	4	0	0.00
9-29	POTRERO VALLEY	San Diego	8	1	0	0.14	0	0	0.00
9-6	CAHUILLA VALLEY	Desert Mountains	74	1	0	0.61	1	12	0.00
basins with 0 wells, but 1 or more other significant factors									
2-39	MARINA	Southern Coast Ranges	9	0	0	0.01	190	0	0.00
2-40	DOWNTOWN	Southern Coast Ranges	31	0	0	0.01	780	0	0.00
2-6	YGNACIO VALLEY	Southern Coast Ranges	63	0	0	0.27	148	1	0.00
9-14	MISSION VALLEY	San Diego	30	0	0	0	208	0	0.00
9-16	EL CAJON VALLEY	San Diego	29	0	0	0.6	167	1	0.00
basins with 0 wells, but non-zero entries for either lufts or pests									
	LITTLE LAKE VALLEY	Northern Coast Ranges	41	0	0	0	28	1	0.00
1-13	HAPPY CAMP TOWN AREA	Klamath	11	0	0	0	2	0	0.00
1-15	RED ROCK VALLEY	Northern California Volcanics and Q Sed	36	0	0	0.62	1	7	0.00
1-18	GARCIA RIVER VALLEY	Northern Coast Ranges	9	0	0	0.08	0	1	0.00
1-20	LOWER LAYTONVILLE VALLEY	Northern Coast Ranges	9	0	0	0	6	1	0.00
1-38	LITTLE VALLEY	Northern Coast Ranges	3	0	0	0.03	0	1	0.00
1-41	WILLIAMS VALLEY	Northern Coast Ranges	7	0	0	0.9	0	1	0.00
1-43	NAVARRO RIVER VALLEY	Northern Coast Ranges	3	0	0	0.03	4	0	0.00
1-46	McDOWELL VALLEY	Northern Coast Ranges	6	0	0	0.09	0	3	0.00
1-56	HAYFORK VALLEY	Klamath	13	0	0	0	1	0	0.00
1-6	ROSS VALLEY	Northern Coast Ranges	7	0	0	0.01	22	0	0.00
2-28	SAN RAFAEL VALLEY	Northern Coast Ranges	4	0	0	0	37	0	0.00
2-29	ARROYO DEL HAMBRE VALLEY	Southern Coast Ranges	3	0	0	0.01	11	0	0.00
2-31	VISITACION VALLEY	Southern Coast Ranges	24	0	0	0.01	52	3	0.00
2-32	SAN PEDRO VALLEY	Southern Coast Ranges	3	0	0	0	9	0	0.00
2-36	SOUTH SAN FRANCISCO	Southern Coast Ranges	9	0	0	0	60	0	0.00
2-37	LOBOS	Southern Coast Ranges	10	0	0	0.01	68	0	0.00
2-38	CASTRO VALLEY	Southern Coast Ranges	7	0	0	0	58	0	0.00
2-8	SANTA ANA VALLEY	Southern Coast Ranges	11	0	0	2.15	0	4	0.00
3-22	QUIEN SABE VALLEY	Southern Coast Ranges	19	0	0	3.71	0	3	0.00
3-24	ARROYO DE LA CRUZ VALLEY	Southern Coast Ranges	4	0	0	0	0	1	0.00
3-34	SANTA ROSA VALLEY	Southern Coast Ranges	14	0	6,100	8.15	5	3	1.00
3-36	OLD VALLEY	Southern Coast Ranges	5	0	0	2.73	3	2	0.00
3-39	RINCONADA VALLEY	Southern Coast Ranges	10	0	0	1.48	0	3	0.00

3-43	POZO VALLEY	Southern Coast Ranges	28	0	0	3.93	0	3	0.00
3-44	HUASNA VALLEY	Southern Coast Ranges	19	0	0	1.12	0	5	0.00
3-45	BIG SPRING AREA	Southern Coast Ranges	30	0	0	0.3	0	1	0.00
