CHINO BASIN WATERMASTER

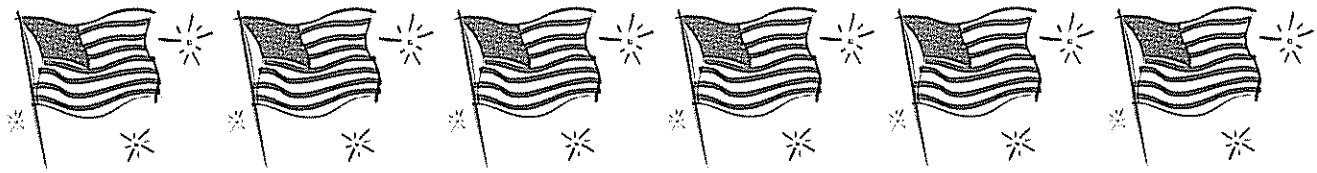
NOTICE OF MEETINGS

Thursday, May 25, 2006

9:00 a.m. – Advisory Committee Meeting
11:00 a.m. – Watermaster Board Meeting

(Lunch will be served)

AT THE CHINO BASIN WATERMASTER OFFICES
9641 San Bernardino Road
Rancho Cucamonga, CA 91730
(909) 484-3888



CHINO BASIN WATERMASTER

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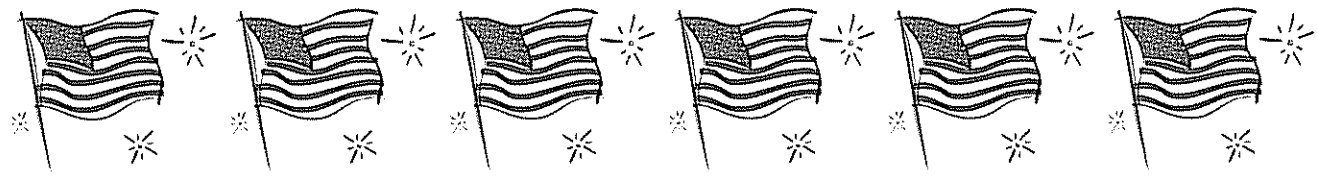
AGENDA PACKAGE



CHINO BASIN WATERMASTER
ADVISORY COMMITTEE MEETING

9:00 a.m. – May 25, 2006
At The Offices Of
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

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
1. Minutes of the Advisory Committee Meeting held April 27, 2006 *(Page 1)*

B. FINANCIAL REPORTS
1. Cash Disbursements for the month of April 2006 *(Page 15)*
2. Combining Schedule of Revenue, Expenses and Changes in Working Capital for the Period July 1, 2005 through March 31, 2006 *(Page 19)*
3. Treasurer's Report of Financial Affairs for the Period March 1, 2006 through March 31, 2006 *(Page 21)*
4. Profit & Loss Budget vs. Actual July through March 2006 *(Page 23)*

II. BUSINESS ITEMS

A. WATERMASTER BUDGET FOR FISCAL YEAR 2006/2007
Consider Approval of the Watermaster Budget for Fiscal Year 2006/2007 *(Page 25)*

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT
1. Santa Ana River Application
2. Boardsmanship Workshop Update
3. Peace II Update

B. WATERMASTER ENGINEERING CONSULTANT REPORT
1. Summary of WEI April 2006 Report Regarding Hydraulic Control, Desalters and New Yield
2. Proposed Waste Discharge Requirements (WDR) for Recharge of Imported Water *(Page*

C. CEO/STAFF REPORT
1. Water Quality Update
2. Strategic Planning Committee Update
3. Personnel Committee Update
4. GAMA Presentation by Robert Kent, California Water Science Center

5. Storm Water/Recharge Update
6. Inland Empire Public Affairs Network (IEPAN) Update *(Page 137)*
7. Legislative/Bond Update

D. INLAND EMPIRE UTILITIES AGENCY

1. Monthly Water Conservation Programs Report *(Page 143)*
2. Groundwater Operations Recharge Summary *(Page 149)*
3. Monthly Imported Water Deliveries Report *(Page 151)*
4. State/Federal Legislation Reports *(Page 157)*
5. Public Relations Report *(Page 185)*

E. OTHER METROPOLITAN MEMBER AGENCY REPORTS

IV. INFORMATION

1. Newspaper Articles *(Page 187)*

V. COMMITTEE MEMBER COMMENTS

VI. OTHER BUSINESS

VII. FUTURE MEETINGS

May 23, 2006	9:00 a.m.	GRCC Committee Meeting
May 25, 2006	9:00 a.m.	Advisory Committee Meeting
May 25, 2006	11:00 a.m.	Watermaster Board Meeting
June 8, 2006	10:00 a.m.	Appropriative & Non-Agricultural Pool Meeting
June 20, 2006	9:00 a.m.	Agricultural Pool Meeting @ IEUA
June 22, 2006	9:00 a.m.	Advisory Committee Meeting
June 22, 2006	11:00 a.m.	Watermaster Board Meeting

Meeting Adjourn

CHINO BASIN WATERMASTER
WATERMASTER BOARD MEETING

11:00 a.m. – May 25, 2006
At The Offices Of
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

AGENDA

CALL TO ORDER

PLEDGE OF ALLEGIANCE

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**
1. Minutes of the Annual Watermaster Board Meeting held April 27, 2006 *(Page 7)*

B. **FINANCIAL REPORTS**
1. Cash Disbursements for the month of April 2006 *(Page 15)*
2. Combining Schedule of Revenue, Expenses and Changes in Working Capital for the Period July 1, 2005 through March 31, 2006 *(Page 19)*
3. Treasurer's Report of Financial Affairs for the Period March 1, 2006 through March 31, 2006 *(Page 21)*
4. Profit & Loss Budget vs. Actual July through March 2006 *(Page 23)*

II. **BUSINESS ITEMS**

A. **WATERMASTER BUDGET FOR FISCAL YEAR 2006/2007**
Consider Approval of the Watermaster Budget for Fiscal Year 2006/2007 *(Page 25)*

B. **PEACE II TERM SHEET**
Consider Recommendation to Forward Through the Watermaster Process *(Page 35)*

C. **MZ1 SUMMARY REPORT**
Consider Approval of the February 2006 MZ-1 Summary Report *(Page 37)*

III. **REPORTS/UPDATES**

A. **WATERMASTER GENERAL LEGAL COUNSEL REPORT**
1. Santa Ana River Application
2. Boardsmanship Workshop Update

B. **WATERMASTER ENGINEERING CONSULTANT REPORT**
1. Summary of WEI April 2006 Report Regarding Hydraulic Control, Desalters and New Yield

2. Proposed Waste Discharge Requirements (WDR) for Recharge of Imported Water *(Page 107)*

C. CEO/STAFF REPORT

1. Water Quality Update
2. Strategic Planning Committee Update
3. Personnel Committee Update
4. GAMA Presentation by Robert Kent, California Water Science Center
5. Storm Water/Recharge Update
6. Inland Empire Public Affairs Network (IEPAN) Update *(Page 137)*
7. Legislative/Bond Update

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1. Newspaper Articles *(Page 187)*

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VII. FUTURE MEETINGS

May 23, 2006	9:00 a.m.	GRCC Committee Meeting
May 25, 2006	9:00 a.m.	Advisory Committee Meeting
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June 8, 2006	10:00 a.m.	Appropriative & Non-Agricultural Pool Meeting
June 20, 2006	9:00 a.m.	Agricultural Pool Meeting @ IEUA
June 22, 2006	9:00 a.m.	Advisory Committee Meeting
June 22, 2006	11:00 a.m.	Watermaster Board Meeting

Meeting Adjourn

CHINO BASIN WATERMASTER

I. CONSENT CALENDAR

A. MINUTES

1. Advisory Committee Meeting – April 27, 2006

Draft Minutes
CHINO BASIN WATERMASTER
ADVISORY COMMITTEE MEETING
April 27, 2006

The Advisory Committee meeting was held at the offices of the Chino Basin Watermaster, 9641 San Bernardino Road, Rancho Cucamonga, California, on April 27, 2006 at 9:00 a.m.

ADVISORY COMMITTEE MEMBERS PRESENT

Agricultural Pool	
Nathan deBoom, Chair	Ag Pool/Dairy
Bob Feenstra	Ag Pool/Dairy
Appropriative Pool	
Ken Jeske	City of Ontario
Mike McGraw	Fontana Water Company
Frank LoGuidice	Fontana Union Water Company
Rosemary Hoerning	City of Upland
Dave Crosley	City of Chino
Ashok K. Dhingra	City of Pomona
Charles Moorrees	San Antonio Water Company
Mark Kinsey	Monte Vista Water District
J. Arnold Rodriguez	Santa Ana River Water Company
Justin Brokaw	Marygold Mutual Water Company
Non-Agricultural Pool	
Bob Bowcock	Vulcan Materials Company (Calmat Division)

Watermaster Staff Present

Kenneth R. Manning	Chief Executive Officer
Sheri Rojo	CFO/Asst. General Manager
Gordon Treweek	Project Engineer
Danielle Maurizio	Senior Engineer
Sherri Lynne Molino	Recording Secretary

Watermaster Consultants Present

Michael Fife	Hatch & Parent
Mark Wildermuth	Wildermuth Environmental Inc.
Dave Argo	Black & Veatch

Others Present

Chris Diggs	Fontana Water Company
Bill Kruger	City of Chino Hills
Steven G. Lee	Ag Pool Legal Counsel
Rick Hansen	Three Valleys Municipal Water District
Martha Davis	Inland Empire Utilities Agency

The Advisory Committee meeting was called to order by Chair deBoom at 9:10 a.m.

AGENDA - ADDITIONS/REORDER
No comment was made regarding this item.

I. CONSENT CALENDAR

A. MINUTES

1. Minutes of the Advisory Committee Meeting held March 23, 2006

B. FINANCIAL REPORTS

5. Cash Disbursements for the month of March 2006
6. Combining Schedule of Revenue, Expenses and Changes in Working Capital for the Period July 1, 2005 through February 28, 2006
7. Treasurer's Report of Financial Affairs for the Period February 1, 2006 through February 28, 2006
8. Profit & Loss Budget vs. Actual July through February 2006

C. WATER TRANSACTION

Consider Approval for Transaction of Notice of Sale or Transfer – Cucamonga Valley Water District has agreed to purchase from West Valley Water District water in storage in the amount of 500 acre-feet. Date of application: January 10, 2006

Motion by Jeske, second by McGraw, and by unanimous vote
Moved to approve Consent Calendar Items A through C, as presented

II. BUSINESS ITEMS

A. MZ1 SUMMARY REPORT

Mr. Manning stated this item was presented to the pools and had unanimous votes in favor of this item except for a one negative vote by the City of Chino Hills. Staff, counsel, and technical consultants are recommending the approval of the presented MZ1 Summary Report. This summary report was designed out of the MZ1 workshop in May of 2005 where the Special Referee made recommendations, this being one of those, and to be in compliance with the court, staff is asking that this report be approved and forwarded to the Watermaster Board for their approval. This report also includes the guidance criteria of the MZ1 management and meets the needs for this agency and for the court.

Motion by Kinsey, second by Rodriguez, and by unanimous vote
Motion approve the February 2006 MZ1 Summary Report, as presented

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Peace II Process

Counsel Fife stated there was a meeting held the week before last on the Peace II process and staff and counsel are currently taking comments on the proposal that was released prior to that meeting. Staff is anticipating scheduling follow up meetings shortly. Staff and counsel are optimistic to be able to bring something to the Watermaster Board members in May for their approval to place the approved term sheet through the Watermaster process in June in preparation of the court mandated workshop in July.

2. Santa Ana River Water Rights Application

Counsel Fife stated this item has been a long on-again/off-again process and presently it is on the forefront again. Counsel Fife stated in May of 2005, the other parties that are involved in this process (including Orange County Water District (OCWD), Western Municipal Water District (WMWD), San Bernardino Municipal Water District, and the City of Riverside) decided they were ready to move forward on their applications and bring their applications to hearing by the beginning of 2006. Counsel Fife stated it has been made known to the parties involved that Watermaster is confident in our projects, positive in our validity of our application, and if they are ready to go to the State Board to get confirmation of their rights, we will follow suit. The last time this item was in motion, counsel and staff met with the State Board's staff to discuss the details of our application along with trips made to Sacramento and after that attempt the issue faded away and has been silent ever since. Counsel Fife stated OCWD has now reissued a programmatic environmental impact report for their water rights application. The notice of availability is on the back table for review. With this news, counsel is anticipating WMWD to follow suit and if this does happen counsel, in concert with WMWD, will approach the State Board. Counsel Fife

stated it is Watermaster's position that we have all the rights to all the surface water that passes through the Chino Basin and staff has expressed to the State Board that we do not need to do any further CEQA work and believe Watermaster is solid on our part of our application.

Counsel Fife stated there is an interesting development in legislation regarding Senate Bill 1795 which is being sponsored by the Stockton East Water District. The purpose of the legislation is to amend the water code, to say that any water rights application that is for the diversion of surface flows to use as groundwater recharge will not need an underground storage supplement. This is a part of the application that is very onerous and requires a lot of reporting. The State Board in recent years has stated they will regard a diversion for the purpose of recharge as that ultimate pumping is the actual diversion and everything prior to that just a pipe basically and what the State Board is going to regulate is the ultimate pumping. This SB1795 would rectify this situation and make our application much easier. To date there is no opposition to this bill and staff and counsel are hopeful this bill will get passed. A brief discussion ensued with regard to water plans.

B. WATERMASTER ENGINEERING CONSULTANT REPORT

1. Update on Report on Balance of Recharge and Discharge

Mr. Wildermuth stated as reported at the pool meetings, the Balance of Recharge and Discharge/Hydraulic Control Modeling Report is out as a draft report. Mr. Wildermuth stated that opposed to all the numbers the engineers have been working over the past twelve months, the numbers are slightly different; however, the final answer comes out the same. Mr. Wildermuth noted one item that is different; and this has been collaborated by all the new monitoring data that has come out of the Hydraulic Control mentoring program, which is we do not have hydraulic control on the far west side of the basin. This area would be in the vicinity of Desalter I, wells one through four which are deep wells, and then just west of those wells. There is an opportunity that we can obtain hydraulic control by installing more desalter wells in that location; we can't control that area by re-operation. This report will be finalized at some point in time or will be accepted as a draft report as final.

Added Comment:

Mr. Wildermuth stated recently the Regional Board was anticipating coming up with waste discharge requirements for the recharge of imported water. The Regional Board has now put out that tentative order for review which contains objectives that must be met in order to recharge water. The order has faults and will need to be looked at carefully and the Regional Board is asking for comments by May 1, 2006 which has caused uproar by agencies wanting this deadline pushed back for sixty days for proper review. Mr. Manning commented this is an item Watermaster will want to review and phone calls on this issue have been received. Mr. Manning suggested to the parties who phoned him would be to have the agencies get together and put together a "united" set of recommendations. Ms. Davis added comment regarding sending out a united message for the delay on this issue.

C. CEO/STAFF REPORT

1. Consequences of Non-Implementation of Peace II

Mr. Manning stated following discussions with the special referee, it was suggested a brief summary be put together and presented to the parties on this subject matter. Hatch & Parent was tasked to go through all the consequences and provide a memo to be presented at the meetings to bring the parties up to speed on the consequences. Counsel Fife stated this memo is a brief overview of some of the consequences if Peace II is not completed. Counsel Fife noted that other than water quality, all the rest of the items are tied to specific deadlines, all of which will kick in whether we do Peace II or not. The ultimate conclusion of the memo is the choice in dealing with these issues as a unit and in

a coordinated way or dealing with them on an individual basis. It was noted that "no action" really constitutes "action" because something will happen eventually if one chooses to do nothing – there will be a consequence.

2. DataX Presentation
The Advisory Committee members declined on seeing the DataX Presentation at this meeting. It was noted the presentation was given at each of the pool meetings and will be given at the Watermaster Board meeting today. Mr. Manning gave a brief overview of the DataX program and noted Watermaster staff is currently using the system and is very pleased with it.

3. Legislative Update
Mr. Manning stated he believes SB 1795 bill will be amended shortly and will assist our efforts in the Chino Basin to declare the water as beneficial use. Mr. Manning stated there is a new bill presented by Senator Simitian SB 1612 which has been pulled by the senator because it was not going to get a hearing. This is a $3 billion dollar general obligation bond and noted even if the bill was passed it would still have to go through the voters. Mr. Manning noted the portion of the bill that was of interest to us is for the first time since 1982 it had discussion about a bypass facility around the Delta as the basis for the bill. It was noted this bill will be introduced at a later date.

4. MWD Groundwater Study
Mr. Manning stated in September of 2005, Metropolitan Water District (MWD) asked groundwater managers in the MWD service area to meet at their office to discuss putting together a very cursory look at groundwater basins in Southern California within and in some cases outside the service area. The purpose would be to answer questions from their board relative to, "Is there any potential for groundwater storage as opposed to surface storage?" MWD staff is collecting data for this report. Recently Ms. Grebbien, Mr. Rossi and Mr. Manning met with MWD staff to talk about what MWD is exactly looking for due to the vagueness of their request for data. Mr. Manning stated he expressed a concern to MWD staff that if they were going to be gathering groundwater data that they needed to have a groundwater savvy person on staff or in a consultant capacity that can deal with the data. MWD noted they were going to be addressing that concern. Mr. Manning noted several other basins opted to fill out the questionnaire that was sent by MWD; however, Chino Basin Watermaster opted to send them our State of the Basin Report and some of our underlying governance documents and then schedule meeting directly with them to discuss their need to fill in the gaps.

5. Workshops Update
Mr. Manning stated there is a Boardsmanship workshop scheduled for board members and any other party who wishes to attend today after the Board meeting. This meeting has been scheduled by a request from board member Sandra Rose who wanted a better understanding of her role as a board member for the Chino Basin Watermaster. Hatch & Parent will be conducting this workshop.

A budget workshop has been scheduled for Ms. Rojo to present the proposed 2006/2007 budget on Tuesday, May 2, 2006 starting at 9:00 a.m.

6. Storm Water/Recharge Update
Mr. Treweek stated there is an updated Storm Water/Recharge Update available on the back table. It was noted 34,000 acre-feet of water has been recharged after nine months, there are four more months left in the storm season and we have been receiving above 5,000 acre-feet per month of recharge. This should bring us up to the 50,000 acre-foot goal for this year. February and March have had very good results of recharge due to recent storms. Mr. Treweek reviewed the handout in detail.

7. Draft Desalter III Alternative Study Update
Mr. Manning stated that as part of the Peace II process, staff has been discussing a relationship with Western Municipal Water District (WMWD) for the construction of a desalter program. There have been several questions regarding what the new desalter program might possibly look like. Mr. Dave Argo from Black & Veatch has been tasked by WMWD to look at some desalter alternatives and Mr. Argo is here to present five draft concept ideas. Mr. Argo presented the "Chino Basin Optimum Basin Management Program – Potential Deliveries of 10,000 AFY to WMWD / Development of New Chino III Desalter) presentation. The presentation was developed by Black & Veatch, in association with RBF Consulting and Wildermuth Environmental, Inc. It was noted Watermaster is exploring options for a third Chino desalter and a plan is needed to fulfill the objectives of the originally proposed Chino III Desalter which will maintain hydraulic control, meet Peace II objectives, and meet the goals of the Optimum Basin Management Program (OBMP). Mr. Argo stated a plan is needed to maintain hydraulic control in the basin and reviewed the goal to maintain historic agricultural pumping in the south basin to achieve required production of 40,000 afy. Mr. Argo stated five concepts were developed to meet these objectives of Chino III Desalter and reviewed in detail each of the possible concepts Mr. Argo stated all concepts assume use of the existing Arlington Desalter pipeline for deliveries to Western. Facility and cost assumptions were based on existing Chino Desalter Authority facilities and construction costs. A facility model was developed to estimate the costs for each of the concepts presented. Mr. Argo reviewed several maps of wells in correlation to the five concepts in detail and discussed the next steps that will be taken with Watermaster and stakeholder approval. The hydraulic control summary chart was examined and discussed and Mr. Argo solicited questions and comments from committee members. A question regarding the numbers presented on the concepts which lead to a discussion. Mr. Argo stated the five concepts which were presented will most likely not be one of the options to choose from later on once more work has been done and recommendations received to make changes. Mr. Jeske made reference to the report on hydraulic control which was received last month on what we may need to do in certain issues. That report and findings may or may not tie into what Black & Veatch is trying to do. Mr. Jeske noted that in a meeting with the CDA the group was looking at five specific low cost alternatives to achieve both goals in hydraulic control and providing reliability to the agencies. There may be some work involved to merge what WMWD and the CDA are doing financially. Mr. Manning stated the extension of the work which was originally discussed was authorized and budgeted for in the Watermaster budget and is still within the original authorization. Discussions will still take place with WMWD on cost sharing ideas. A discussion ensued with regard to cost sharing and the Tier II rate.

D. INLAND EMPIRE UTILITIES AGENCY

1. Monthly Water Conservation Programs Report
No comment was made regarding this item.

2. Groundwater Operations Recharge Summary – handout
No comment was made regarding this item.

3. Monthly Imported Water Deliveries Report
No comment was made regarding this item.

4. State/Federal Legislation Reports
No comment was made regarding this item.
5. Public Relations Report
No comment was made regarding this item.