3-47	FELTON AREA	Southern Coast Ranges	5	0	2,222	0.36	9	0	0.34
3-50	MAJORS CREEK	Southern Coast Ranges	1	0	0	0.01	0	1	0.00
3-51	NEEDLE ROCK POINT	Southern Coast Ranges	2	0	0	0.04	1	1	0.00
3-52	THOUSAND OAKS AREA	Transverse and Selected Peninsular Range	13	0	0	0.58	58	2	0.00
4-19	RUSSELL VALLEY	Transverse and Selected Peninsular Range	12	0	0	0.08	12	1	0.00
4-20	MALIBU VALLEY	Transverse and Selected Peninsular Range	2	0	0	0.02	7	0	0.00
4-22	BURNS VALLEY	Northern Coast Ranges	12	0	0	0.77	9	0	0.00
5-17	SACRAMENTO VALLEY	Central Valley	84	0	0	4.29	1	5	0.00
5-21.53	WALKER BASIN CREEK VALLEY	Sierras	31	0	0	0.17	0	1	0.00
5-26	ROUND VALLEY	Northern California Volcanics and Q Sed	29	0	0	0.75	0	1	0.00
5-36	HOT SPRINGS VALLEY	Northern California Volcanics and Q Sed	10	0	0	0.07	0	1	0.00
5-40	CAYTON VALLEY	Northern California Volcanics and Q Sed	5	0	0	0.04	0	1	0.00
5-45	GOOSE VALLEY	Northern California Volcanics and Q Sed	17	0	0	0.12	0	6	0.00
5-47	ELK CREEK AREA	Northern Coast Ranges	6	0	0	0	0	2	0.00
5-62	BEAR VALLEY	Northern Coast Ranges	37	0	0	2.45	1	0	0.00
5-64	POPE VALLEY	Northern Coast Ranges	29	0	0	1.48	2	6	0.00
5-68	JOSEPH CREEK	Northern California Volcanics and Q Sed	18	0	0	0.46	0	1	0.00
5-86	ANTELOPE CREEK	Northern Coast Ranges	8	0	0	1.45	0	1	0.00
5-91	BLANCHARD VALLEY	Northern Coast Ranges	9	0	0	3.16	0	1	0.00
5-92	LONG VALLEY	Sierras	189	0	0	4.49	0	1	0.00
6-104	FISH LAKE VALLEY	Basin and Range	195	0	0	0	0	16	0.00
6-14	RED PASS VALLEY	Desert Mountains	390	0	0	0.08	13	0	0.00
6-24	PAHRUMP VALLEY	Desert Mountains	376	0	0	2.34	2	0	0.00
6-28	MESQUITE VALLEY	Desert Mountains	357	0	0	2.22	0	8	0.00
6-29	WILLOW CREEK VALLEY	Northern California Volcanics and Q Sed	47	0	0	1.12	0	3	0.00
6-3	SEARLES VALLEY	Basin and Range	797	0	4,000	0.04	7	0	1.00
6-52	DRY VALLEY	Northern California Volcanics and Q Sed	26	0	0	0.17	0	1	0.00
6-95	WEST SALTON SEA	Desert Mountains	426	0	0	4.99	1	1	0.00
7-22	OCOTILLO-CLARK VALLEY	Desert Mountains	899	0	0	10.53	0	28	0.00
7-25	SAN FELIPE VALLEY	Desert Mountains	95	0	0	1.11	1	2	0.00
7-27	AMOS VALLEY	Desert Mountains	526	0	0	6.15	4	2	0.00
7-34	BRISTOL VALLEY	Desert Mountains	2,011	0	0	8.74	3	3	0.00

7-8	SAN DIEGUITO CREEK	San Diego	14	0	0	0.3	7	3	0.00
9-12	POWAY VALLEY	San Diego	10	0	0	0.21	25	0	0.00
9-13	OTAY VALLEY	San Diego	28	0	0	0.6	46	3	0.00
9-18	TIA JUANA	San Diego	30	0	0	0.53	14	1	0.00
9-19	SAN ELIJO VALLEY	San Diego	4	0	0	0.28	0	2	0.00
9-23	RANCHITA TOWN AREA	Desert Mountains	13	0	0	0.85	1	0	0.00
9-25	SAN MARCOS AREA	San Diego	9	0	0	0.68	56	0	0.00
9-32	ESCONDIDO VALLEY	San Diego	12	0	0	0.92	64	0	0.00
basins with 0 wells, 0 lufts and 0 pests, but non-zero entry for ag_pumping									
7-32	ARROYO SECO VALLEY	Desert Mountains	1,038	0	0	13.68	0	0	0.00
6-23	KELSO VALLEY	Desert Mountains	1,031	0	0	6.5	0	0	0.00
7-3	CHOCOLATE VALLEY	Desert Mountains	522	0	0	6.07	0	0	0.00
7-1	LAVIC VALLEY	Desert Mountains	414	0	0	5.94	0	0	0.00
7-17	WARD VALLEY	Desert Mountains	2,256	0	0	4.54	0	0	0.00
6-48	SUPERIOR VALLEY	Desert Mountains	487	0	0	3.29	0	0	0.00
5-94	SECRET VALLEY	Northern California Volcanics and Q Sed	136	0	0	3.23	0	0	0.00
6-34	CRONISE VALLEY	Desert Mountains	511	0	0	3.22	0	0	0.00
6-90	COW HEAD LAKE VALLEY	Northern California Volcanics and Q Sed	23	0	0	3.17	0	0	0.00
3-35	VILLA VALLEY	Southern Coast Ranges	5	0	0	3.14	0	0	0.00
6-35	COYOTE LAKE VALLEY	Desert Mountains	357	0	0	2.48	0	0	0.00
3-31	SAN CARPOFORO VALLEY	Southern Coast Ranges	4	0	0	2.44	0	0	0.00
6-49	CUDDEBACK VALLEY	Desert Mountains	384	0	0	2.41	0	0	0.00
3-23	HERNANDEZ VALLEY	Southern Coast Ranges	12	0	0	2.26	0	0	0.00
6-102	SLINKARD VALLEY	Basin and Range	18	0	0	2.26	0	0	0.00
7-63	CADIZ VALLEY	Desert Mountains	1,092	0	0	2.2	0	0	0.00
5-89	FUNKS CREEK	Northern Coast Ranges	12	0	0	2.14	0	0	0.00
5-57	CLOVER VALLEY	Sierras	68	0	0	1.85	0	0	0.00
6-106	SWEETWATER FLAT	Basin and Range	19	0	0	1.8	0	0	0.00
5-58	GRIZZLY VALLEY	Sierras	54	0	0	1.73	0	0	0.00
3-38	TORO VALLEY	Southern Coast Ranges	3	0	0	1.67	0	0	0.00
6-107	BLACK SPRINGS VALLEY	Basin and Range	125	0	0	1.58	0	0	0.00
7-37	RICE VALLEY	Desert Mountains	761	0	0	1.41	0	0	0.00
3-46	HUNGRY VALLEY	Transverse and Selected Peninsular Range	21	0	0	1.35	0	0	0.00
3-33	SAN SIMEON VALLEY	Southern Coast Ranges	2	0	0	1.28	0	0	0.00
6-105	LITTLE ANTELOPE VALLEY	Basin and Range	10	0	0	1.25	0	0	0.00
6-94	EAGLE LAKE AREA	Northern California Volcanics and Q Sed	51	0	0	1.22	0	0	0.00
1-22	LARABEE VALLEY	Northern Coast Ranges	4	0	0	1.14	0	0	0.00
1-45	UPPER SANTA ANA VALLEY	Southern Coast Ranges	6	0	0	1.13	0	0	0.00