E. OTHER METROPOLITAN MEMBER AGENCY REPORTS

Mr. Hansen commented on the feedback received regarding waste discharge requirements for the recharge of imported water by the Regional Board. Mr. Hansen stated it is not just the Chino Basin area that would be affected, there would be a terrible president for all of Southern California. Mr. Hansen stated yesterday communications already began with Metropolitan Water District that they want MWD member agencies to all get involved in this process.

IV. INFORMATION

1. Newspaper Articles

No comment was made regarding this item.

V. COMMITTEE MEMBER COMMENTS

No comment was made regarding this item.

VI. OTHER BUSINESS

No comment was made regarding this item.

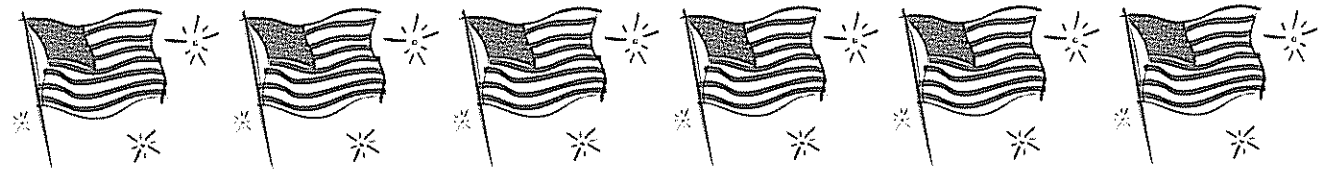
VII. FUTURE MEETINGS

April 25, 2006	9:00 a.m.	GRCC Committee Meeting
April 27, 2006	9:00 a.m.	Advisory Committee Meeting
April 27, 2006	11:00 a.m.	Watermaster Board Meeting
April 27, 2006	1:00 p.m.	Boardsmanship Workshop
May 2, 2006	9:00 a.m.	Budget Workshop
May 11, 2006	9:00 a.m.	Appropriative & Non-Agricultural Pool Meeting
May 16, 2006	9:00 a.m.	Agricultural Pool Meeting @ IEUA
May 25, 2006	9:00 a.m.	Advisory Committee Meeting
May 25, 2006	11:00 a.m.	Watermaster Board Meeting

The Advisory Committee Meeting Adjourned at 9:45 a.m.

Secretary: _____

Minutes Approved: _____

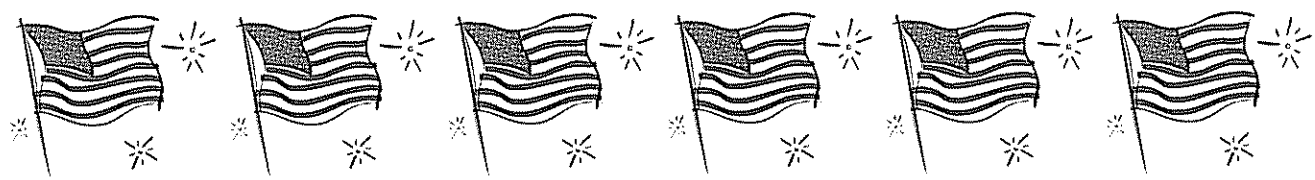


CHINO BASIN WATERMASTER

I. CONSENT CALENDAR

A. MINUTES

1. Watermaster Board Meeting – April 27, 2006



Draft Minutes

CHINO BASIN WATERMASTER
WATERMASTER BOARD MEETING

April 27, 2006

The Watermaster Board Meeting was held at the offices of the Chino Basin Watermaster, 9641 San Bernardino Road, Rancho Cucamonga, California, on April 27, 2006 at 11:00 a.m.

WATERMASTER BOARD MEMBERS PRESENT

Ken Willis, Chair	West End Consolidated Water Company
Sandra Rose	Monte Vista Water District
Terry Catlin	Inland Empire Utilities Agency
Al Lopez	Western Municipal Water District
Bob Kuhn	Three Valleys Municipal Water District
Bob Bowcock	Vulcan Materials Company
Paul Hofer	Agricultural Pool, Crops
Paul Hamrick	Jurupa Community Services District
Geoffrey Vanden Heuvel	Agricultural Pool, Dairy

Watermaster Staff Present

Kenneth R. Manning	Chief Executive Officer
Sheri Rojo	CFO/Asst. General Manager
Gordon Treweek	Project Engineer
Danielle Maurizio	Senior Engineer
Sherri Lynne Molino	Recording Secretary

Watermaster Consultants Present

Scott Slater	Hatch & Parent
Michael Fife	Hatch & Parent
Mark Wildermuth	Wildermuth Environmental Inc.
Dave Argo	Black & Veatch

Others Present

Rosemary Hoerning	City of Upland
Ken Jeske	City of Ontario
Marty Zvirbulis	Cucamonga Valley Water District
Mark Kinsey	Monte Vista Water District
Carole McGreevy	Jurupa Community Services District
Ashok K. Dhingra	City of Pomona
Charles Moorrees	San Antonio Water Company
Dave Crosley	City of Chino
David DeJesus	Three Valleys Municipal Water District

The Watermaster Board Meeting was called to order by Mr. Willis at 11:00 a.m.

PLEDGE OF ALLEGIANCE

AGENDA - ADDITIONS/REORDER

Mr. Manning noted that while reviewing the March 23, 2006 minutes counsel decided to make a slight change to the language written on the discussion regarding confidentiality. Counsel Slater noted the revised minutes are provided in your meeting folder and on the back table. A brief discussion ensued with regard to what was changed and why the change was necessary. The revised minutes were presented into the Consent Calendar for approval.

I. CONSENT CALENDAR

A. MINUTES

1. Revised Minutes of the Annual Watermaster Board Meeting held March 23, 2006

B. FINANCIAL REPORTS

5. Cash Disbursements for the month of March 2006
6. Combining Schedule of Revenue, Expenses and Changes in Working Capital for the Period July 1, 2005 through February 28, 2006
7. Treasurer's Report of Financial Affairs for the Period February 1, 2006 through February 28, 2006
8. Profit & Loss Budget vs. Actual July through February 2006

C. WATER TRANSACTION

Consider Approval for Transaction of Notice of Sale or Transfer – Cucamonga Valley Water District has agreed to purchase from West Valley Water District water in storage in the amount of 500 acre-feet. Date of application: January 10, 2006

Motion by Kuhn, second by Hamrick, and by unanimous vote

Moved to approve Consent Calendar Items A (as revised) through C, as presented

II. BUSINESS ITEMS

A. MZ1 SUMMARY REPORT

Mr. Manning stated this item was presented to the Pools and Advisory Committee and had unanimous votes in favor of this item except for a one negative vote by the City of Chino Hills. Staff, counsel, and technical consultants are recommending the approval of the presented MZ1 Summary Report. This summary report was designed as a result of the MZ1 workshop held in May of 2005 where the Special Referee made recommendations, this being one of those recommendations. To be in compliance with the court, staff is asking that this report be approved. This report also includes the guidance criteria of the MZ1 management and meets the needs for this agency and for the court. Mr. Vanden Heuvel inquired if the city of Chino Hills has expressed an opinion on this report. Mr. Manning noted the city of Chino Hills at this point in time is not in concurrence with the MZ1 Technical Committee or other parties who are in favor of this report. The city of Chino Hills has not provided any comment on this report in the last sixty days and they have been absent from the MZ1 meetings. Mr. Vanden Heuvel asked if a representative had been in attendance at any meeting where this report was presented for approval. Mr. Manning stated a representative was present at the April 13, 2006, Appropriative & Non-Agricultural pool meeting and that representative was the only "no" vote at any meeting where this was presented for approval. Mr. Vanden Heuvel offered comment on the history of this issue. It was noted a representative from the Watermaster Board should meet personally with the city of Chino Hills to understand what their concerns are and that Chair Willis should be that representative. An extended discussion ensued with regard to the Summary Report and the Long-Term Report with regard to the city of Chino Hills concerns. Counsel Slater stated Chino Hills concerns do not necessarily relate to the report itself or to the guidance criteria, which are not mandates, they are recommendations on operation. Comments were received by each member and Chair Willis called for a vote to table the motion for 30 days, while further attempts are made to engage Chino Hills into dialogue regarding their concerns.

Motion by Vanden Heuvel, second by Rose, and by majority vote

Motion to table this item for 30 days in order for Chair Willis to meet with the city of Chino Hills for resolution of their issues on the MZ1 Summary Report

III. REPORTS/UPDATES

A. WATERMASTER GENERAL LEGAL COUNSEL REPORT

1. Peace II Process

Counsel Slater noted the legal section will be divided between himself who will be presenting the Peace II Process update and Counsel Fife who will be presenting the Santa Ana update. Counsel Slater stated as we reported at the last Board meeting the Wildermuth Environmental technical report would be out for review, a Strawman Proposal would be distributed, and a confidential meeting with attorneys, managers, principals, board members, and stakeholders who were willing to abide by the rules of evidentiary confidentiality was held on April 18, 2006. At that meeting the Strawman Proposal was explained and it was noted that this was not a proposal of the Watermaster Board or Board Member; it was solely an effort on the part of staff to facilitate an agreement among the parties. The document was presented, questions were asked and answered and the question was put to the group whether the proposal was worth further discussion, and the strong consensus in favor to continue the discussions of the document. The discussion of process occurred by either two ways, through the open Watermaster process or should the dialog continue in a confidential environment. The consensus was, for the time being, that conversations should be continued in confidence. Based upon that decision, a preliminary "hold a date" notice has been sent out for two dates May 4, 2006 and May 15, 2006. Mr. Kuhn inquired if input from board members will be needed at the next Attorney-Manager meeting? Counsel Slater stated the board members input is welcome. Mr. Vanden Heuvel offered comment on seeking board comments at those meetings. A discussion ensued with regard to the differences in the meetings. Counsel Slater stated initially the Attorney-Manager meetings was limited to the parties to have in attendance, a lawyer and a principal which was perceived as being exclusive as opposed to inclusive. Our understanding by the direction we received was to not limit it to allow board members to attend but to allow any representative of the stakeholders to attend so long as each attendee were willing to abide by the evidentiary confidentiality associated with the discussions. Ultimately that process would yield a product which would be brought forward through the Pools, Advisory Committee, and be subject to open comments by the Board members; the question is to give that process more time or the confidential sessions more time prior to the introduction to the Watermaster process. Ms. Rose confirmed the meetings that might be held on the 4th and the 15th are the confidential sessions and Counsel Slater concurred. Chair Willis acknowledged the board members want to continue to be invited to the confidential meetings and will adhere to the evidentiary confidentiality agreement.

2. Santa Ana River Water Rights Application

Counsel Fife stated this item has been a long on-again/off-again process and presently it is on the forefront again. Counsel Fife stated in May of 2005, the other parties that are involved in this process (including Orange County Water District (OCWD), Western Municipal Water District (WMWD), San Bernardino Municipal Water District, and the City of Riverside) decided they were ready to move forward on their applications and bring their applications to hearing by the beginning of 2006. Counsel Fife stated it has been made known to the parties involved that Watermaster is confident in our projects, positive in our validity of our application, and if they are ready to go to the State Board to get confirmation of their rights, we will follow suit. The last time this item was in motion, counsel and staff met with the State Board's staff to discuss the details of our application along with trips made to Sacramento and after that attempt the issue faded away and has been silent ever since. Counsel Fife stated OCWD has now reissued a programmatic environmental impact report for their water rights application. The notice of availability is on the back table for review. With this news, counsel is anticipating WMWD to follow suit and if this does happen counsel, in concert with WMWD, will approach the State Board. Counsel Fife stated it is Watermaster's position that we have all the rights to all the surface water that passes through the Chino Basin and staff has expressed to the State Board that we do not

need to do any further CEQA work and believe Watermaster is solid on our part of our application.

Counsel Fife stated there is an interesting development in legislation regarding Senate Bill 1795 which is being sponsored by the Stockton East Water District. The purpose of the legislation is to amend the water code, to say that any water rights application that is for the diversion of surface flows to use as groundwater recharge will not need an underground storage supplement. This is a part of the application that is very onerous and requires a lot of reporting. The State Board in recent years has stated they will regard a diversion for the purpose of recharge as that ultimate pumping is the actual diversion and everything prior to that just a pipe basically and what the State Board is going to regulate is the ultimate pumping. This SB1795 would rectify this situation and make our application much easier. To date there is no opposition to this bill and staff and counsel are hopeful this bill will get passed. A brief discussion ensued with regard to water plans.

B. WATERMASTER ENGINEERING CONSULTANT REPORT

1. Update on Report on Balance of Recharge and Discharge

Mr. Wildermuth stated as reported at the Pool and the Advisory Committee, the Balance of Recharge and Discharge/Hydraulic Control Modeling Report is out as a draft report. Mr. Wildermuth stated that opposed to all the numbers the engineers have been working with over the past twelve months, the numbers are slightly different; however, the final answer comes out the same. Mr. Wildermuth noted one item is different, and this has been collaborated by all the new monitoring data that has come out of the Hydraulic Control monitoring program, is that we do not have hydraulic control on the far west side of the basin. This area would be in the vicinity of Desalter I, wells one through four which are deep wells, and then just west of those wells. There is an opportunity there that we can obtain hydraulic control by installing more desalter wells in that location. This report will be finalized at some point in time or will be accepted as a draft report as final. Mr. Vanden Heuvel commented on the new information which was just released regarding our monitoring showing there is leakage from the Chino Basin and the Regional Board is aware of this issue and expecting something to be done about it.

C. CEO/STAFF REPORT

1. Consequences of Non-Implementation of Peace II

Mr. Manning stated following discussions with the special referee, it was suggested a brief summary be put together and presented to the parties on this subject matter. Hatch & Parent was tasked to go through all the consequences and provide a memo to be presented at the meetings to bring the parties up to speed on the consequences. Counsel Fife stated this memo is a brief overview of some of the consequences if Peace II is not completed. Counsel Fife noted that other than water quality, all the rest of the items are tied to specific deadlines, all of which will kick in whether we implement Peace II or not. The ultimate conclusion of the memo is the choice in dealing with these issues together and in a coordinated way or dealing with them on an individual basis. Mr. Vanden Heuvel stated, in his opinion, the presented document does not spell out the magnitude of the consequences and noted there are huge price tags associated with the failure to deal with storage. Mr. Vanden Heuvel stated an estimated range of potential cost should be given to the parties for the record regarding storage. A lengthy discussion ensued with regard to liability and financial obligations. Counsel Fife stated to put together a more comprehensive analysis including all aspects of financial obligations and numbers on storage would take longer to produce than time we have left for the conclusion of the Peace II process. A discussion ensued on the cost of estimation of replenishing the existing desalters. Comments were received by Mr. Vanden Heuvel regarding the discussions on this issue. Mr. Manning noted it would be extremely expensive and involved to proceed with giving a more detailed description of consequences.

2. DataX Presentation

Mr. Manning stated this presentation will be given at the Watermaster Board meeting and that the Inland Empire Utilities Agency (IEUA) will also be presenting it at their board meeting; this is a joint project with IEUA. Ms. Maurizio noted an update was last given on this project in March 2005 and reviewed the background on this project and acknowledged that this effort started in October 2003. The purpose of the project is to facilitate the collection, management and sharing of water resources data. What DataX can be used for was reviewed in detail. The phased implementation was presented including Phase I - fiscal year 2004/05 and Phase II - fiscal year 2005/06. The DataX inter-agency web-based data-entry portal will be a centralized location for CBWM and IEUA to receive and store data that is being collected and submitted by other parties. The objectives and benefits to participating agency/cities were discussed. An inter-agency data entry portal pilot test will take place with the City of Chino and Cucamonga Valley Water District as participants. Future work for Phase III - fiscal year 2006/07 will include implementing direct data input by all Appropriative pool data generators, display recharge basin calculated results from the SCADA data, and interface imported and recycled water system with the IEUA billing system. Chino Basin Watermaster is currently using DataX and is very pleased with it. Mr. Manning noted this system should provide a lot of streamlining for agencies for data requests and processing.

3. Legislative Update

Mr. Manning stated he believes SB 1795 bill will be amended shortly and will assist our efforts in the Chino Basin to declare the water as beneficial use. Mr. Manning stated there is a new bill presented by Senator Simitian SB 1612 which has been pulled by the senator because it was not going to get a hearing. This is a $3 billion dollar general obligation bond and noted even if the bill was passed it would still have to go through the voters. Mr. Manning noted the portion of the bill that was of interest to us is for the first time since 1982 it had discussion about a bypass facility around the Delta as the basis for the bill. It was noted this bill will be introduced at a later date.

4. MWD Groundwater Study

Mr. Manning stated in September of 2005 Metropolitan Water District (MWD) asked groundwater managers in the MWD service area to meet at their office to discuss putting together a very cursory look at groundwater basins in Southern California within and in some cases outside the service area. The purpose would be to answer questions from their board relative to, "Is there any potential for groundwater storage as opposed to surface storage?" MWD staff is collecting data for this report. Recently Ms. Grebbien, Mr. Rossi and Mr. Manning met with MWD staff to talk about what MWD is exactly looking for due to the vagueness of their request for data. Mr. Manning stated he expressed a concern to MWD staff that if they were going to be gathering groundwater data that they needed to have a groundwater savvy person on staff or in a consultant capacity that can deal with the data. MWD noted they were going to be addressing that concern. Mr. Manning noted several other basins opted to fill out the questionnaire that was sent by MWD; however, Chino Basin Watermaster opted to send them our State of the Basin Report and some of our underlying governance documents and then schedule meeting directly with them to discuss their need to fill in the gaps.

5. Workshops Update

Mr. Manning stated there is a Boardsmanship workshop scheduled for board members and any other party who wishes to attend today after the Board meeting. This meeting has been scheduled by a request from board member Sandra Rose who wanted a better understand her role as a board member for the Chino Basin Watermaster. Hatch & Parent will be conducting this workshop.

A budget workshop has been scheduled for Ms. Rojo to present the proposed 2006/2007 budget on Tuesday, May 2, 2006 starting at 9:00 a.m.

6. Storm Water/Recharge Update
Mr. Treweek stated there is an updated Storm Water/Recharge Update available on the back table. It was noted 34,000 acre-feet of water has been recharged after nine months, there are four more months left in the storm season and we have been receiving above 5,000 acre-feet per month of recharge. This should bring us up to the 50,000 acre-foot goal for this year. February and March have had very good results of recharge due to recent storms. Mr. Treweek reviewed the handout in detail.

7. Draft Desalter III Alternative Study Update
Mr. Manning stated that as part of the Peace II process, staff has been discussing a relationship with Western Municipal Water District (WMWD) for the construction of a desalter program. There have been several questions regarding what the new desalter program might possibly look like. Mr. Dave Argo from Black & Veatch, has been tasked by WMWD to look at some desalter alternatives and Mr. Argo is here to present five draft concept ideas. Mr. Argo presented the "Chino Basin Optimum Basin Management Program – Potential Deliveries of 10,000 AFY to WMWD / Development of New Chino III Desalter) presentation. The presentation was developed by Black & Veatch in association with RBF Consulting and Wildermuth Environmental, Inc. It was noted Watermaster is exploring options for a third Chino desalter and a plan is needed to fulfill the objectives of the originally proposed Chino III Desalter which will maintain hydraulic control, meet Peace II objectives, and meet the goals of the Optimum Basin Management Program (OBMP). Mr. Argo stated a plan is needed to maintain hydraulic control in the basin and reviewed the goal to maintain historic agricultural pumping in the south basin to achieve required production of 40,000 afy. Mr. Argo stated five concepts were developed to meet these objectives of Chino III Desalter and reviewed in detail each of the possible concepts. Mr. Argo stated all concepts assume use of the existing Arlington Desalter pipeline for deliveries to Western. Facility and cost assumptions were based on existing Chino Desalter Authority facilities and construction costs. A facility model was developed to estimate the costs for each of the concepts presented. Mr. Argo reviewed several maps of wells in correlation to the five concepts in detail and discussed the next steps that will be taken with Watermaster and stakeholder approval. The hydraulic control summary chart was examined and discussed and Mr. Argo solicited questions and comments from committee members. A question regarding the numbers presented on the concepts which lead to a discussion. Mr. Argo stated the five concepts which were presented will most likely not be one of the options to choose from later on once more work has been done and recommendations received to make changes.

IV. INFORMATION

1. Newspaper Articles
No comment was made regarding this item.

V. BOARD MEMBER COMMENTS

No comment was made regarding this item.

VI. OTHER BUSINESS

No comment was made regarding this item.

VII. FUTURE MEETINGS

April 25, 2006	9:00 a.m.	GRCC Committee Meeting
April 27, 2006	9:00 a.m.	Advisory Committee Meeting
April 27, 2006	11:00 a.m.	Watermaster Board Meeting
April 27, 2006	1:00 p.m.	Boardsmanship Workshop
May 2, 2006	9:00 a.m.	Budget Workshop
May 11, 2006	9:00 a.m.	Appropriative & Non-Agricultural Pool Meeting
May 16, 2006	9:00 a.m.	Agricultural Pool Meeting @ IEUA

May 25, 2006	9:00 a.m.	Advisory Committee Meeting
May 25, 2006	11:00 a.m.	Watermaster Board Meeting

The Watermaster Board Meeting Adjourned at 1:00 p.m.