6-96	HORSE LAKE VALLEY	Northern California Volcanics and Q Sed	15	0	0	1.11	0	0	0.00

5-71	MOUNTAIN MEADOWS VALLEY	Northern California Volcanics and Q Sed	33	0	0	1.06	0	0	0.00
5-70	VALLECITOS CREEK VALLEY	Southern Coast Ranges	61	0	0	1.04	0	0	0.00
1-33	HETTENSHAW VALLEY	Northern Coast Ranges	3	0	0	1	0	0	0.00
5-90	NORTH FORK CACHE CREEK	Northern Coast Ranges	14	0	0	0.93	0	0	0.00
5-8	SQUAW FLAT	Northern Coast Ranges	5	0	0	0.92	0	0	0.00
6-91	PINE CREEK VALLEY	Northern California Volcanics and Q Sed	39	0	0	0.91	0	0	0.00
6-31	SILVER LAKE VALLEY	Desert Mountains	142	0	0	0.89	0	0	0.00
6-37	GOLDSTONE VALLEY	Desert Mountains	114	0	0	0.77	0	0	0.00
3-37	CAYUCOS VALLEY	Southern Coast Ranges	1	0	0	0.76	0	0	0.00
1-36	EDEN VALLEY	Northern Coast Ranges	6	0	0	0.75	0	0	0.00
5-3	LONG VALLEY	Northern Coast Ranges	11	0	0	0.75	0	0	0.00
7-55	YAQUI WELL AREA	Desert Mountains	61	0	0	0.71	0	0	0.00
5-20	JESS VALLEY	Northern California Volcanics and Q Sed	27	0	0	0.69	0	0	0.00
6-100	BULL FLAT	Northern California Volcanics and Q Sed	73	0	0	0.66	0	0	0.00
6-99	LANFAIR VALLEY	Desert Mountains	633	0	0	0.66	0	0	0.00
7-14	BESSEMER VALLEY	Desert Mountains	158	0	0	0.64	0	0	0.00
4-18	HIGH VALLEY	Northern Coast Ranges	10	0	0	0.63	0	0	0.00
5-53	ASH VALLEY	Northern California Volcanics and Q Sed	24	0	0	0.62	0	0	0.00
5-41	ROCK PRAIRIE VALLEY	Northern California Volcanics and Q Sed	23	0	0	0.59	0	0	0.00
5-16	BERRYESSA VALLEY	Northern Coast Ranges	6	0	0	0.56	0	0	0.00
9-9	BRAY TOWN AREA	Northern California Volcanics and Q Sed	33	0	0	0.55	0	0	0.00
5-56	LAST CHANCE CREEK VALLEY	Sierras	19	0	0	0.51	0	0	0.00
6-93	GRASSHOPPER VALLEY	Northern California Volcanics and Q Sed	71	0	0	0.46	0	0	0.00
6-70	CALIFORNIA VALLEY	Desert Mountains	235	0	0	0.45	0	0	0.00
6-92	HARVEY VALLEY	Northern California Volcanics and Q Sed	18	0	0	0.43	0	0	0.00
7-7	SEVEN OAKS VALLEY	Transverse and Selected Peninsular Range	16	0	0	0.43	0	0	0.00
5-38	EGG LAKE VALLEY	Northern California Volcanics and Q Sed	17	0	0	0.42	0	0	0.00
5-44	LAKE BRITTON AREA	Northern California Volcanics and Q Sed	57	0	0	0.4	0	0	0.00
6-69	CACTUS FLAT	Basin and Range	28	0	0	0.37	0	0	0.00
5-59	LOS BANOS CREEK VALLEY	Southern Coast Ranges	20	0	0	0.33	0	0	0.00
6-68	KELSO LANDER VALLEY	Sierras	45	0	0	0.33	0	0	0.00
7-53	BUCK RIDGE FAULT VALLEY	Desert Mountains	28	0	0	0.33	0	0	0.00
7-54	COLLINS VALLEY	Desert Mountains	29	0	0	0.33	0	0	0.00

7-61	VANDEVENTER FLAT	Desert Mountains	27	0	0	0.32	0	0	0.00
1-17	FAIRCHILD SWAMP VALLEY	Northern California Volcanics and Q Sed	13	0	0	0.28	0	0	0.00
9-24	COTTONWOOD VALLEY	San Diego	16	0	0	0.27	0	0	0.00
7-4	CANEBRAKE VALLEY	Desert Mountains	22	0	0	0.26	0	0	0.00
6-89	CADY FAULT AREA	Desert Mountains	32	0	0	0.2	0	0	0.00
5-93	MIDDLE CREEK	Northern Coast Ranges	3	0	0	0.19	0	0	0.00
6-101	MODOC PLATEAU RECENT VOLCANIC AREA	Northern California Volcanics and Q Sed	8	0	0	0.19	0	0	0.00
6-13	RIGGS VALLEY	Desert Mountains	354	0	0	0.18	0	0	0.00
6-50	SANTA ROSA FLAT	Basin and Range	68	0	0	0.18	0	0	0.00
6-97	PAINTERS FLAT	Northern California Volcanics and Q Sed	26	0	0	0.17	0	0	0.00
7-56	DAVIES VALLEY	Desert Mountains	14	0	0	0.17	0	0	0.00
5-51	GRAYS VALLEY	Northern California Volcanics and Q Sed	22	0	0	0.16	0	0	0.00
5-54	YELLOW CREEK VALLEY	Sierras	9	0	0	0.15	0	0	0.00
6-79	KANE WASH AREA	Desert Mountains	24	0	0	0.15	0	0	0.00
5-52	DIXIE VALLEY	Northern California Volcanics and Q Sed	20	0	0	0.14	0	0	0.00
8-8	PAMO VALLEY	San Diego	6	0	0	0.13	0	0	0.00
1-44	BIG RIVER VALLEY	Northern Coast Ranges	7	0	0	0.12	0	0	0.00
3-40	RAFAEL VALLEY	Southern Coast Ranges	12	0	0	0.12	0	0	0.00
7-15	MEANS VALLEY	Desert Mountains	60	0	0	0.12	0	0	0.00
5-43	LONG VALLEY	Northern California Volcanics and Q Sed	4	0	0	0.11	0	0	0.00
5-31	TOAD WELL AREA	Northern California Volcanics and Q Sed	14	0	0	0.1	0	0	0.00
5-46	DRY BURNEY CREEK VALLEY	Northern California Volcanics and Q Sed	12	0	0	0.09	0	0	0.00
5-49	BUTTE CREEK VALLEY	Northern California Volcanics and Q Sed	13	0	0	0.09	0	0	0.00
7-52	HEXIE MOUNTAIN AREA	Desert Mountains	45	0	0	0.09	0	0	0.00
7-50	PLEASANT VALLEY	Desert Mountains	39	0	0	0.08	0	0	0.00
5-37	PONDOSA TOWN AREA	Northern California Volcanics and Q Sed	8	0	0	0.06	0	0	0.00
7-49	IRON RIDGE AREA	Desert Mountains	21	0	0	0.04	0	0	0.00
7-48	PIPES CANYON FAULT VALLEY		14	0	0	0.03	0	0	0.00
7-46	HELENDALE FAULT VALLEY		11	0	0	0.02	0	0	0.00
Basins with no entries									
9-27	HONEYDEW TOWN AREA	Northern Coast Ranges	10	0	0	0	0	0	0.00
1-29	BRANSCOMB TOWN AREA	Northern Coast Ranges	6	0	0	0	0	0	0.00