Secretary: _____

Minutes Approved: _____

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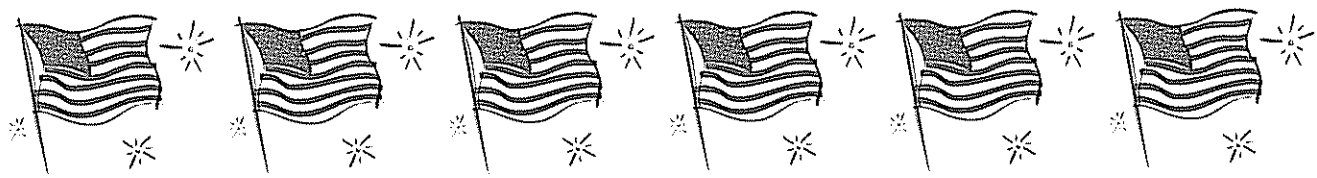
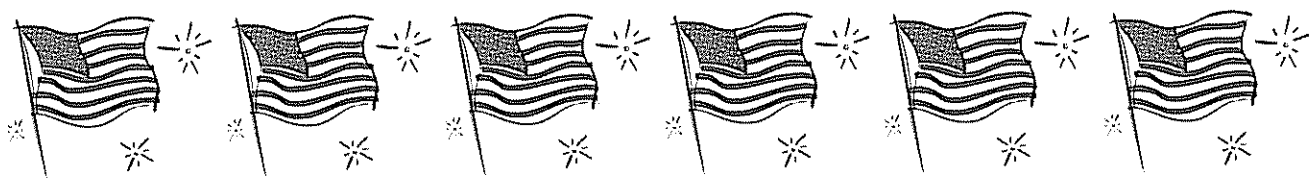


CHINO BASIN WATERMASTER

I. CONSENT CALENDAR

B. FINANCIAL REPORTS

1. Cash Disbursements for the month of April 2006
2. Combining Schedule of Revenue, Expenses and Changes in Working Capital for the Period July 1, 2005 through Marcy 31 2006
3. Treasurer's Report of Financial Affairs for the Period March 1, 2006 through March 31, 2006
4. Profit & Loss Budget vs. Actual July through March 2006



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, Ca 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

KENNETH R. MANNING
Chief Executive Officer

STAFF REPORT

DATE: **May 16, 2006**
May 18, 2006
May 25, 2006

TO: **Committee Members**
Watermaster Board Members

SUBJECT: **Cash Disbursement Report – April 2006**

SUMMARY

Issue – Record of cash disbursements for the month of April 2006.

Recommendation – Staff recommends the Cash Disbursements for April 2006 be received and filed as presented.

Fiscal Impact – All funds disbursed were included in the FY 2005-06 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 April 2006 were $464,435.23. The most significant expenditures during the month were Wildermuth Environmental Inc. in the amount of $239,025.93 and Hatch and Parent in the amount of $42,808.86.

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CHINO BASIN WATERMASTER
Cash Disbursement Detail Report
April 2006

Type	Date	Num	Name	Amount
Apr 06				
Bill Pmt -Check	4/5/2006	10368	ANDERSON, JOHN	-125.00
Bill Pmt -Check	4/5/2006	10369	ARROWHEAD MOUNTAIN SPRING WATER	-48.61
Bill Pmt -Check	4/5/2006	10370	BOWCOCK, ROBERT	-250.00
Bill Pmt -Check	4/5/2006	10371	CHAMPION NEWSPAPERS	-35.00
Bill Pmt -Check	4/5/2006	10372	DE BOOM, NATHAN	-625.00
Bill Pmt -Check	4/5/2006	10373	DIRECTV	-74.98
Bill Pmt -Check	4/5/2006	10374	DURRINGTON, GLEN	-500.00
Bill Pmt -Check	4/5/2006	10375	FEENSTRA, BOB	-375.00
Bill Pmt -Check	4/5/2006	10376	GEOTECHNICAL SERVICES	-7,964.56
Bill Pmt -Check	4/5/2006	10381	GROOMAN'S PUMP & WELL DRILLING, INC.	-85.00
Bill Pmt -Check	4/5/2006	10382	HAMRICK, PAUL	-125.00
Bill Pmt -Check	4/5/2006	10383	Hettinga, Peter	-375.00
Bill Pmt -Check	4/5/2006	10384	HOSTETLER, DAN	-125.00
Bill Pmt -Check	4/5/2006	10385	HSBC BUSINESS SOLUTIONS	-945.83
Bill Pmt -Check	4/5/2006	10386	HUITSING, JOHN	-375.00
Bill Pmt -Check	4/5/2006	10387	JAMES JOHNSTON	-1,110.00
Bill Pmt -Check	4/5/2006	10388	KOOPMAN, GENE	-375.00
Bill Pmt -Check	4/5/2006	10389	KUHN, BOB	-250.00
Bill Pmt -Check	4/5/2006	10390	MONTE VISTA WATER DIST	-250.00
Bill Pmt -Check	4/5/2006	10377	MWH LABORATORIES	-200.00
Bill Pmt -Check	4/5/2006	10378	PAYCHEX	-226.95
Bill Pmt -Check	4/5/2006	10379	PETTY CASH	-646.94
Bill Pmt -Check	4/5/2006	10380	PIERSON, JEFFREY	-375.00
Bill Pmt -Check	4/5/2006	10391	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	-6,727.21
Bill Pmt -Check	4/5/2006	10392	PUMP CHECK	-9,169.98
Bill Pmt -Check	4/5/2006	10393	PURCHASE POWER	-11.00
Bill Pmt -Check	4/5/2006	10394	QUILL	-465.95
Bill Pmt -Check	4/5/2006	10395	R&D PEST SERVICES	-85.00
Bill Pmt -Check	4/5/2006	10396	SPRINT	-599.28
Bill Pmt -Check	4/5/2006	10397	STATE COMPENSATION INSURANCE FUND	-1,686.89
Bill Pmt -Check	4/5/2006	10398	THEIRL, JIM	-400.00
Bill Pmt -Check	4/5/2006	10399	UNION 76	-166.46
Bill Pmt -Check	4/5/2006	10400	VANDEN HEUVEL, GEOFFREY	-375.00
Bill Pmt -Check	4/5/2006	10401	VELASQUEZ JANITORIAL	-1,200.00
Bill Pmt -Check	4/5/2006	10402	VERIZON	-41.44
Bill Pmt -Check	4/5/2006	10403	WHEELER METER MAINTENANCE	-2,100.00
Bill Pmt -Check	4/5/2006	10404	WILLIS, KENNETH	-250.00
Bill Pmt -Check	4/5/2006	10405	YUKON DISPOSAL SERVICE	-134.72
Bill Pmt -Check	4/5/2006	10406	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	-6,727.81
Bill Pmt -Check	4/5/2006	10407	CITISTREET	-8,850.00
Bill Pmt -Check	4/5/2006	10408	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	-6,727.80
Bill Pmt -Check	4/13/2006	10409	AWWA	-8,795.00
Bill Pmt -Check	4/13/2006	10410	ACWA SERVICES CORPORATION	-234.16
Bill Pmt -Check	4/13/2006	10411	AWWA	-1,230.00
Bill Pmt -Check	4/13/2006	10412	BANK OF AMERICA	-2,919.97
Bill Pmt -Check	4/13/2006	10413	DAILY BULLETIN	-184.80
Bill Pmt -Check	4/13/2006	10414	HATCH AND PARENT	-42,808.86
Bill Pmt -Check	4/13/2006	10415	INLAND COUNTIES INSURANCE SERVICES, INC.	-238.57
Bill Pmt -Check	4/13/2006	10416	MATHIS & ASSOCIATES	-2,300.00
Bill Pmt -Check	4/13/2006	10417	MAYER HOFFMAN MC CANN P.C.	-1,731.00
Bill Pmt -Check	4/13/2006	10418	PARK PLACE COMPUTER SOLUTIONS, INC.	-2,035.00
Bill Pmt -Check	4/13/2006	10419	PREMIERE GLOBAL SERVICES	-40.17
Bill Pmt -Check	4/13/2006	10420	REID & HELLYER	-4,661.90
Bill Pmt -Check	4/13/2006	10421	RICOH BUSINESS SYSTEMS-Maintenance	-1,011.46
Bill Pmt -Check	4/13/2006	10422	STANTEC CONSULTING, INC.	-206.25
Bill Pmt -Check	4/13/2006	10423	THE FURMAN GROUP, INC.	-3,050.00
Bill Pmt -Check	4/13/2006	10424	UNITED PARCEL SERVICE	-201.68
Bill Pmt -Check	4/13/2006	10425	VERIZON	-375.67
Bill Pmt -Check	4/13/2006	10426	VIP AUTO DETAILING	-399.45
General Journal	4/15/2006	06/04/4	PAYROLL	-5,432.15
General Journal	4/15/2006	06/04/4	PAYROLL	-20,139.37
Bill Pmt -Check	4/20/2006	10427	APPLIED COMPUTER TECHNOLOGIES	-1,635.70
Bill Pmt -Check	4/20/2006	10428	BLACK & VEATCH CORPORATION	-5,122.50
Bill Pmt -Check	4/20/2006	10429	CALPERS	-2,650.83
Bill Pmt -Check	4/20/2006	10430	COMPUSA, INC.	-161.61
Bill Pmt -Check	4/20/2006	10431	CUCAMONGA VALLEY WATER DISTRICT	-5,076.00
Bill Pmt -Check	4/20/2006	10432	ELLISON, SCHNEIDER & HARRIS, LLP	-7,313.47
Bill Pmt -Check	4/20/2006	10433	FIRST AMERICAN REAL ESTATE SOLUTIONS	-125.00

CHINO BASIN WATERMASTER
Cash Disbursement Detail Report
April 2006

Type	Date	Num	Name	Amount
Bill Pmt -Check	4/20/2006	10434	MCI	-908.17
Bill Pmt -Check	4/20/2006	10435	PITNEY BOWES CREDIT CORPORATION	-468.72
Bill Pmt -Check	4/20/2006	10436	PRE-PAID LEGAL SERVICES, INC.	-103.60
Bill Pmt -Check	4/20/2006	10437	PRINTING RESOURCES	-597.14
Bill Pmt -Check	4/20/2006	10438	PUMP CHECK	-1,350.00
Bill Pmt -Check	4/20/2006	10439	RICOH BUSINESS SYSTEMS-Lease	-4,480.25
Bill Pmt -Check	4/20/2006	10440	STAULA, MARY L	-136.61
Bill Pmt -Check	4/20/2006	10441	UNITEK TECHNOLOGY INC.	-4,130.21
Bill Pmt -Check	4/20/2006	10442	WHEELER METER MAINTENANCE	-750.00
Bill Pmt -Check	4/24/2006	10443	ROUTE 66 SUBS	-129.55
Bill Pmt -Check	4/26/2006	10444	ARROWHEAD MOUNTAIN SPRING WATER	-17.23
Bill Pmt -Check	4/26/2006	10445	EL TORITO	-191.65
Bill Pmt -Check	4/26/2006	10446	JOBS AVAILABLE INC	-29.95
Bill Pmt -Check	4/26/2006	10447	PETTY CASH	-415.59
Bill Pmt -Check	4/26/2006	10448	POWERS ELECTRIC PRODUCTS CO.	-195.73
Bill Pmt -Check	4/26/2006	10449	RICOH BUSINESS SYSTEMS-Maintenance	-1,000.00
Bill Pmt -Check	4/26/2006	10450	SPRINT	-594.15
Bill Pmt -Check	4/26/2006	10451	STANDARD INSURANCE CO.	-581.22
Bill Pmt -Check	4/26/2006	10452	THREE VALLEYS MUNICIPAL WATER DIST	-15.00
Bill Pmt -Check	4/26/2006	10453	TREWEEK, GORDON	-282.53
Bill Pmt -Check	4/26/2006	10454	WATER EDUCATION FOUNDATION	-45.00
Bill Pmt -Check	4/27/2006	10455	P.C. CLUB	-1,066.71
Bill Pmt -Check	4/27/2006	10456	WILDERMUTH ENVIRONMENTAL INC	-239,025.93
Bill Pmt -Check	4/27/2006	10457	ROUTE 66 SUBS	-157.39
General Journal	4/30/2006	06/04/6	PAYROLL	-5,717.38
General Journal	4/30/2006	06/04/6	PAYROLL	-20,783.54
Apr 06				-464,435.23

CHINO BASIN WATERMASTER
COMBINING SCHEDULE OF REVENUE, EXPENSES AND CHANGES IN WORKING CAPITAL
FOR THE
PERIOD JULY 1, 2005 THROUGH MARCH 31, 2006

	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 2004-05
Administrative Revenues										
Administrative Assessments			4,781,347		66,160				4,847,507	$3,984,888
Interest Revenue			207,296	12,391	6,304			57	226,048	78,330
Mutual Agency Project Revenue		29,763							29,763	0
Grant Income									-	0
Miscellaneous Income									-	0
Total Revenues	-	29,763	4,988,643	12,391	72,464	-	-	57	5,103,318	4,063,218
Administrative & Project Expenditures										
Watermaster Administration	397,745								397,745	621,784
Watermaster Board-Advisory Committee	41,692								41,692	37,018
Pool Administration			14,987	94,642	3,416				113,045	91,153
Optimum Basin Mgnt Administration		1,044,682							1,044,682	1,019,183
OBMP Project Costs		1,464,954							1,464,954	3,733,694
Education Funds Use								375	375	375
Mutual Agency Project Costs	24,125								24,125	80,004
Total Administrative/OBMP Expenses	463,562	2,509,636	14,987	94,642	3,416			375	3,086,618	5,583,211
Net Administrative/OBMP Income	(463,562)	(2,479,873)								
Allocate Net Admin Income To Pools	463,562		359,979	97,030	6,554				-	0
Allocate Net OBMP Income To Pools		2,479,873	1,925,745	519,069	35,059				-	0
Agricultural Expense Transfer			704,591	(704,591)					-	0
Total Expenses			3,005,302	6,150	45,028	-	-	375	3,086,618	5,583,211
Net Administrative Income			1,983,341	6,241	27,436			(318)	2,016,700	(1,519,993)
Other Income/(Expense)										
Replenishment Water Purchases						6,635,065			6,635,065	0
MZ1 Supplemental Water Assessments									-	2,179,500
Water Purchases									-	0
MZ1 Imported Water Purchase									-	(2,278,500)
Groundwater Replenishment						(6,255,290)			(6,255,290)	0
Net Other Income			-	-	-	379,775	-	-	379,775	(99,000)
Net Transfers To/(From) Reserves			1,983,341	6,241	27,436	379,775	-	(318)	2,396,475	(1,618,993)
Working Capital, July 1, 2005			4,450,869	464,653	187,298	3,580,499	158,251	2,238	8,843,808	
Working Capital, End Of Period			6,434,210	470,894	214,734	3,960,274	158,251	1,920	11,240,283	
04/05 Production			127,810.967	34,450.449	2,326.836				164,588.252	
04/05 Production Percentages			77.655%	20.931%	1.414%				100.000%	

Q:\Financial Statements\05-06\05 Mar\[CombiningSchedule Mar.xls]Sheet1

Prepared by Sheri Rojo, Chief Financial Officer /Assistant General Manager

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CHINO BASIN WATERMASTER
TREASURER'S REPORT OF FINANCIAL AFFAIRS FOR THE PERIOD
MARCH 1 THROUGH MARCH 31, 2006

DEPOSITORIES:			
Cash on Hand - Petty Cash			$ 500
Bank of America			
Governmental Checking-Demand Deposits		$ 117,151	
Savings Deposits		9,697	
Zero Balance Account - Payroll		-	126,848
Vineyard Bank CD - Agricultural Pool			417,810
Local Agency Investment Fund - Sacramento			10,945,566
TOTAL CASH IN BANKS AND ON HAND	3/31/2006		**$ 11,490,724**
TOTAL CASH IN BANKS AND ON HAND	2/28/2006		13,602,603
PERIOD INCREASE (DECREASE)			**$ (2,111,879)**

CHANGE IN CASH POSITION DUE TO:		
Decrease/(Increase) in Assets:	Accounts Receivable	$ (110,417)
	Assessments Receivable	-
	Prepaid Expenses, Deposits & Other Current Assets	2,174
(Decrease)/Increase in Liabilities	Accounts Payable	(1,148,956)
	Accrued Payroll, Payroll Taxes & Other Current Liabilities	(37,577)
	Transfer to/(from) Reserves	(817,103)
	PERIOD INCREASE (DECREASE)	**$ (2,111,879)**

SUMMARY OF FINANCIAL TRANSACTIONS:	Petty Cash	Govt'l Checking Demand	Zero Balance Account Payroll	Savings	Vineyard Bank	Local Agency Investment Funds	Totals
Balances as of 2/28/2006	$ 500	$ 204,976	$ 25,423	$ 9,685	$ 416,453	$ 12,945,566	$ 13,602,603
Deposits	-	18		12	1,357	-	1,387
Transfers	-	1,949,896	50,104	-	-	(2,000,000)	-
Withdrawals/Checks	-	(2,037,739)	(75,527)	-	-	-	(2,113,266)
Balances as of 3/31/2006	$ 500	$ 117,151	$ -	$ 9,697	$ 417,810	$ 10,945,566	$ 11,490,724
	-	-	-	-	-	-	
PERIOD INCREASE OR (DECREASE)	**$ -**	**$ (87,825)**	**$ (25,423)**	**$ 12**	**$ 1,357**	**$ (2,000,000)**	**$ (2,111,879)**

CHINO BASIN WATERMASTER
TREASURER'S REPORT OF FINANCIAL AFFAIRS FOR THE PERIOD
MARCH 1 THROUGH MARCH 31, 2006

INVESTMENT TRANSACTIONS

Effective Date	Transaction	Depository	Activity	Redeemed	Days to Maturity	Interest Rate(*)	Maturity Yield
3/10/2006	Withdrawal		$ 500,000				
3/12/2006	Withdrawal		$ 600,000				
3/24/2006	Withdrawal		$ 900,000				
TOTAL INVESTMENT TRANSACTIONS			**$ 2,000,000**	-			

* The earnings rate for L.A.I.F. is a daily variable rate; 4.03% was the effective yield rate at the Quarter ended March 31, 2006

INVESTMENT STATUS
March 31, 2006

Financial Institution	Principal Amount	Number of Days	Interest Rate	Maturity Date
Local Agency Investment Fund	$ 10,945,566			
TOTAL INVESTMENTS	**$ 10,945,566**			

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,

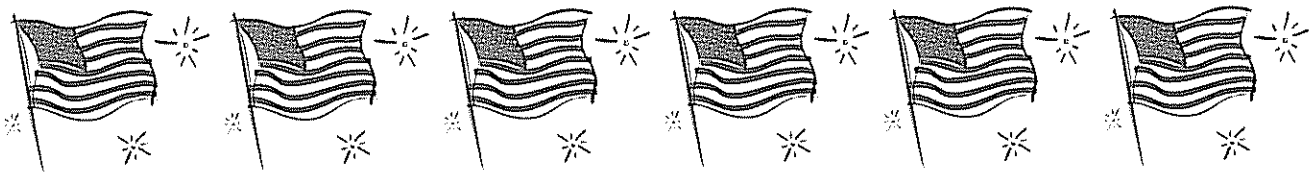
Sheri M. Rojo, CPA
Chief Financial Officer & Assistant General Manager
Chino Basin Watermaster

CHINO BASIN WATERMASTER
Profit & Loss Budget vs. Actual
July 2005 through March 2006