1-39	TEN MILE RIVER VALLEY	Northern Coast Ranges	6	0	0	0	0	0	0.00
1-40	SHERWOOD VALLEY	Northern Coast Ranges	5	0	0	0	0	0	0.00

1-42	GRAVELLY VALLEY	Northern Coast Ranges	12	0	0	0	0	0.00
1-48	WILSON POINT AREA	Klamath	3	0	0	0	0	0.00
1-62	SAN GREGORIO VALLEY	Southern Coast Ranges	4	0	0	0	0	0.00
2-24	CHROME TOWN AREA	Northern Coast Ranges	6	0	0	0	0	0.00
5-61	LITTLE INDIAN VALLEY	Northern Coast Ranges	5	0	0	0	0	0.00
5-65	STONY GORGE RESERVOIR	Northern Coast Ranges	4	0	0	0	0	0.00
5-88	ADOBE LAKE VALLEY	Basin and Range	161	0	0	0	0	0.00
6-10	SALINE VALLEY	Basin and Range	592	0	0	0	0	0.00
6-17	WINGATE VALLEY	Basin and Range	288	0	0	0	0	0.00
6-19	LOWER KINGSTON VALLEY	Desert Mountains	970	0	0	0	0	0.00
6-21	AVAWATZ VALLEY	Desert Mountains	112	0	0	0	0	0.00
6-26	LEACH VALLEY	Desert Mountains	248	0	0	0	0	0.00
6-27	SALT WELLS VALLEY	Basin and Range	119	0	0	0	0	0.00
6-53	COSO VALLEY	Basin and Range	103	0	0	0	0	0.00
6-55	DARWIN VALLEY	Basin and Range	179	0	0	0	0	0.00
6-57	PANAMINT VALLEY	Basin and Range	1,049	0	0	0	0	0.00
6-58	CAMEO AREA	Basin and Range	38	0	0	0	0	0.00
6-61	RACE TRACK VALLEY	Basin and Range	57	0	0	0	0	0.00
6-62	HIDDEN VALLEY	Basin and Range	73	0	0	0	0	0.00
6-63	MARBLE CANYON AREA	Basin and Range	42	0	0	0	0	0.00
6-64	COTTONWOOD SPRING AREA	Basin and Range	16	0	0	0	0	0.00
6-65	LEE FLAT	Basin and Range	82	0	0	0	0	0.00
6-66	LOST LAKE VALLEY	Basin and Range	94	0	0	0	0	0.00
6-71	COLES FLAT	Basin and Range	12	0	0	0	0	0.00
6-72	WILD HORSE MESA AREA	Basin and Range	13	0	0	0	0	0.00
6-73	BROWN MOUNTAIN VALLEY	Basin and Range	88	0	0	0	0	0.00
6-76	GRASS VALLEY	Desert Mountains	40	0	0	0	0	0.00
6-77	DENNING SPRING VALLEY	Desert Mountains	29	0	0	0	0	0.00
6-78	MIDDLE PARK CANYON	Basin and Range	7	0	0	0	0	0.00
6-80	BUTTE VALLEY	Basin and Range	36	0	0	0	0	0.00
6-81	SPRING CANYON VALLEY	Basin and Range	19	0	0	0	0	0.00
6-82	GREENWATER VALLEY	Basin and Range	242	0	0	0	0	0.00
6-84	GOLD VALLEY	Basin and Range	13	0	0	0	0	0.00
6-85	RHODES HILL AREA	Basin and Range	63	0	0	0	0	0.00
6-86	OWL LAKE VALLEY	Basin and Range	90	0	0	0	0	0.00
6-88	TULEDAD CANYON VALLEY	Northern California Volcanics and Q Sed	21	0	0	0	0	0.00
6-98	PIUTE VALLEY	Desert Mountains	709	0	0	0	0	0.00
7-45								

APPENDIX E

USGS COMPREHENSIVE GROUNDWATER QUALITY MONITORING PLAN