	Jul '05 - Mar 06	Budget	$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
4010 · Local Agency Subsidies	29,763	132,000	-102,238	22.55%
4110 · Admin Asmnts-Approp Pool	4,781,347	4,804,121	-22,774	99.53%
4120 · Admin Asmnts-Non-Agri Pool	66,160	73,425	-7,265	90.11%
4700 · Non Operating Revenues	226,048	78,330	147,718	288.58%
Total Income	5,103,317	5,087,876	15,441	100.3%
Gross Profit	5,103,317	5,087,876	15,441	100.3%
Expense				
6010 · Salary Costs	350,172	404,153	-53,981	86.64%
6020 · Office Building Expense	65,099	97,850	-32,751	66.53%
6030 · Office Supplies & Equip.	16,786	47,500	-30,714	35.34%
6040 · Postage & Printing Costs	56,826	75,700	-18,874	75.07%
6050 · Information Services	85,723	103,500	-17,777	82.82%
6060 · Contract Services	19,619	130,500	-110,881	15.03%
6080 · Insurance	18,677	24,210	-5,533	77.15%
6110 · Dues and Subscriptions	3,605	14,000	-10,395	25.75%
6140 · WM Admin Expenses	1,566	6,500	-4,934	24.09%
6150 · Field Supplies	-1,752	4,050	-5,802	-43.26%
6170 · Travel & Transportation	49,172	45,200	3,972	108.79%
6190 · Conferences & Seminars	14,842	17,500	-2,658	84.81%
6200 · Advisory Comm - WM Board	10,654	14,082	-3,428	75.66%
6300 · Watermaster Board Expenses	31,037	29,782	1,255	104.22%
8300 · Appr PI-WM & Pool Admin	14,987	15,347	-360	97.65%
8400 · Agri Pool-WM & Pool Admin	14,848	18,756	-3,908	79.16%
8467 · Agri-Pool Legal Services	71,145	45,000	26,145	158.1%
8470 · Ag Meeting Attend -Special	8,650	10,000	-1,350	86.5%
8500 · Non-Ag PI-WM & Pool Admin	3,416	7,423	-4,007	46.02%
6500 · Education Funds Use Expens	375	375	0	100.0%
9500 · Allocated G&A Expenditures	-282,589	-378,284	95,695	74.7%
Subtotal G&A Expenditures	552,857	733,144	-180,287	75.41%
6900 · Optimum Basin Mgmt Plan	950,770	996,767	-45,997	95.39%
6950 · Mutual Agency Projects	24,125	75,000	-50,875	32.17%
9501 · G&A Expenses Allocated-OBMP	93,912	109,541	-15,629	85.73%
Subtotal OBMP Expenditures	1,068,807	1,181,308	-112,501	90.48%
7101 · Production Monitoring	59,184	68,755	-9,571	86.08%
7102 · In-line Meter Installation	54,757	97,954	-43,197	55.9%
7103 · Grdwtr Quality Monitoring	53,116	66,503	-13,387	79.87%
7104 · Gdwtr Level Monitoring	95,719	184,812	-89,093	51.79%
7105 · Sur Wtr Qual Monitoring	12,552	90,223	-77,671	13.91%
7106 · Wtr Level Sensors Install	0	5,734	-5,734	0.0%
7107 · Ground Level Monitoring	93,959	554,825	-460,866	16.94%
7108 · Hydraulic Control Monitoring	222,462	495,368	-272,906	44.91%
7109 · Recharge & Well Monitoring Prog	204,008	133,061	70,947	153.32%
7200 · PE2- Comp Recharge Pgm	262,619	759,105	-496,486	34.6%
7300 · PE3&5-Water Supply/Desalte	339	12,548	-12,209	2.7%
7400 · PE4- Mgmt Plan	160,921	1,081,014	-920,093	14.89%

CHINO BASIN WATERMASTER
Profit & Loss Budget vs. Actual
July 2005 through March 2006

	Jul '05 - Mar 06	Budget	$ Over Budget	% of Budget
7500 · PE6&7-CoopEfforts/SaltMgmt	49,792	255,769	-205,977	19.47%
7600 · PE8&9-StorageMgmt/Conj Use	6,849	77,268	-70,419	8.86%
7690 · Recharge Improvement Debt Pymt	0	300,000	-300,000	0.0%
7700 · Inactive Well Protection Prgm	0	12,128	-12,128	0.0%
9502 · G&A Expenses Allocated-Projects	188,677	268,742	-80,065	70.21%
	1,464,954	4,463,809	-2,998,855	32.82%
Total Expense	3,086,618	6,378,261	-3,291,643	48.39%
Net Ordinary Income	2,016,700	-1,290,385	3,307,085	-156.29%
Other Income/Expense				
Other Income				
4231 · MZ1 Assigned Water Sales	0	600,000	-600,000	0.0%
4210 · Approp Pool-Replenishment	6,635,065			
Total Other Income	6,635,065	600,000	6,035,065	1,105.84%
Other Expense				
5010 · Groundwater Replenishment	6,255,290	699,000	5,556,290	894.89%
9999 · To/(From) Reserves	2,396,475	-1,389,385	3,785,860	-172.49%
Total Other Expense	8,651,765	-690,385	9,342,150	-1,253.18%
Net Other Income	-2,016,700	1,290,385	-3,307,085	-156.29%
Net Income	0	0	0	0.0%

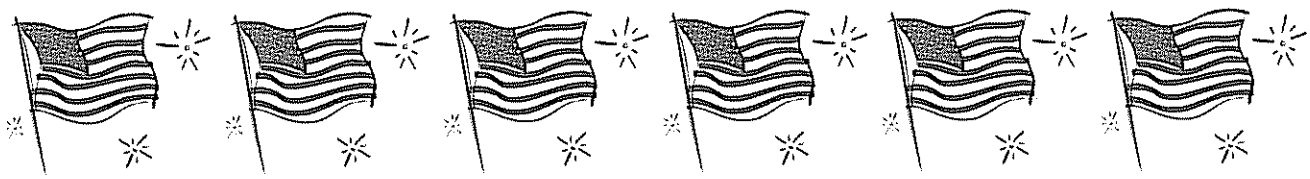


CHINO BASIN WATERMASTER

II. BUSINESS ITEM

A. 2006/2007 BUDGET

Consider Approval of the Watermaster Budget for FY 2006/2007



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, Ca 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

KENNETH R. MANNING
Chief Executive Officer

STAFF REPORT

DATE: **May 16, 2006**
May 18, 2006
May 25, 2006

TO: **Committee Members**
Watermaster Board Members

SUBJECT: **Proposed Fiscal Year 2006/2007 Budget**

SUMMARY

Issue – Annual Budget for Watermaster Administration and OBMP tasks during FY 2006/07.

Recommendations – Staff recommends the Committees and the Board take action to approve/adopt the Proposed FY 2006/07 Budget.

Fiscal Impact – The FY 2006/07 Proposed Budget expenses are $8,537,405. The FY 2006/07 Budget, as proposed, anticipates a slight increase in Administrative costs, an increase in OBMP general costs, and an increase in OBMP project costs.

DISCUSSION

Staff has compiled a draft budget for the Administrative costs:

- The draft budget includes anticipated increases in legal expenses paid on behalf of the Agricultural Pool as a result of the continued Peace II negotiations.
- Based on a market survey, the personnel committee is bringing forward a recommendation to increase the medical benefits paid per employee per month. The current plan allows for a cafeteria type of option where employees receive benefits up to $600 per month and are allowed to receive excess cash up to $525 per month should they elect not to take Watermaster health benefits. The proposal from the personnel committee allows for a two year increase with the first year benefit increasing from $600 to $862 with the allowable cash back to employees from $525 to deferred compensation plan contribution of $690. The second year allows for the increase in benefits to $1,150 and deferred compensation of up to $920 respectively.
- The proposed COLA this year is 4.7%.

Staff has compiled a draft budget for OBMP General costs:

- Attorney-General Manager's meetings, Pool meetings, Advisory Committee and Board meetings.
- Miscellaneous data requests from Appropriators.
- Continued implementation of DataX.
- The Court requires an update of the State of the Basin Report every two years. This report was last updated for the year 2004 – completed in FY 2004/05.
- The California Environmental Quality Act (CEQA) work required out of the Peace II process, which includes a recalibration of the groundwater flow model and the simulation of subsidence in the western portion of Chino Basin.

Staff has compiled a draft budget for OBMP Project costs:

- Monitoring activities – Groundwater production, groundwater level and quality, surface water discharge and quality, and ground level.
- Continued implementation of the recharge improvement project including recharge and well monitoring program
- Support of the Water Quality Committee, including engineering support for mitigation of volatile organic chemicals (VOC) plumes associated with the Ontario International Airport and the Chino Airport. Watermaster is also performing a comprehensive groundwater monitoring program in MZ-3.
- Development of a recharge master plan
- Management of subsidence and related monitoring and analysis
- Continued implementation of the Hydraulic Control Monitoring Program

In summary, the FY 2006/07 Budget, as proposed, anticipates a slight increase in Administrative costs, an increase in OBMP general and project costs. Final assessments will be refined when the assessment package is prepared this fall; assessments are dependent on prior year pumping and actual available cash on hand.

CHINO BASIN WATERMASTER
FY 2006/2007
SUMMARY BUDGET

	FY 04-05 June Actual	FY 05-06 December Actual	FY 05-06 Current Budget	FY 06-07 Proposed Budget	Current vs. Proposed
Ordinary Income					
4000 Mutual Agency Revenue	$895,733	$19,879	$132,000	$138,000	$6,000
4110 Appropriative Pool Assessments	4,807,004	4,781,347	4,834,117	7,227,619	2,393,502
4120 Non-Agricultural Pool Assessments	74,241	66,160	65,020	80,586	15,566
4730 Prorated Interest Income	211,607	111,779	78,330	136,500	58,170
4900 Miscellaneous Income	3,865	0	0	0	0
Total Income	**5,992,451**	**4,979,166**	**5,109,467**	**7,582,705**	**2,473,238**
Administrative Expenses					
6010 Salary Costs	427,958	225,436	404,153	447,037	42,884
6020 Office Building Expense	108,636	42,696	97,850	102,000	4,150
6030 Office Supplies & Equip.	66,089	12,978	54,000	51,500	-2,500
6040 Postage & Printing Costs	83,058	37,933	75,700	78,500	2,800
6050 Information Services	108,857	65,930	103,500	112,500	9,000
6060 WM Special Contract Services	168,168	1,939	130,500	131,000	500
6080 Insurance Expense	25,875	-691	24,210	25,210	1,000
6110 Dues and Subscriptions	19,073	2,502	14,000	16,750	2,750
6150 Field Supplies & Equipment	2,831	-1,832	4,050	4,000	-50
6170 Vehicle Maintenance Costs	20,291	44,240	45,200	19,350	-25,850
6190 Conferences & Seminars	16,022	5,632	17,500	22,500	5,000
6200 Advisory Committee Expenses	12,215	7,153	14,082	15,168	1,086
6300 Watermaster Board Expenses	34,943	19,032	29,782	36,955	7,173
6500 Education Fund Expenditures	0	375	375	375	0
8300 Appropriative Pool Administration	13,459	9,777	15,347	15,918	571
8400 Agricultural Pool Administration	87,794	69,642	73,756	95,633	21,877
8500 Non-Agricultural Pool Administration	3,065	2,174	7,423	6,694	-729
9500 Allocated G&A Expenditures	-307,227	-186,018	-378,284	-408,749	-30,465
Total Administrative Expenses	**891,107**	**358,900**	**733,144**	**772,341**	**39,197**
General OBMP Expenditures					
6900 Optimum Basin Mgmt Program	1,150,441	585,756	996,767	1,713,780	717,013
6950 Cooperative Efforts	57,631	15,755	75,000	5,000	-70,000
9501 Allocated G&A Expenditures	102,863	64,502	109,541	142,015	32,474
Total General OBMP Expenditures	**1,310,935**	**666,013**	**1,181,308**	**1,860,795**	**679,487**

CHINO BASIN WATERMASTER
FY 2006/2007
SUMMARY BUDGET

	FY 04-05 June Actual	FY 05-06 December Actual	FY 05-06 Current Budget	FY 06-07 Proposed Budget	Current vs. Proposed
7000 OBMP Implementation Projects					
7101 Production Monitoring	38,998	28,178	68,755	61,565	-7,190
7102 In-Line Meter Installation/Maintenance	26,093	16,575	97,954	64,904	-33,050
7103 Groundwater Quality Monitoring	126,327	35,098	66,503	149,713	83,210
7104 Groundwater Level Monitoring	93,148	51,866	184,812	191,953	7,141
7105 Basin Water Quality Monitoring	399,130	6,449	90,223	32,247	-57,976
7106 Water Level Sensors Install	0	0	5,734	0	-5,734
7107 Ground Level Monitoring	342,946	75,679	554,825	160,984	-393,841
7108 Hydraulic Control Monitoring Program	531,404	132,589	495,368	483,258	-12,110
7109 Recharge & Well Monitoring Program	0	81,442	133,061	146,350	13,289
7200 OBMP Pgm Element 2 - Comp Recharge Program	474,966	146,305	759,105	1,822,997	1,063,892
7300 OBMP Pgm Element 3 & 5 - Water Supply Plan - Desalter	1,418	339	12,548	4,676	-7,872
7400 OBMP Pgm Element 4 - Mgmt Zone Strategies	229,155	81,207	1,081,014	578,762	-502,252
7500 OBMP Pgm Element 6 & 7 - Coop Efforts/Salt Mgmt	49,744	46,274	255,769	310,507	54,738
7600 OBMP Pgm Element 8 & 9 Storage Mgmt/Conj Use	93,662	5,933	77,268	6,698	-70,570
7700 Inactive Well Protection Program	5,380	0	12,128	14,921	2,793
7690 Recharge Improvement Debt Payment	274,169	0	300,000	1,608,000	1,308,000
9502 Allocated G&A Expenditures	204,364	121,515	268,742	266,734	-2,008
Total OBMP Implementation Projects	**2,890,904**	**829,449**	**4,463,809**	**5,904,269**	**1,440,460**
Total Expenses	**5,092,946**	**1,854,363**	**6,378,261**	**8,537,405**	**2,159,144**
Net Ordinary Income	**899,505**	**3,124,803**	**-1,268,794**	**-954,700**	**314,094**
Other Income					
4210 Approp Pool-Replenishment	8,094,622	6,635,065	0	0	0
4220 Non-Ag Pool-Replenishment	2,485	0	0	0	0
4230 Groundwater Recharge Activity	1,625,000	0	600,000	0	-600,000
Total Other Income	**9,722,107**	**6,635,065**	**600,000**	**0**	**-600,000**
Other Expense					
5010 Groundwater Recharge	10,274,665	4,007,547	699,000	0	-699,000
Total Other Expense	**10,274,665**	**4,007,547**	**699,000**	**0**	**-699,000**
Net Other Income	**-552,558**	**2,627,519**	**-99,000**	**0**	**99,000**
9800 From / (To) Reserves	**-346,947**	**-5,752,322**	**1,367,794**	**954,700**	**-413,094**
Net Income	**$0**	**$0**	**$0**	**$0**	**$0**

Inland Empire
UTILITIES AGENCY*
* A Municipal Water District

6075 Kimball Avenue • Chino, CA 91710
P.O. Box 9020 • Chino Hills, CA 91709
TEL (909) 993-1600 • FAX (909) 993-1983
www.ieua.org

April 19, 2006

Chino Basin Watermaster
Attention of Ken Manning
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Proposed 2006-07 Recharge Operations and Maintenance Budget

Dear Mr. Manning:

IEUA has assembled the attached Recharge Operations and Maintenance (O&M) budget for the 2006-07 fiscal year for review and approval by CBWM. This budget includes all proposed budgeted costs as provided by CBWCD, SBCFCD and IEUA. The proposed budget is based on our understanding of the status of the recharge basins and the upcoming opportunities for additional recharge of imported and recycled water. By the end of the 2005-06 fiscal year, it is projected that approximately 43,000 acre-feet will be recharged within the 2005-06 O&M budget period at an O&M cost of $727,582. For the 2006-07 fiscal year, it is anticipated that through additional water supplies and basin enhancements, total recharge will exceed 54,000 acre-feet. The proposed budget includes an increase based on the unit cost of recharging the additional water.

The proposed budget also includes required costs that in the previous year were supplemented by either project capitalization or FEMA funding. Approximately $160,000 in utilities and environmental support were capitalized and approximately $520,600 in basin cleaning was funded by FEMA during the current fiscal year. Thus, the true cost of 2005-06 O&M was approximately $1,408,182 (a unit cost of $32.75 per acre-foot).

The proposed operating budget for 2006-07 is $1,143,010 (which does not include a single year $90,000 contingency allotment) and reflects an increase in total O&M cost at a decreased unit cost of recharge ($1,143,010/ 54,000 AF per year = $21.20 per acre-foot). For comparison, the unit cost per acre-foot is slightly higher than that of Orange County Water District, which has a much larger and well established O&M program. OCWD O&M costs are approximately $15.70 per acre-foot based on a budget of $3.5 million and a 15-year average recharge of 222,370 acre-feet. The IEUA unit cost is well below historical CBWCD O&M costs for the Montclair, Turner, and Ely basins ($47 per acre-foot).

In addition to the detailed 2006-07 fiscal year O&M budget, I have also attached a variety of text and summary tables that show a GWR Fund overview, explanations for budget line items, justification for significant budget changes, anticipated recharge estimates and anticipated unit production cost tables. Please give me a call if you have any questions or comments.

Sincerely,
INLAND EMPIRE UTILITIES AGENCY

Richard W. Atwater
Chief Executive Officer
General Manager

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Programmatic Overview

The FY 2006-07 budget for groundwater recharge operations of the basins and pertinent facilities is based on the costs to operate and maintain eighteen recharge sites in the Chino Basin. The anticipated volume of water recharge in FY 2006-07 is approximately 54,000 acre-feet (AF). This will be approximately 11,000 AF more than in the previous year due to anticipated improvements including:

- IEUA and SBCFCD completing an inlet to Jurupa Basin, enabling the delivery of storm water, imported water, and recycled water to RP3 and Declez Basins.
- The extension of IEUA's recycled water distribution system to Eighth Street and Brooks Basins, enabling recharge of recycled water at those sites.
- Expansion of MWD turnouts at CB13 and CB14, plus construction of a new turnout feeding Eighth Street and Ely Basins, enabling a consistence supply to these basins typically used only to recharge storm water.

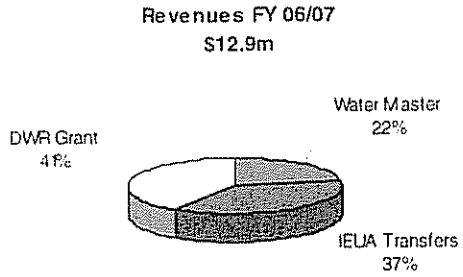
Fund Description

The Recharge Water (RW) Program accounts for the revenues and expenses associated with the groundwater recharge capital expansion, operations and maintenance (O&M). The O&M component of the fund primarily include salaries, equipment, compliance reporting, environmental documentation, utilities and contracted services. Contracted services include cleaning basins of clogging layers of silt/clay, pest control, and weeding. Basin cleaning is planned for the following basins: Montclair, Turner, and San Sevaine 2. Large equipment to be purchased includes turbidity sensors, pumps, and a generator to better facilitate reduced basin cleaning costs and minimize basin downtime.

Capital projects to be facilitated by this fund include matching funds for the utilization of DWR grant funding for MWD turnout improvements, basin berm improvements, SCADA system improvements, and monitoring well installations. Addition fund expenditures include groundwater monitoring activities and compliance reporting.

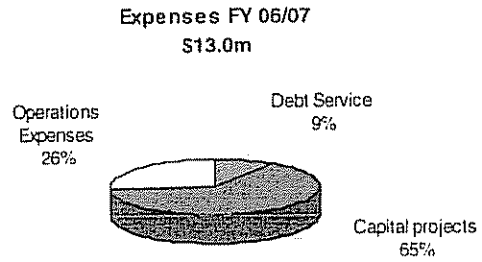
Revenues and Other Funding Sources

Total budgeted revenues for FY 2006/07 are $12.9 million, including $2.8 million of reimbursements for debt service and facilities operation and maintenance from Chino Basin Watermaster (CBWM), and fund transfers from Wastewater program at $4.8 million, for IEUA's share of debt service, operations, and capital support. In addition, DWR grant provides $5.3 million for Basin improvement projects.



Expenses and Other Uses of Funds

Total budgeted expenses amount to $13.0 million. Capital projects for Basin Improvements and Groundwater Monitoring Wells account for 65%, or $8.4 million. Operation expenses, reimbursable and non reimbursable, equal 26%, or $3.4 million. Debt service represents 9% of total expenses, or $1.2 million.



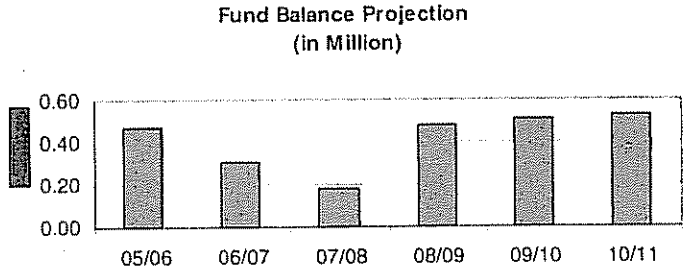
Capital expenses of $8.4 million include $7 million for Basin improvements, $1.4 million for Groundwater Hydraulic Monitoring Wells, and expansion of the Recharge System.

Operations expenses of $3.4 million include $1.2 million of Watermaster reimbursable expenses for basin operations and administration, as well as equipment acquisition, and $2.2 million of non reimbursable expenses, that consists of laboratory services of $.7 million, other contract services of $.7 million, and labor and other expenses for $.8 million.

Debt service expenses of $1.2 million consist of the Recharge Water fund portion of 2002 variable rate bonds debt payment, $800,000 for interest and financial expenses and $400,000 for principal payment.

Fund Balance

The ending Balance for FY 2006/07 is projected to be $300,000, a 34% decrease form prior year. In FY 2007/08 Fund balance will decrease to $180,000, due to further Basin improvement capital expenses. Fund balances in future years are projected to maintain at approximately $500,000.



FY 2006/07 Highlights

Completed and fully developed groundwater recharge sites will allow for a projected total annual recharge capacity of 170,000 acre feet (AF). Total recharge capacity will be comprised of up to 25,000 AF of storm water, 120,000 AF of imported water and 25,000 AF of recycled water.

Implementation of this program will allow for increased water supplies during dry years, reduced imported water supplies and overall improved water quality.

FY 2008/11 Forecast

Basin Improvement Program will continue in FY 2007/08 with $4.1 million additional capital projects, leaving reserves at about $200,000. For future years, operation and maintenance expenses are projected to maintain at approximately $3 million and debt related expenses will maintain at a $1.1 million to $1.4 million range, depending on interest rate fluctuations.

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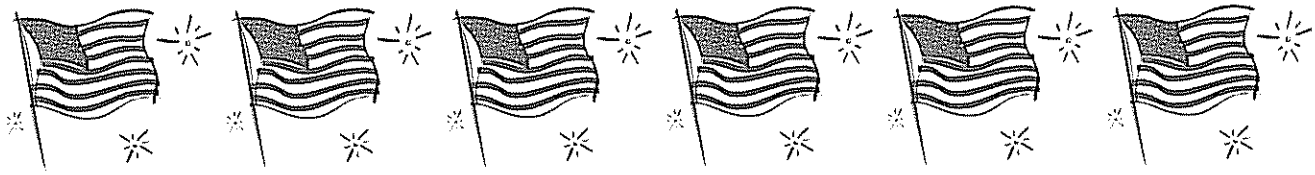
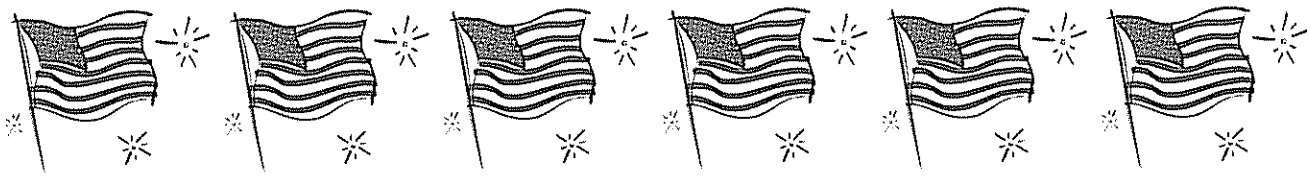


CHINO BASIN WATERMASTER

II. BUSINESS ITEM

B. PEACE II TERM SHEET
Consider Recommendation to Forward Through the Watermaster Process



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, Ca 91730
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KENNETH R. MANNING
Chief Executive Officer

STAFF REPORT

DATE: **May 25, 2006**

TO: **Watermaster Board Members**

SUBJECT: **Stakeholder Proposal**

SUMMARY

Recommendation – Staff and General Counsel recommend that the Board accept the enclosed Stakeholder proposal and refer it to the Pools for review and comment and to the Advisory Committee for appropriate action.

BACKGROUND

The Judgment requires Watermaster to prepare an Optimum Basin Management Plan ("OBMP"). Under Court Supervision, the Peace Agreement and the OBMP Implementation Plan was approved by this Board in June of 2000. Court approval of the Peace Agreement and the OBMP Implementation Plan followed in September of 2000.

Within the Peace Agreement there are specific items that require Watermaster to consider and exercise its discretion in the 2005/2006 time frame. Other sections of the Peace Agreement authorize Watermaster to take certain action that may have significant financial and water supply consequences on the members of the Judgment.

In its effort to further refine the OBMP Implementation Plan, Watermaster Staff and stakeholders have become aware of the significance of implementing a new groundwater management goal, commonly referred to as "Hydraulic Control". Properly implemented, achievement of this goal will allow Watermaster to enjoy beneficial coverage under the Regional Board Basin Management Plan and will further created long-term reliable yield improvements for the benefits of the parties.

Potential conflict among stakeholders regarding the application of Form 7 Credits and "Salt Credits" surfaced in the fall of 2003. These matters were thought to be incapable of piecemeal resolution.

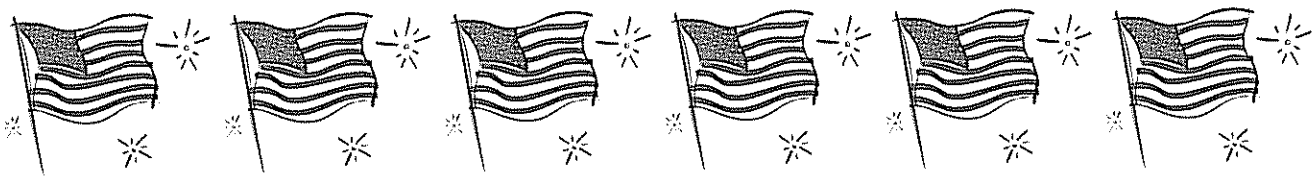
In February of 2004 Watermaster convened a process among the parties to the Judgment to address all of the above questions. This effort resulted in several months of meetings and a Herculean technical review. The meetings were suspended in July of 2004 and then resumed again in March of 2005 to allow the technical review to evaluate some of the management strategies being considered by the parties.

In August of 2005 an initial consensus among parties to the Judgment concerning a "Peace II Term Sheet" resulted in the Watermaster Board scheduling public workshops where numerous comments were received from stakeholders. Further technical analysis and written responses to questions were completed in April of 2006. The Watermaster Board authorized Watermaster Staff and General Counsel to prepare a "Facilitator Proposal" and distribute it for discussion among a new, broader group of stakeholders for evaluation.

On March 18, this process has formally concluded with the Stakeholder Proposal enclosed in your Board packet that has been unanimously supported by all stakeholders in attendance at the sessions. However, Watermaster has received correspondence from the City of Chino Hills that they remain concerned about the implementation of Article IX regarding management of Management Zone 1 issues. They have declared their right to oppose any and all measures in the Stakeholder Proposal if the MZ#1 issues are not resolved to their satisfaction.

Watermaster Staff and General Counsel do not believe the approval of the Stakeholder Proposal precludes any proposal on MZ#1. Nor does it pre-determine any specific outcome. Rather, Article IX constitutes a vessel capable of receiving whatever reasonable approach that is developed by the parties.

The Stakeholder Proposal will be sent out via email to each Watermaster Board Committee Member under a separate cover.

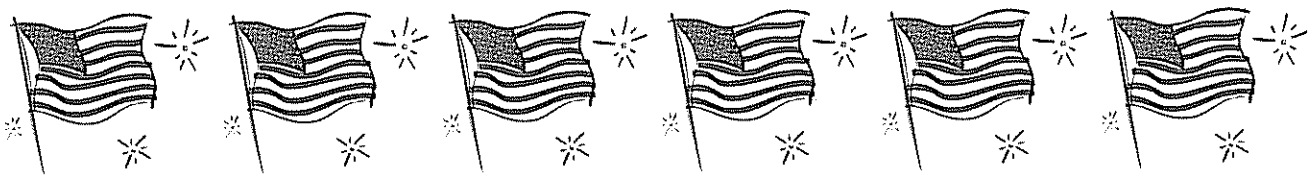


CHINO BASIN WATERMASTER

II. BUSINESS ITEM

C. MZ1 SUMMARY REPORT

Consider Approval of the February 2006 MZ-1 Summary Report



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KENNETH R. MANNING
Chief Executive Officer

STAFF REPORT

DATE: **May 25, 2006**

TO: **Watermaster Board Members**

SUBJECT: **MZ-1 Summary Report**

SUMMARY

Issue – Pursuant to the Special Referee's report dated June 16, 2005, Watermaster staff prepared a report titled *Management Zone 1 Interim Monitoring Program, MZ-1 Summary Report.* This report presents a summary of all the data collected as part of the MZ-1 monitoring program (through September 2005) and the conclusions reached from the analysis of the monitoring data. The report also includes MZ-1 Guidance Criteria, which are a recommended groundwater management criteria for the management of subsidence in the southern part of MZ-1 (Chino). These guidance criteria will be the basis of the long-term subsidence management plan.

Recommendation – Approve the February 2006 MZ-1 Summary Report.

Fiscal Impact – To be determined. The MZ-1 Summary Report recommends the continuation of the monitoring activities that have been implemented to date. The cost to Watermaster to provide this monitoring and reporting will be about $175,000 per year in 2006 dollars.

BACKGROUND

The Implementation Plan of the Optimum Basin Management Program (OBMP) called for an aquifer-system investigation of suspected pumping-induced land subsidence and ground fissuring that has occurred in the southern region of Management Zone 1 (MZ-1). Watermaster has coordinated and conducted the investigation under the guidance of the MZ-1 Technical Committee, which is composed of representatives from all major MZ-1 producers and their technical consultants. The results of the investigation are being used in the development of a long-term plan to minimize or abate future land subsidence and ground fissuring.

To date, the main conclusions derived from the investigation are:

1. The current state of aquifer-system deformation in south MZ-1 (in the vicinity of Ayala Park) is essentially elastic. Little, if any, inelastic (permanent) compaction is now occurring in this area, which is in contrast to the past when about 2.2 feet of land subsidence occurred, accompanied by ground fissuring, from about 1987-1995.

2. Groundwater production from the deep, confined aquifer system in this area causes the greatest stress to the aquifer system. In other words, pumping of the deep aquifer system causes water level drawdowns that are much greater in magnitude and lateral extent than drawdowns caused by pumping of the shallow aquifer system.

3. Water level drawdowns due to pumping of the deep aquifer system can cause inelastic (permanent) compaction of the aquifer-system sediments, which results in permanent land subsidence. The initiation of inelastic compaction within the aquifer system was identified during this investigation when water levels fell below a depth of about 250 feet in the PA-7 piezometer at Ayala Park.

4. Through this study, a previously undetected barrier to groundwater flow was identified. The barrier is located within the deep aquifer system and is aligned with the historical zone of ground fissuring. Pumping from the deep aquifer system is limited to the area west of the barrier, and the resulting drawdowns do not propagate eastward across the barrier. Thus, compaction occurs within the deep system on the west side of the barrier, but not on the east side, which causes concentrated differential subsidence across the barrier and creates the potential for ground fissuring.

5. InSAR and ground level survey data indicate that permanent subsidence in the central region of MZ-1 (north of Ayala Park) has occurred in the past and continues to occur today. The InSAR data also indicate that the groundwater barrier extends northward into central MZ-1. These observations suggest that the conditions that very likely caused ground fissuring near Ayala Park in the 1990s are also present in central MZ-1, and should be studied in more detail.

A workshop was held May 25, 2005 to update the Special Referee on progress of the investigation and development of the long-term plan for MZ-1. After the workshop, the Special Referee issued a report to the Court that summarized the workshop and requested that Watermaster:

- produce a MZ-1 Summary Report that describes the investigation results and conclusions to date
- notify the Court of the schedule for the completion of the long-term plan
- provide "guidance criteria" to the MZ-1 producers in an effort to minimize the potential for future subsidence and fissuring, pending completion of the long-term plan

The MZ-1 Summary Report contains the guidance criteria, which consist mainly of setting a "guidance" water level – 245 feet below the reference point for the PA-7 piezometer at Ayala Park – and recommends that groundwater production from a selected list of wells in MZ-1 not cause water levels to fall below the guidance level.

The report also outlines the process and schedule for developing a long-term management plan by June 2006. The primary objective of the long-term plan is to prevent additional permanent land subsidence that could initiate additional ground fissuring. A developing secondary objective is to optimize the use of existing groundwater production infrastructure. A key element of the long-term plan will be its adaptive nature, as new data are collected and periodically analyzed to evaluate the effectiveness of the long-term plan.

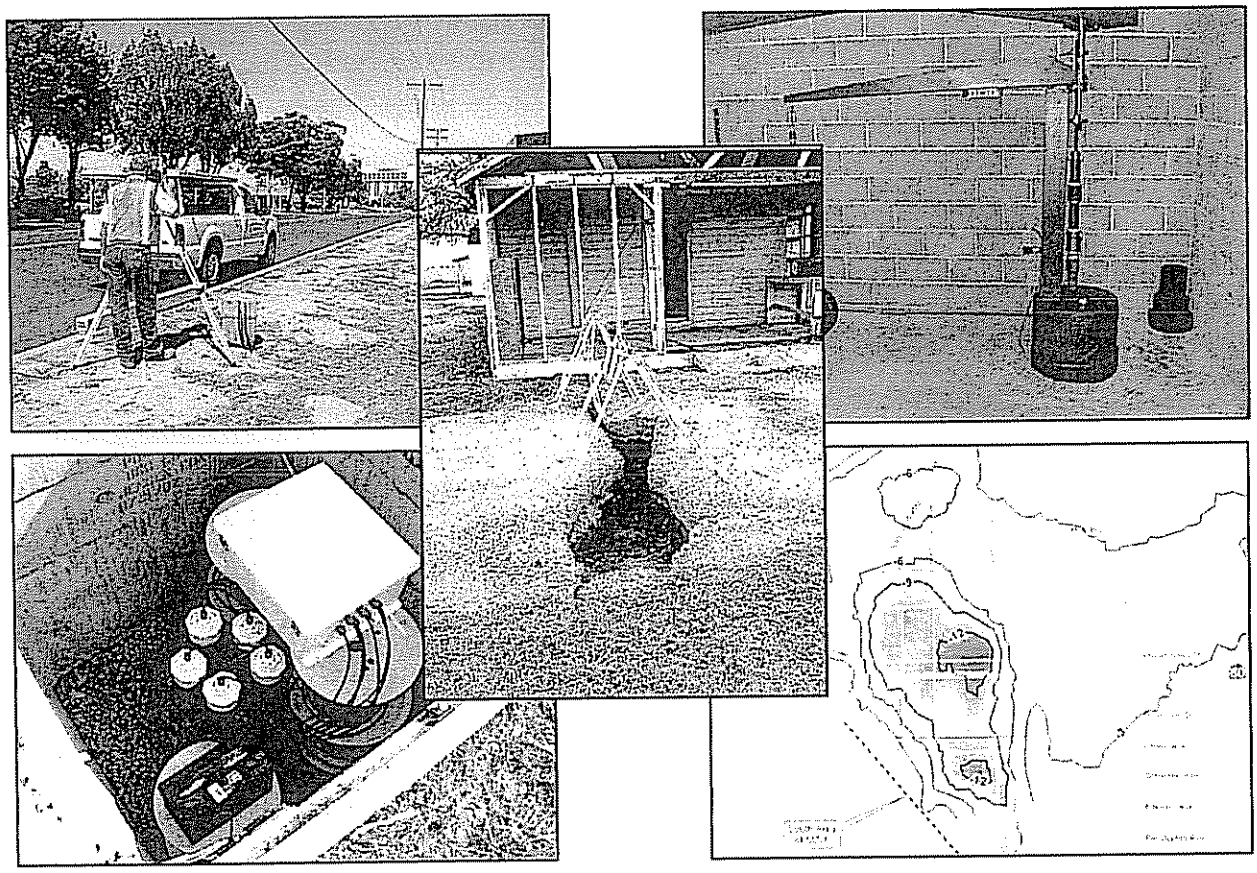
The guidance criteria and the long-term plan discussed above relate to the management of pumping-induced subsidence within the southern region of MZ-1, where associated ground fissuring damaged infrastructure in the early 1990s. However, this investigation has also revealed that the central region of MZ-1 has experienced in the past, and is currently experiencing, measurable land subsidence. This discovery has initiated an additional effort by Watermaster to characterize the subsidence mechanisms in this region through a slightly expanded monitoring effort. The adaptive nature of the long-term plan should accommodate the results that will emerge from the expanded monitoring effort in central MZ-1, so as to minimize the risk of future ground fissuring in this heavily urbanized region of Chino Basin.

The MZ1 Summary Report is best viewed in color which may done by downloading this document from:
ftp://citrix.wildermuthenvironmental.com/MZ1

CHINO BASIN
OPTIMUM BASIN MANAGEMENT PROGRAM

Management Zone 1
Interim Monitoring Program

MZ-1 Summary Report



Prepared for

MZ-1 Technical Committee

Prepared by

Wildermuth Environmental, Inc.

February 2006

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CHINO BASIN
OPTIMUM BASIN MANAGEMENT PROGRAM

Management Zone 1
Interim Monitoring Program

MZ-1 Summary Report

Prepared for

MZ-1 Technical Committee

Prepared by
Wildermuth Environmental, Inc.

February 2006

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ACRONYM AND ABBREVIATIONS LIST

AE	Associated Engineers
CA	California
CBWM	Chino Basin Watermaster
CIM	California Institution for Men
IMP	Interim Monitoring Program
MZ-1	Management Zone 1
OBMP	Optimum Basin Management Program
CH	Chino Hills
InSAR	Synthetic Aperture Radar Interferometry
MSL	mean sea level
PA	Piezometer A at Ayala Park Piezometer/Extensometer Facility
USGS	United States Geological Survey
WEI	Wildermuth Environmental Inc

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EXECUTIVE SUMMARY

The Implementation Plan of the Optimum Basin Management Program (OBMP) called for an aquifer-system investigation of suspected pumping-induced land subsidence and ground fissuring that has occurred in the southern region of Management Zone 1 (MZ-1). Watermaster has coordinated and conducted the investigation under the guidance of the MZ-1 Technical Committee, which is composed of representatives from all major MZ-1 producers and their technical consultants. The results of the investigation are being used to develop management tools (models) that will assist in the development of a long-term plan to minimize or abate future land subsidence and ground fissuring.

To date, the main conclusions derived from the investigation are:

1. The current state of aquifer-system deformation in south MZ-1 (in the vicinity of Ayala Park) is essentially elastic. Little, if any, inelastic (permanent) compaction is now occurring in this area, which is in contrast to the past when about 2.2 feet of land subsidence occurred, accompanied by ground fissuring, from about 1987-1995.

2. Groundwater production from the deep, confined aquifer system in this area causes the greatest stress to the aquifer system. In other words, pumping of the deep aquifer system causes water level drawdowns that are much greater in magnitude and lateral extent than drawdowns caused by pumping of the shallow aquifer system.

3. Water level drawdowns due to pumping of the deep aquifer system can cause inelastic (permanent) compaction of the aquifer-system sediments, which results in permanent land subsidence. The initiation of inelastic compaction within the aquifer system was identified during this investigation when water levels fell below a depth of about 250 feet in the PA-7 piezometer at Ayala Park.

4. Through this study, a previously undetected barrier to groundwater flow was identified. The barrier is located within the deep aquifer system and is aligned with the historical zone of ground fissuring. Pumping from the deep aquifer system is limited to the area west of the barrier, and the resulting drawdowns do not propagate eastward across the barrier. Thus, compaction occurs within the deep system on the west side of the barrier, but not on the east side, which causes concentrated differential subsidence across the barrier and creates the potential for ground fissuring.

5. InSAR and ground level survey data indicate that permanent subsidence in the central region of MZ-1 (north of Ayala Park) has occurred in the past and continues to occur today. The InSAR data also indicate that the groundwater barrier extends northward into central MZ-1. These observations suggest that the conditions that very likely caused ground fissuring near Ayala Park in the 1990s are also present in central MZ-1, and should be studied in more detail.

A workshop was held May 25, 2005 to update the Special Referee on progress of the investigation and development of the long-term plan for MZ-1. After the workshop, the Special Referee issued a report to the Court that summarized the workshop and requested that Watermaster:

- produce a MZ-1 Summary Report (this report) that describes the investigation results and conclusions to date
- notify the Court of the schedule for the completion of the long-term plan
- provide "guidance criteria" to the MZ-1 producers in an effort to minimize the potential for future subsidence and fissuring, pending completion of the long-term plan

This report contains the guidance criteria, which consist mainly of setting a "control" water level – 245 feet below the reference point for the PA-7 piezometer at Ayala Park – and recommend that groundwater production from a selected list of wells in MZ-1 not cause water levels to fall below the control level.

This report also outlines the process and schedule for developing a long-term management plan by June 2006. The primary objective of the long-term plan is to prevent additional permanent land subsidence that could initiate additional ground fissuring. A developing secondary objective is to optimize the use of existing groundwater production infrastructure. A key element of the long-term plan will be its *adaptive* nature, as new data are collected and periodically analyzed to evaluate the effectiveness of the long-term plan.

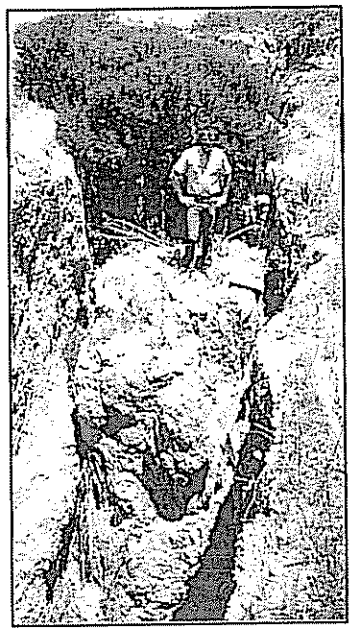
The guidance criteria and the long-term plan discussed above relate to the management of pumping-induced subsidence within the southern region of MZ-1, where associated ground fissuring damaged infrastructure in the early 1990s. However, this investigation has also revealed that the central region of MZ-1 has experienced in the past, and is currently experiencing, measurable land subsidence. This discovery has initiated an additional effort by Watermaster to characterize the subsidence mechanisms in this region through a slightly expanded monitoring effort. The adaptive nature of the long-term plan should accommodate the results that will emerge from the expanded monitoring effort in central MZ-1, so as to minimize the risk of future ground fissuring in this heavily urbanized region of Chino Basin.

The monitoring and analyses associated with this investigation dovetail nicely with other Watermaster efforts associated with basin re-operation and hydraulic control.

1. BACKGROUND

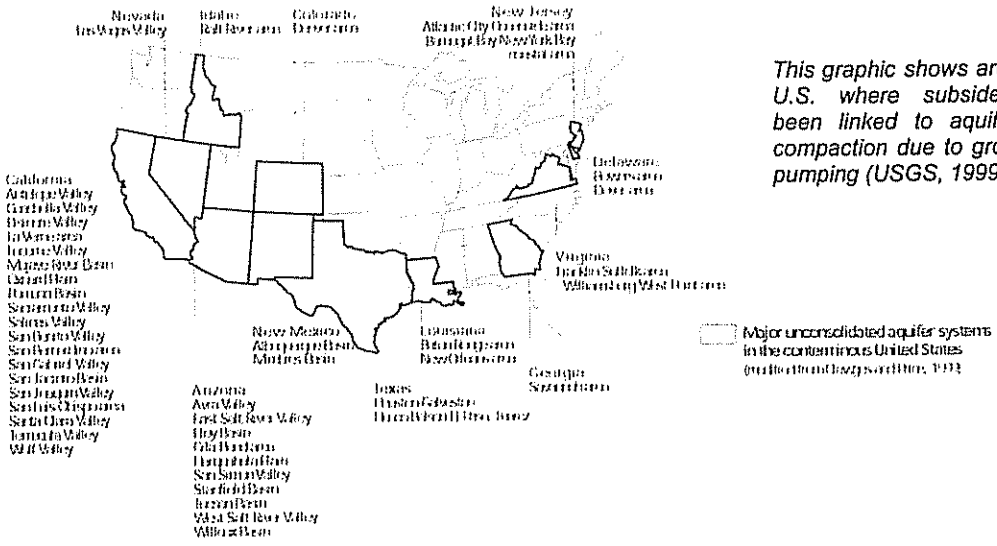
Groundwater Withdrawals and Land Subsidence

Land subsidence is the sinking of the Earth's surface due to the rearrangement of subsurface Earth materials. In the United States alone, over 17,000 square miles in 45 states have experienced land subsidence (USGS, 1999). In many instances, land subsidence is accompanied by adverse impacts at the land surface, such as sinkholes, earth fissures, encroachment of adjacent water bodies, modified drainage patterns, and others. In populated regions, these subsidence-related impacts can result in severe damage to man-made infrastructure and costly remediation measures.



This earth fissure near Mesa, Arizona formed as a result of differential compaction of the aquifer system (USGS, 1999).

Over 80% of all documented cases of land subsidence in the United States have been caused by groundwater extractions from the underlying aquifer system (USGS, 1999). Subsidence due to groundwater extraction is especially well-documented in the arid southwestern United States, where the aquifer systems are typically composed of unconsolidated sediments that are susceptible to permanent compaction when groundwater is extracted. Some infamous examples include the San Joaquin and Santa Clara Valleys in California, the Las Vegas Valley in Nevada, the Houston-Galveston area in Texas, and

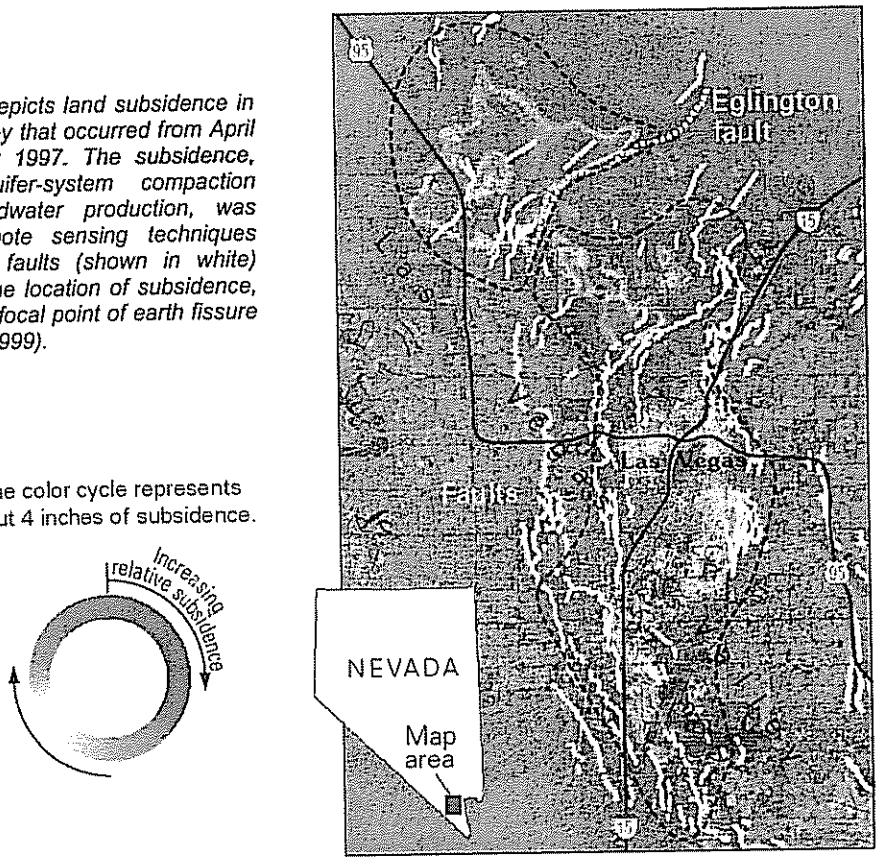


This graphic shows areas in the U.S. where subsidence has been linked to aquifer-system compaction due to groundwater pumping (USGS, 1999).

several basins in Arizona. In many of these regions, earth fissuring occurred in areas of differential subsidence (*i.e.* where rates and accumulated magnitudes of subsidence vary over short horizontal distances).

Although drawdown of water levels is the driving force that causes land subsidence due to groundwater pumping, the geology of a groundwater basin also plays an important role in this process. Clay layers within the aquifer-system are relatively compressible materials. Therefore, aquifer-systems that contain thick and/or numerous clay layers are most susceptible to permanent compaction and land subsidence when groundwater is extracted. In addition, faults that act as groundwater barriers can focus and augment drawdown in the aquifer-system when pumping wells are located near these faults. When pumping and drawdown are concentrated on one side of a fault barrier, then differential land subsidence and ground fissuring are a common result (see Las Vegas, as an example).

This map graphic depicts land subsidence in the Las Vegas Valley that occurred from April 1992 to December 1997. The subsidence, attributed to aquifer-system compaction caused by groundwater production, was measured by remote sensing techniques (InSAR). Geologic faults (shown in white) appear to control the location of subsidence, and have been the focal point of earth fissure formation (USGS, 1999).



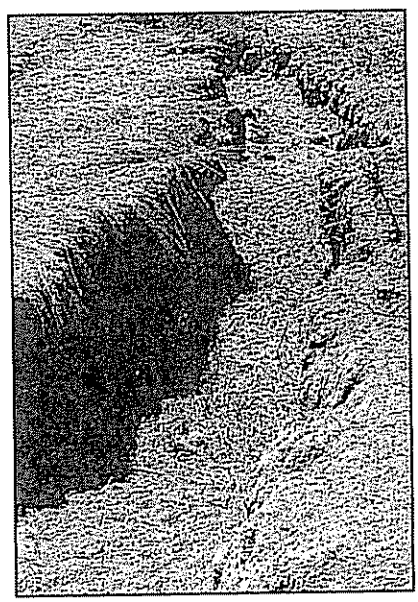
The scientific model that describes the phenomenon of pumping-induced land subsidence is termed the *aquitard-drainage model.* This model has been successfully applied to numerous cases of land subsidence world-wide. It has been incorporated into the industry-standard computer models of groundwater flow and is increasingly recognized as critical to the understanding of aquifer-system hydraulics (flow and storage) and mechanics (deformation). A brief summary of the aquitard-drainage model is below:

Aquitard-Drainage Model. Simply stated, an aquifer system consists of permeable sand and gravel layers (the aquifers) interbedded with less-permeable silt and clay layers (the aquitards). Pumping wells cause water-level drawdowns in the aquifers which, in turn, cause the aquitards to slowly drain into the aquifers. The draining allows aquitard pore pressures to decay toward equilibrium with the reduced heads in the adjacent aquifers. Since the pressure of the pore water provides some internal support for the sedimentary structure of the aquitards, this loss of internal support causes the aquitards to compress, resulting in a small amount of subsidence at the land surface. When the pumping wells turn off, and water levels recover in the aquifers, groundwater migrates back into the aquitards and they expand, resulting in a small amount of rebound at the land surface. Over a limited range of seasonal water level fluctuations this process can occur in a purely elastic fashion. That is, a recovery of water levels to their original values causes the land surface to rebound to its original elevation. However, when drawdown falls below a certain "threshold" level, elastic compression transitions to a non-recoverable inelastic compaction of the aquitards, resulting in permanent land subsidence. The "threshold" water level, referred to as the *preconsolidation stress*, is taken to be the maximum past stress to which the sedimentary structure had previously equilibrated under the gradually increasing load of accumulating sediments. [Note: The probable value of the virgin preconsolidation stress in the Chino Basin has not been documented, but studies in similar areas suggest that drawdowns in the range of 40 to 100 feet will typically exceed the initial threshold value.]

Drawdowns exceeding a previous threshold water level result in an increase in the value of maximum past stress, and thus the establishment of a deeper threshold, accompanied by an increment of inelastic aquitard compaction. Concomitantly, the compaction results in the one-time irreversible mining of groundwater from the aquitards. The benefits of this process include not only the obvious economic value of the water produced but also the often overlooked fact that, by establishing deeper thresholds, it increases the volume of confined groundwater storage available for cyclical drawdown and replenishment under strictly elastic conditions. The cost, of course, is the resulting deformation of the land surface and its impact on vulnerable infrastructure.

History of Ground Fissuring and Land Subsidence in Chino Basin

Ground Fissuring. One of the earliest indications that land subsidence was occurring in Chino Basin was the appearance of ground fissures in the City of Chino. These fissures appeared as early as 1973 (Fife et al., 1976), but an accelerated occurrence of ground fissuring ensued after 1991. Figure 1-1 shows the location of the fissures within the larger context of Management Zone 1 (MZ-1) and the Chino Basin. Figure 1-2 shows a detailed view of this area.



Surface expression of earth fissure that developed in a field north of CIM in February 1991.

Photo source: Geomatrix Consultants

Subsequent studies of the fissuring attributed the phenomenon to land subsidence (Fife et al., 1976; Kleinfelder, 1993, 1996; Geomatrix, 1994). The evidence to support this cause-and-effect relationship between the subsidence and fissuring is shown in Figure 1-2. In this figure, and as pointed out by Geomatrix (1994), the north-south trend of fissuring is located on the steep eastern limb of the main trough of subsidence that was mapped by ground level surveying (discussed below) – an area where east-west directed extensional stress should be associated with subsidence to the west. These observations and conclusions prompted efforts to quantify the magnitude of historical subsidence and to monitor the rates of on-going subsidence. These efforts included:

- Compilation and analysis of leveling survey data to estimate historical subsidence
- Compilation and analysis of remote sensing data to estimate historical subsidence
- Initiation of monitoring efforts to track on-going subsidence

Through these efforts, the history of land subsidence near the area of ground fissuring was characterized in good detail for the period after 1987, and in lesser detail for the period prior to 1987.

Recent Land Subsidence (Post-1987). Repeated leveling surveys were conducted within the City of Chino from 1987-1999 (Kleinfelder, 1993, 1996, 1999). Figure 1-1 shows the location and extent of the surveys within the larger context of MZ-1 and the Chino Basin. Figure 1-2 shows a close-up view of this area, and subsidence contours of the survey data. These contours delineate a subsidence trough generally aligned north-south with maximum subsidence during the 12-year period of 2.4 feet along Central Avenue between Eucalyptus and Schaefer Avenues (the trough axis). The subsidence trough extends approximately from Pipeline Avenue on the west to Benson Avenue on the east, and from Merrill Avenue on the south to the edge of the survey area on the north (Riverside Drive). The contours suggest that the subsidence trough extends further north of Riverside Drive, but the surveys did not include benchmarks north of Riverside Drive.

Remote sensing studies of subsidence were conducted (Peltzer, 1999a, 1999b) to further analyze subsidence in MZ-1. These studies employed Synthetic Aperture Radar Interferometry (InSAR), which utilizes radar imagery from an Earth-orbiting spacecraft to map ground surface deformation. Figures 1-1 and 1-2 show the results of these InSAR studies that independently confirmed the location and relative magnitude of subsidence in MZ-1 as defined by the leveling surveys, and indicated the occurrence of subsidence north of the area monitored by the leveling surveys (north of Riverside Drive).

The leveling surveys and the InSAR analyses both indicated that subsidence rates have slowed significantly since about 1995. In fact, the leveling surveys indicated that about 90% of the total subsidence measured along Central Avenue from 1987-1999 occurred prior to 1996.

Historical Land Subsidence (Pre-1987). Much less data is available to estimate regional subsidence prior to 1987. Geomatrix (1994) and Geoscience (2002) compared the leveling survey data (post-1987) to elevation data published on USGS 7.5-minute quadrangle maps (1933 and 1967). Geomatrix (1994) estimated as much as 3-4 feet of subsidence from 1967-1993 in some areas shown on Figure 1-2. Geoscience (2002) estimated a maximum of 3.7 feet of subsidence from 1933-1987 at the intersection of Pipeline Avenue and Riverside Drive. These subsidence estimates and their assumptions and limitations are currently being reviewed by Watermaster. If generally accurate, these estimates combined with the post-1987 survey data suggest that as much as 4-5 feet of subsidence has occurred during 1933-1999 in some areas of Chino south of State Highway 60.

Potential Causes of Land Subsidence

The main studies that were commissioned subsequent to the fissuring events in the early 1990s (Kleinfelder, 1993, 1996; Geomatrix, 1994) attributed the subsidence and fissuring phenomenon to the aquitard-drainage model. Watermaster arrived at the same conclusion (WEI, 1999) based on the presence of all requisite elements of the aquitard-drainage model in the southern portion of MZ-1 and other supporting evidence:

- **Presence of aquitards.** Geophysical and lithologic logs from numerous wells in the region indicate that the aquifer-system sediments that underlie the area of subsidence in MZ-1 contain many interbedded aquitard layers, which are susceptible to permanent compaction under reduced piezometric heads. In addition, during the early 1900s, much of the southern part of MZ-1 was an area of flowing-artesian wells (Mendenhall, 1908), indicating the existence of fine-grained confining layers (aquitards) at depth.
- **Reduced pore pressures within the aquifer-system.** The flowing-artesian groundwater conditions in southern MZ-1 also indicate that piezometric heads were at or above the land surface during the early 1900s. Water level histories at numerous relatively shallow wells in the region demonstrate that the piezometric heads (water levels) declined by about 140 feet from about 1940 to 1977, but then recovered by about 40 feet by 1999 (see Figure 1-3).

  In addition, the accelerated occurrence of fissuring that commenced in 1991 was preceded by the completion and initial operation of a number of the deep production wells in 1989-1990. These wells are owned by the City of Chino Hills. Water level histories at these wells indicate that drawdowns within the deeper portions of the aquifer system caused by pumping these wells have exceeded 300 feet.

  In both the shallow and deep zones of the overall aquifer system, the historical drawdowns were substantially greater than probable maximum value of the virgin threshold of inelastic compaction.
- **Other evidence.** The axis of maximum subsidence along Central Avenue, as delineated by ground level surveys (1987-1999), is aligned with the locations of several deep production wells owned by Chino Hills—suggesting a cause-and-effect relationship.
- **Similarity to other subsidence case studies.** There are numerous examples throughout the western United States where ground fissures have accompanied aquifer-system compaction and land subsidence within alluvial groundwater basins (Holzer, 1984). Geomatrix (1994) studied the ground fissures on CIM property and also reviewed case histories of fissuring throughout the southwestern United States. Their study noted similarities between the physical structure of the CIM fissures and the fissures described in the literature that were associated with areas of subsidence due to groundwater pumping and aquifer-system compaction.

There exist other potential causes of land subsidence that have been documented in other locations world-wide. Most of these causes can be immediately dismissed as explanations for the subsidence observed in Chino Basin, but others can not. Table 1-1 lists all potential causes of land subsidence, and a qualitative description of their applicability to subsidence and fissuring in Chino Basin.

Even though some of these potential subsidence mechanisms cannot be immediately dismissed as contributing to subsidence in Chino Basin, they are not likely. The aquitard-drainage model is based on physical laws of nature—namely, gravity and the compressibility of materials under load. And when the requisite elements of this model are all present (*i.e.* presence of aquitards, piezometric head declines, *etc.*), the question is not whether subsidence occurred, but rather, how much is the inevitable result of the aquitard-drainage mechanism?

By comparison, other potential causes of subsidence were reduced to unlikely and, at the most, minor contributory factors in Chino Basin, and as such, were never directly investigated by Watermaster.

Development of the MZ-1 Interim Monitoring Program

In the Optimum Basin Management Program (OBMP) Phase I Report (WEI, 1999), Watermaster identified the aquitard-drainage model as the most likely cause of the land subsidence and ground fissuring observed in MZ-1. Program Element 4 of the OBMP – *Develop and Implement a Comprehensive Groundwater Management Plan for Management Zone 1* called for the development and implementation of an interim management plan for MZ-1 that would:

- Minimize subsidence and fissuring in the short-term
- Collect information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring
- Formulate a long-term management plan to reduce to tolerable levels or abate future subsidence and fissuring

The main part of the interim management plan was to develop and implement a monitoring and testing program in MZ-1 that would answer certain questions to enable the development of a long-term plan to minimize or abate subsidence and fissuring. These questions included:

1. How much subsidence is currently occurring in MZ-1?
2. How much of the current subsidence is an elastic, reversible process that will restore the land surface to its original elevation if water levels recover to their original values; or, in the alternative phraseology, how much, if any, is irreversible (permanent subsidence)?
3. How much subsidence did historical pumping cause in MZ-1?
4. How much of the historical subsidence was an elastic, reversible process, and how much, if any, was irreversible?
5. These questions give rise to the most critical questions: What was the historical threshold value of head decline at which the deformation of the sedimentary structure would have changed from an elastic compression to inelastic compaction? And additionally, what is that threshold value of head decline today?

In an attempt to minimize subsidence and fissuring in the short-term, the cities of Chino and Chino Hills agreed to jointly reduce groundwater production in MZ-1 by 3,000 acre-feet per year for the duration of the interim management plan. This agreement between the cities was termed the *Forbearance Agreement*.

Formation of the MZ-1 Technical Committee. The MZ-1 Technical Committee was formed to serve as a clearing house for technical information, as well as the source for full professional discussion, input and peer review by its members, for the benefit of Watermaster. The Technical Committee provides comment and assists Watermaster in the development of recommendations for consideration and potential action by Watermaster under the Interim Management Plan. In addition, the Technical Committee provides similar assistance to Watermaster in its effort to develop a long-term plan as provided in Program Element 4. The Technical Committee consists of representatives (and their technical consultants) from those parties to the Judgment that are presently producing groundwater within MZ-1. Each of the following producers is entitled to representation on the Committee: Chino, Chino Hills, Ontario, Upland, Pomona, Monte Vista

Water District, San Antonio Water Company, Southern California Water Company, CIM and the Agricultural Pool. Figure 1-1 shows the locations of wells owned by the producers listed above. The MZ-1 Technical Committee first convened on March 6, 2002, and has continued to meet once every 1-3 months.

Composition of the MZ-1 Interim Monitoring Program. The MZ-1 Technical Committee approved the scope and schedule for the MZ-1 Interim Monitoring Program (IMP) at the January 29, 2003 meeting. The IMP was developed and implemented by Watermaster to collect the information necessary to answer the five questions listed above. The data collected and analyzed as part of this effort are being utilized to develop effective management tools and, ultimately, a long-term management plan that will minimize or completely abate ground fissuring and subsidence in MZ-1.

The IMP is described in detail in the IMP Work Plan dated January 8, 2003 (WEI, 2003), but generally consists of three main elements: benchmark survey, InSAR, and aquifer-system monitoring. The benchmark surveys and the InSAR analyses monitor deformation of the land surface. Aquifer-system monitoring measures the hydraulic and mechanical changes within the aquifer-system that cause the land surface deformation. The methods involved in the implementation of each element are briefly described below:

Methods: Aquifer-System Monitoring. This work involves the measuring of stresses within the aquifer system (water-level changes) that cause land surface deformation as measured by benchmark surveys, InSAR, and the extensometers (described below). The objective is to establish the relationships between water-level changes in the aquifer system (stress) and aquifer-system deformation (strain).

Figure 1-4 shows location of the centerpiece of the aquifer-system monitoring program – the Ayala Park Extensometer – a highly sophisticated monitoring facility consisting of two multi-piezometers and a dual-extensometer. As the aquifer system undergoes various stresses due to groundwater production and recharge, the facility monitors the hydraulic response of the aquifer system at the piezometers and the mechanical response of the aquifer system at the extensometers. The facility is equipped with pressure transducers to measure water levels in the piezometers, linear potentiometers to measure the vertical aquifer-system deformation at the extensometers, and data loggers to record the data at frequent intervals (e.g. 15 minutes).

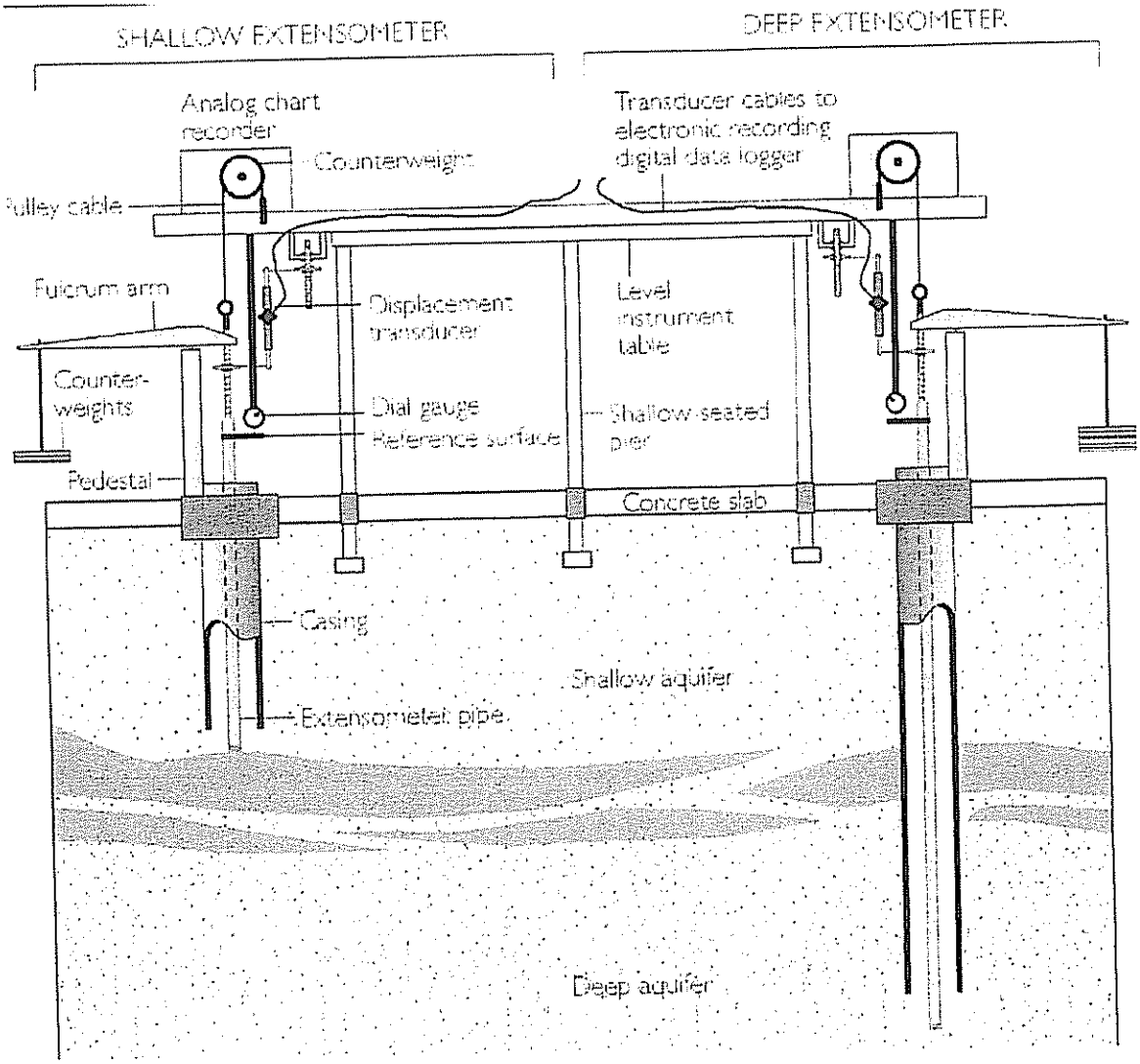
Piezometer construction and instrumentation was completed in mid-November 2002, at which time collection of piezometric data commenced. Dual-extensometer construction and instrumentation was completed in mid-July 2003, at which time collection of aquifer-system deformation data commenced.

Figure 1-4 also shows the nearby wells owned by CIM and the cities of Chino and Chino Hills that were equipped with pressure transducers and data loggers to record (1) water-level data and (2) the specific timing of pumping cycles at production wells.

The IMP also called for Watermaster, with the assistance of the well owners, to conduct controlled aquifer stress tests (pumping tests) while monitoring water levels and groundwater production at nearby monitoring wells and production wells, as well as aquifer-system compaction and/or expansion at the dual-extensometer. These tests were performed in fall 2003, spring 2004, and fall 2004.

The data collected from this monitoring effort are being used to: (1) quantify and characterize the current state of aquifer-system deformation (i.e. elastic vs. inelastic), (2) determine the threshold value of head decline at which the deformation of the aquifer-system sediments changes from an elastic compression to

inelastic compaction, (3) estimate aquifer-system parameters, such as the conductive and storage parameters of the aquifer and aquitard sediments, (4) reveal the existence of groundwater barrier(s) within the aquifer sediments, and (5) use all the above data as input to predictive computer models of compaction, subsidence, and groundwater flow to support the development of a long-term management plan.



A conceptual graphic of a dual extensometer, very similar to the facility at Ayala Park in Chino. Extensometers measure vertical deformation within an aquifer system. Typically, they are accompanied by piezometers that measure pore water pressure changes that cause deformation within the aquifer system.

Methods: Ground-Level Surveying. This work involves repeated benchmark surveying to measure vertical (and in some cases horizontal) ground surface deformation along selected profiles within Chino Basin – mainly in MZ-1. The benchmark surveys are being used to (1) establish a datum from which to measure land surface deformation during the IMP period, (2) allow determination of historical subsidence at any historical benchmarks that can be recovered, (3) "ground-truth" the InSAR data, and (4) assist in the development and evaluation of the long-term management plan.

A network of stable benchmark monuments was installed to supplement an existing network of benchmarks that was installed for the City of Chino in 1987. Associated Engineers (AE) completed monument installations (see Figure 1-5) and an initial survey of all monument elevations in April 2003. Repeat surveys are planned for April of each year during the IMP period.

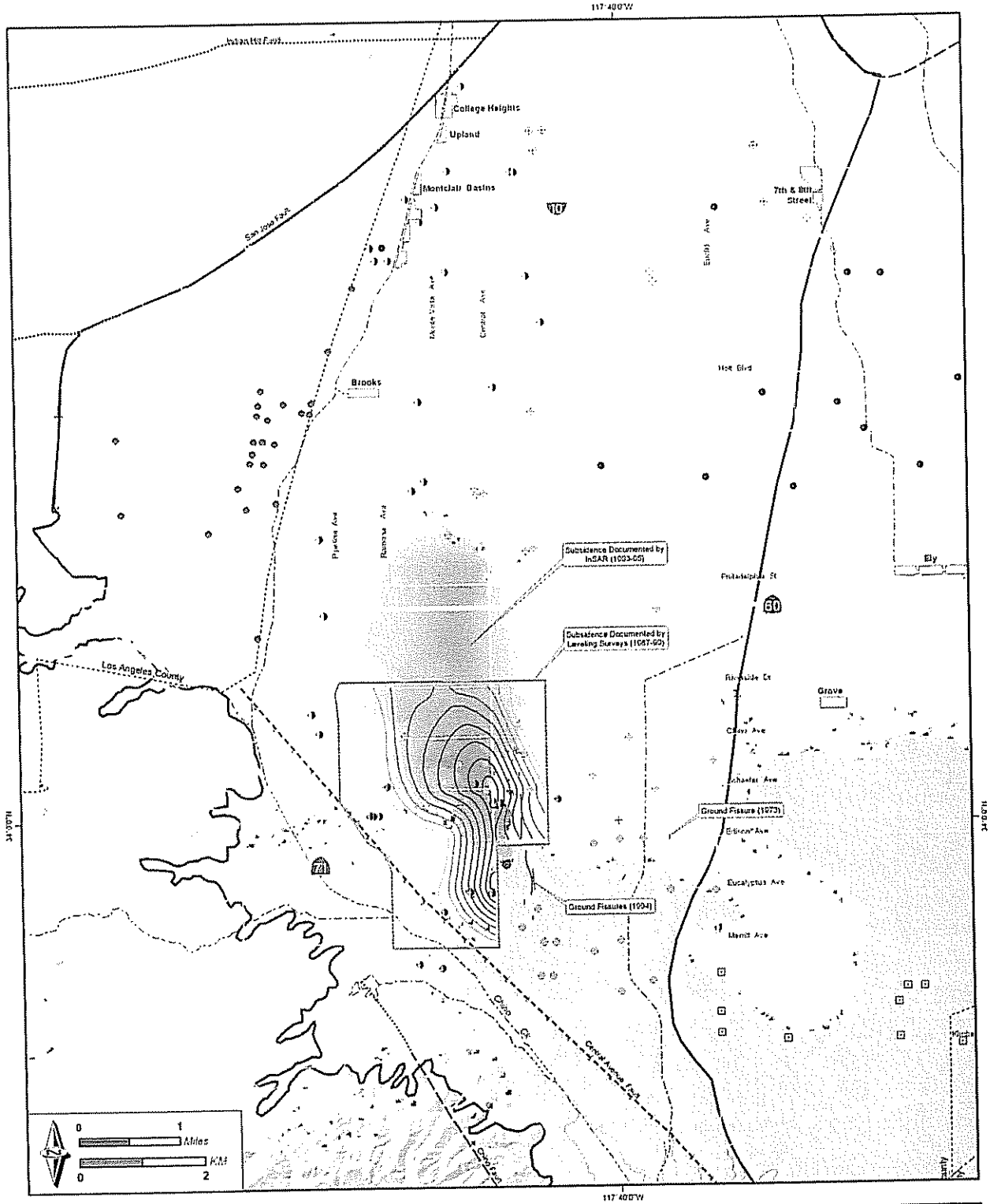
The IMP work plan also called for the deep extensometer at Ayala Park (discussed below), which is anchored in sedimentary bedrock at about 1,400 ft bgs, to be used as the "starting benchmark" for all survey loops. To accomplish this, a Class-A benchmark was constructed outside the extensometer building to serve as the practical (i.e. actual) starting benchmark. To link this benchmark to the deep extensometer pipe, each survey event begins by referencing the benchmark to a marked spot on one of the piers that supports the extensometer instrument platform. These piers and the instrument platform represent a stable ground surface datum that is used to measure relative vertical displacement between the ground surface and the deep extensometer pipe (recorded every 15 minutes). The vertical displacement recorded at the deep extensometer between survey events, in addition to any vertical displacement measured between the starting benchmark and the pier, is then used to calculate the elevation at the starting benchmark outside the extensometer building. Then, relative vertical displacement between benchmarks is measured across the entire network to obtain current elevations.

A key element of the MZ-1 benchmark network is the array of closely spaced benchmarks that have been established across the historic fissure zone in the immediate vicinity of the Ayala Park extensometers (Ayala Park Array). At this array, located along Edison and Eucalyptus Avenues, both vertical and horizontal displacements are measured. These horizontal and vertical displacements are defining two-dimensional profiles of land-surface deformation that can be related to the vertical distribution of aquifer-system compaction and expansion that is being recorded continuously at the extensometers. These surveys are being repeated semi-annually during the late spring and early fall periods of highest and lowest water levels in an attempt to monitor fissure movement, if any, that may be associated with elastic and/or inelastic aquifer-system deformation. (Note: the semi-annual survey frequency of the Ayala Park Array monuments is a modification to the IMP work plan, and was agreed upon by the MZ-1 Technical Committee at the September 24, 2003 meeting).

Methods: InSAR Analyses. InSAR is being used to characterize ground surface deformation in Chino Basin. This analysis will be performed for a historical period (1992-2000) and on an on-going basis thereafter. The advantage of InSAR is that it provides an aerially continuous representation of land surface deformation. These data are planned to be used to: (1) characterize the time history of land surface deformation in greater spatial and temporal detail than can be accomplished from the available historical ground-level survey data, (2) calibrate computer simulation models of subsidence and groundwater flow, and (3) assist in the evaluation of the effectiveness of the long-term management plan.

Table 1-1
Applicability of Potential Causes of Subsidence in Chino Basin

Potential Cause of Subsidence	Applicability to Chino Subsidence
Collapse of underground caverns	No caverns or soluble rocks are known to underlie the Chino Basin, and the geologic environment and history of the basin make their existence extremely unlikely.
Consolidation due to surface loading	No substantial surface loading has been applied, other than the construction of Prado Dam and the occasional short-lived accumulation of flood waters behind it. These are well south of the area of significant subsidence.
Consolidation of sediments over geologic time scales	This process is presumably occuring under the gradually increasing load of accumulating alluvial sediments, but at rates much too slow to be readily detectable over a period of decades. Under conditions of subaerial deposition the buildup of surfical sediments far exceeds their compaction at depth.
Desiccation and shrinkage of expansive soils	Swell/shrink properties of soils in the subsiding area have not been investigated. However, most of the area has been subject to agricultural and/or residential irrigation and is unlikely to have experienced serious dessication, despite substantial lowering of the water table.
Settlement of soils due to ground shaking	Significant cosiesmic settlement of unconsolidated soils typically involves temporary liquifaction manifested in localized slumping and sand boils.These phenomena have not been reported during the seismic events of recent decades.
Drainage of organic soils	High organic soils do not occur in the subsiding area.
Hydrocompaction	Hydrocompaction occurs where thick accumulations of very dry soils are rewetted for the first time since deposition. The very shallow water tables and artesion conditions that historically characterized the area of recent subsidence rule out this phenomenon.
Solution of soluble subsurface deposits like salt	There is no evidence for the existence of soluble rocks underlying the Chino Basin.
Subsurface extraction of hydrocarbons	Not applicable. There are no known oil or gas extraction wells currently in operation in Chino Basin.
Tectonism	While the alluvial basins of California have obviously been subsiding over geologic time relative to their bounding mountain ranges, there is no evidence for a tectonic mechanism that would account for the localized and relatively rapid subsidence observed in the southwestern part of Chino Basin.
Thawing permafrost	Not applicable. Permafrost is soil or rock that remains below 0°C throughout the year, and forms when the ground cools sufficiently in winter to produce a frozen layer that persists throughout the following summer. These conditions do not occur in Chino Basin.
Aquifer-system compaction	Probable cause.



Subsidence Features

-2.2
-2.1 - -2.0
-1.9 - -1.6
-1.5 - -1.4
-1.3 - -1.2
-1.1 - -1.0
-0.9 - -0.8
-0.7 - -0.6
-0.5 - -0.4
-0.3 - 0.0

Relative Change in Land Surface Altitude as Measured by Leveling Surveys 1987 - 1999 (feet)

+ 1.0
0.0
- 1.0

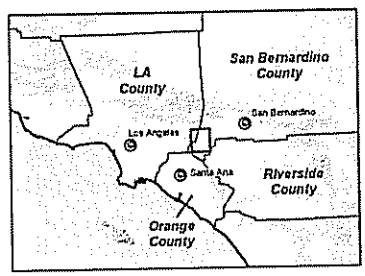
Relative Change in Land Surface Altitude as Measured by InSAR Oct 1993 - Dec 1995 (feet)

Wells in MZ-1 by Owner

- Ontario
- Pomona
- SAWC
- Upland
- SCWC
- CIM
- Chino Hills
- Chino
- MWD

Other Features

- Ayala Park Extensometer Facility
- Chino Basin Desalter Well (Existing)
- Management Zone 1 Boundary
- No InSAR Data



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MZ-1 Summary Report
September 2005

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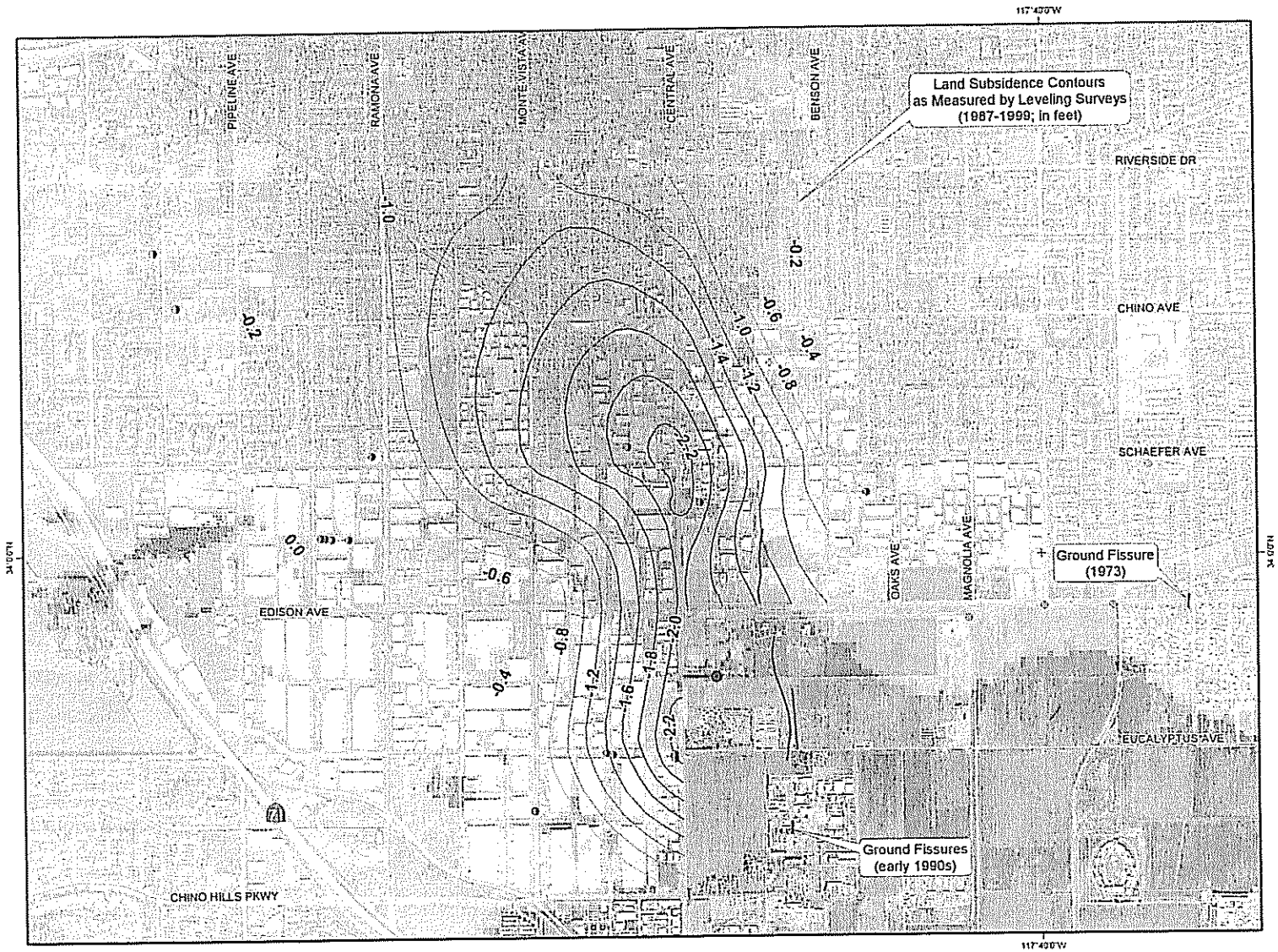
Land Surface Deformation in Management Zone 1
Leveling Surveys and InSAR

Figure 1-1



Subsidence Features

Ground Fissure
(dashed where approximated)

+ 1.0
0.0
- 1.0
Relative Change in
Land Surface Altitude
as Measured by InSAR
Oct 1993 - Dec 1995
(feet)

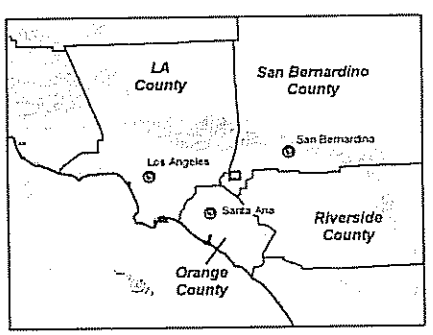
Wells in MZ-1 by Owner

- Ontario
- Pomona
- SAWC
- Upland
- SCWC
- CIM
- Chino Hills
- Chino
- MWD

Other Features

- Ayala Park Extensometer Facility

Note: Air photo background flown in April 2004.



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0 1,000 2,000 3,000 Feet
0 500 1,000 Meters

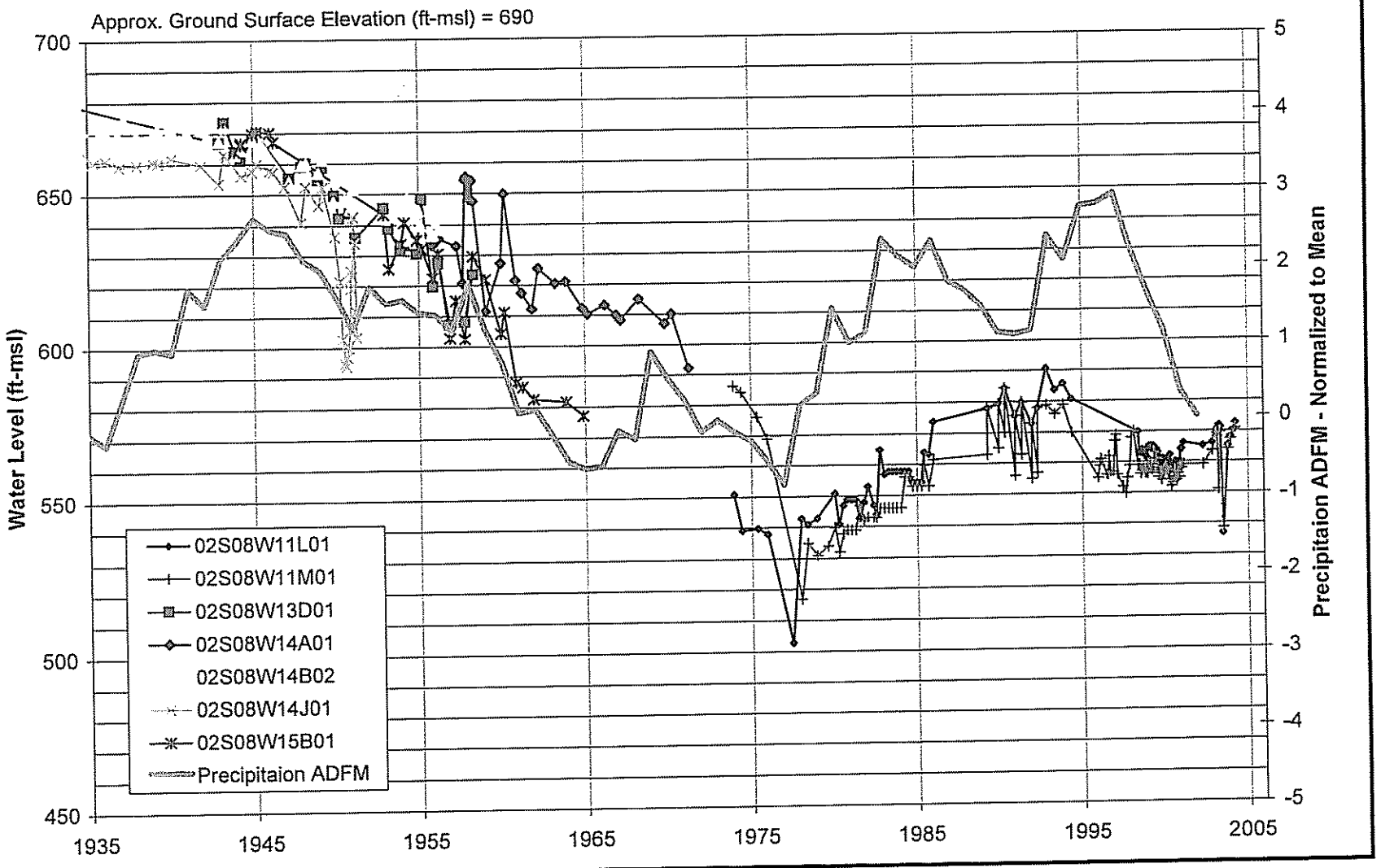
MZ-1 Summary Report
September 2005

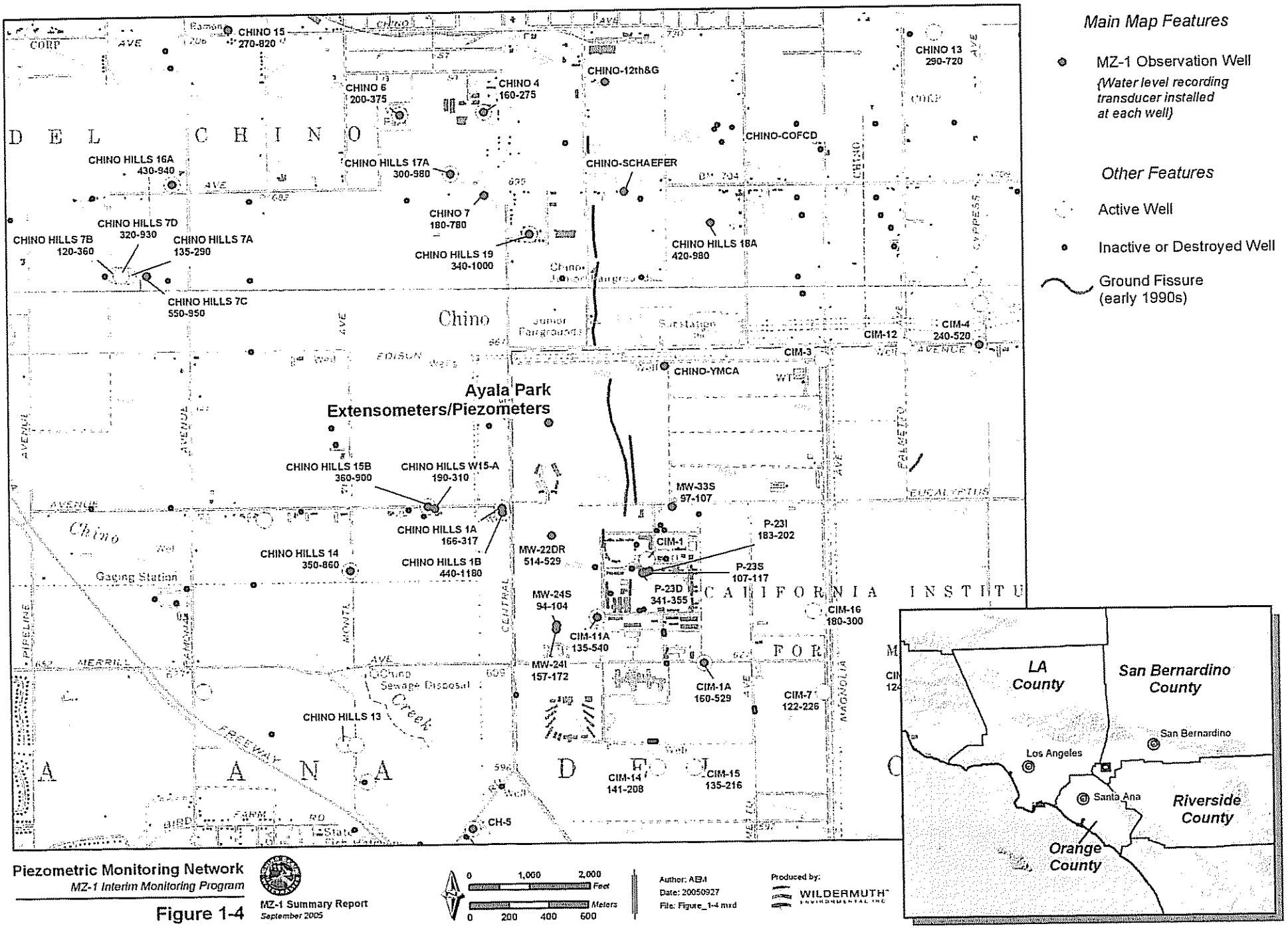
Land Surface Deformation in Chino, CA

Leveling Surveys and InSAR

Figure 1-2

Figure 1-3
Groundwater Level History in Southern MZ-1 (Shallow Wells)




Main Map Features
MZ-1 Observation Well
(Water level recording transducer installed at each well)
Other Features
Active Well
Inactive or Destroyed Well
Ground Fissure (early 1990s)
CHINO 15 270-820
CHINO 6 200-375
CHINO 4 160-275
CHINO-12th&G
CHINO 13 290-720
CHINO-COFCD
CHINO HILLS 16A 430-940
CHINO HILLS 17A 300-980
CHINO-SCHAEFER
CHINO 7 180-780
CHINO HILLS 7D 320-930
CHINO HILLS 7B 120-360
CHINO HILLS 7A 135-290
CHINO HILLS 19 340-1000
CHINO HILLS 18A 420-980
CHINO HILLS 7C 550-950
CIM-4 240-520
CIM-12
CIM-3
CHINO-YMCA
Ayala Park Extensometers/Piezometers
CHINO HILLS 15B 360-900
CHINO HILLS W15-A 190-310
MW-33S 97-107
CHINO HILLS 1A 166-317
CHINO HILLS 14 350-860
CHINO HILLS 1B 440-1180
MW-22DR 514-529
CIM-1
P-23I 183-202
P-23S 107-117
P-23D 341-355
MW-24S 94-104
CIM-16 180-300
CIM-11A 135-540
MW-24I 157-172
CIM-1A 160-529
CIM-7 122-226
CHINO HILLS 13
CIM-14 141-208
CIM-15 135-216
CH-5
Piezometric Monitoring Network
MZ-1 Interim Monitoring Program
Figure 1-4
MZ-1 Summary Report
September 2005
0 1,000 2,000 Feet
0 200 400 600 Meters
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Date: 20050927
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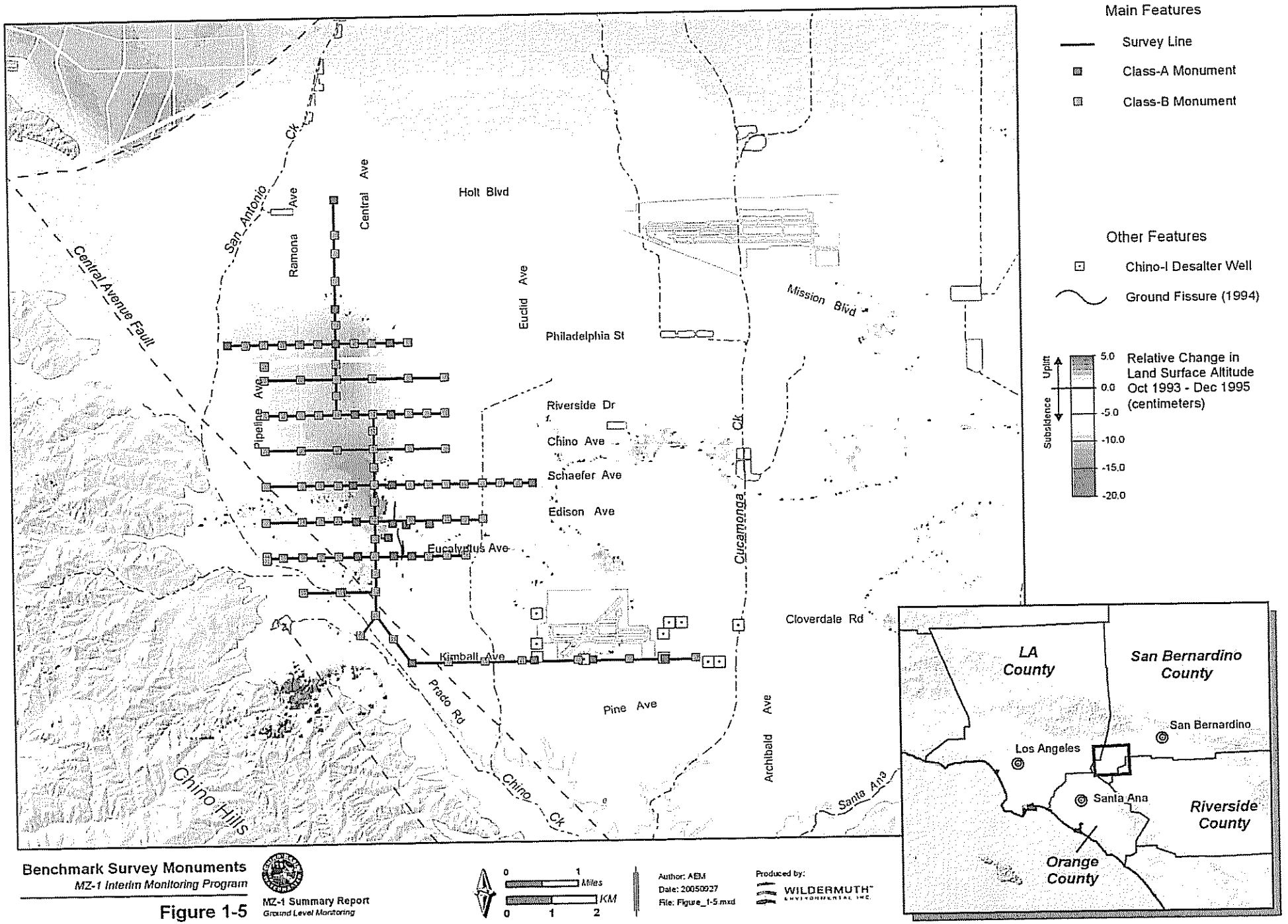


Benchmark Survey Monuments
MZ-1 Interim Monitoring Program

Figure 1-5

MZ-1 Summary Report
Ground Level Monitoring

2. MZ-1 Interim Monitoring Program

This section describes the results, interpretations, and major conclusions derived from the Interim Monitoring Program (IMP) as of September 19, 2005.

Results and Interpretations

Aquifer-System Monitoring. The controlled testing and comprehensive monitoring of the aquifer-system (see Section 1) and subsequent data analyses has led to a number of key interpretations:

1. There appear to be two distinct aquifer systems in this area – a shallow, un-confined to semi-confined system from about 100-300 ft-bgs and a deep, confined system from about 400-1,200 ft-bgs.

2. Under current conditions of aquifer utilization in MZ-1, the aquifer-system deformation appears to be essentially elastic. At the Ayala Park Extensometer, about 0.14 feet of elastic land subsidence and rebound were observed during the pumping and recovery seasons of 2004-05. Minor amounts (~0.01 feet) of permanent compaction and associated land subsidence apparently occurred over this same period.

3. The relationships between aquifer-system stress (water level changes) and aquifer-system strain (vertical deformation of the sediment matrix) have been established by comparing piezometer data versus extensometer data. These relationships indicate the nature of the aquifer-system deformation (i.e. elastic vs. inelastic) and provide estimates of aquifer-system parameters for later use in aquifer-system models.

4. A deep aquifer-system pumping test in September 2004 appears to have transitioned the system from elastic to inelastic deformation. This provides a "threshold" water level at Ayala Park, below which further drawdown will result in inelastic compaction. The data derived from this test will assist in the creation of management tools for MZ-1 (e.g. groundwater flow and subsidence models).

A technical discussion related to the above interpretations follows:

Figure 2-1 shows the changes in thickness of the aquifer systems as recorded by the deep and shallow extensometers, completed at depths of 1,400 and 550 ft-bgs. It also shows the water-level fluctuations in two piezometers, PA-10 and PA-7, which are representative of the shallow aquifer system and the upper part of the deep aquifer system, respectively.

During periods of water-level decline in PA-7, both extensometers are recording compaction of the sediments. During periods of recovery in PA-7, both extensometers are generally recording elastic expansion. Note that for the data available, almost all of the compaction during the drawdown season is recovered as expansion during the recovery season.

During the late-spring (2004) pumping of the shallow aquifer system, while the deep system not pumped, the shallow extensometer recorded compression while the deep extensometer recorded an overall expansion. Subtracting the shallow record from the deep confirms that the deeper sediments continued a smooth expansion in response to continuing recovery of heads in the deeper parts of the aquifer system, as represented by the data from PA-7, which is screened from 438-448 ft-bgs. The shallow compression is seen to correlate closely with the drawdown recorded by PA-10, screened from 213-233 ft-bgs.

These observations clearly demonstrate the existence of the deep and shallow aquifer-systems in this region of MZ-1. Nearby pumping at wells that are screened in either the deep or shallow aquifer-systems result in distinct hydraulic and mechanical responses that are recorded at the Ayala Park piezometers and extensometers. These observations also demonstrate the importance, for analytical purposes, of

independently stressing the deep and shallow systems by pumping from only one at a time, so that the observed deformation can be more accurately attributed to production from a specific depth interval.

The relationships between water levels and aquifer-system deformation are further depicted in the stress-strain diagrams shown in Figure 2-2. In this diagram, increasing depth to water (drawdown due to pumping) is the measure of decreasing pore pressure and increasing effective intergranular stress. Increasing compression of the sediments is the resulting strain. When pumping diminishes or ceases, pore pressures recover, intergranular stress is reduced, and the aquifer system expands.

Figure 2-2 shows that the full thickness of sediments responds linearly to extended intervals of continuous drawdown or recovery, but with a large seasonal hysteresis attributable to the time lag involved in the delayed vertical propagation of pore pressure changes from the pumped aquifers into adjacent, poorly permeable aquitards. The parallel slopes of the compression and expansion trends represent the overall elasticity of the sedimentary section. Its inverse is the skeletal storativity, in hydrologic terminology.

Brief intervals of recovery during the drawdown season, and of drawdown during the recovery season, produce steeply sloping, more-or-less tight hysteresis loops. Their much steeper slope represents the (inverse) aggregate compressibility of the permeable pumped aquifers. The longer intervals of recovery and drawdown generate the more open hysteresis loops, as the delayed responses of immediately adjacent portions of the aquitards have time to influence the extensometers.

The parallelism of the seasonal drawdown and recovery stress-strain slopes in Figure 2-2 indicates that seasonal drawdown to 250 ft-bgs at this site is producing essentially elastic, recoverable deformation. However, the slope of the drawdown curve in 2004 begins to deviate from its elastic trend when the seasonal drawdown exceeds 250 ft-bgs indicating a transition to inelastic compaction within draining aquitard interbeds. A minor amount of non-recovered compaction is indicated by the offset of the recovery curve in 2005 to the right (direction of compression). On about September 19, 2005 water levels had recovered to the levels of pre-pumping conditions of 2004 (~105 ft-bgs at PA-7), and the offset of the stress-strain curve to the right (direction of compression) confirmed that about 0.01 ft of permanent compaction occurred during the pumping season of 2004.

The pumping and associate drawdown of water levels in 2004 was part of a controlled aquifer system stress test. The primary objective of this test was to transition the deformation of aquifer-system sediments from elastic compression to inelastic compaction. If successful, it would provide "threshold" piezometric heads at the extensometer location that should not be approached in the future if permanent (inelastic) compaction within the aquifer-system is to be avoided. This would also define a key parameter required for estimating the maximum elastic storage capacity of the confined aquifer-system.

For fear of exacerbating the ground fissuring, one limiting condition of the test that was agreed upon by the participating agencies was that pumping cease when inelastic compaction was identified. Although 0.01 feet of permanent compaction is relatively minor deformation, it is measurable and within the detection limits of the extensometer. The stress-strain diagram in Figure 2-2 indicates that at Ayala Park the aquifer-system transitioned from elastic compression to inelastic compaction when the water level in the PA-7 piezometer at Ayala Park fell below about 250 ft-bgs. The applicability of this limit at increasing distances from the piezometer/extensometer facility is dependent on an approximate replication of the tested pumping conditions (i.e. specific wells pumped, pumping rates, and pumping durations). A different areal distribution of pumping might cause localized inelastic compaction away from Ayala Park without drawing PA-7 below 250 feet or recording inelastic effects at the extensometer.

A different vertical distribution of extraction will stress the aquifer system in a different manner, and may result in a different threshold water level in PA-7.

Other objectives of the pumping test that were successfully accomplished were to (1) estimate key aquifer-system parameters that could be used in later modeling efforts, and (2) confirm and elucidate the existence of a groundwater barrier within the sediments below about 300 ft-bgs

Discovery of Groundwater Barrier. Multiple lines of evidence suggest that a previously unknown groundwater barrier exists within the deep aquifer-system in the same location as the fissure zone.

Controlled aquifer-system stress (pumping) tests in October 2003 and April 2004 provided piezometric response data that revealed a potential groundwater barrier within the sediments below about 300 ft-bgs and aligned north-south with the historic fissure zone. Figure 2-3 is a map that shows the locations of a pumping well perforated in the deep aquifer system (CH-19, 340-1,000 ft-bgs) and other surrounding wells that also are perforated exclusively in the deep system. Figure 2-4 shows the water level responses in these wells during various pumping cycles at CH-19. The groundwater barrier is evidenced by a lack of water level response in CH-18 (east of the fissure zone) due to pumping at CH-19 (west of the fissure zone). Image-well analysis of pumping-test responses also indicates that this barrier approximately coincides with the location of the historic zone of ground fissuring.

Ground level survey data (described in detail below) corroborate the water level data – also indicating the existence of the barrier and its coincident location with the fissure zone. Figure 2-6 shows that during the pumping season of 2003 (April to November) vertical displacement of the land surface (i.e. subsidence) was generally greater on the west side of the fissure zone where water-level drawdown was greatest. Figure 2-7 shows that during the recovery season of 2003-04 (November to April) vertical displacement of the land surface (i.e. rebound) was again greater on the west side of the fissure zone where water level recovery was greatest.

In other words, the groundwater barrier in the deep aquifer-system is aligned with the fissure zone and causes greater water level fluctuations on the west side of the barrier where the pumping is concentrated. These greater water level fluctuations on the west side of the barrier, in turn, cause greater deformation of the aquifer-system matrix which, in turn, causes greater vertical land surface deformation on the west side of the barrier. In addition, the pattern of horizontal displacement of benchmarks over the pumping and recovery seasons, as shown in Figures 2-6 and 2-7, likely reflects, in part, the differential compaction of the aquifer system across the fissure zone.

Similarly, the InSAR data in Figures 1-2 and 2-5 also corroborate the existence of the groundwater barrier by showing maximum subsidence west of the barrier and virtually no subsidence east of the barrier.

This spatial coincidence of the groundwater barrier and the historic fissure zone suggests a cause-and-effect relationship: the barrier causes differential water level declines, which cause differential aquifer-system compaction and a steep gradient of subsidence across the barrier, which can and likely has caused ground fissuring above the barrier.

Monitoring of Ground-Surface Deformation—Ground-Level Surveying. In late April 2004, AE performed the annual survey event across the entire network of benchmark monuments, including the measurements of horizontal displacements at the Ayala Park Array of monuments. The results of the ground level surveys were presented to the MZ-1 Technical Committee at its meeting. Also at this

meeting, the project manager from AE made a presentation to describe survey methodologies, accuracy, results, and challenges.

Figure 2-5 displays the vertical displacement at monuments that occurred from April 2003 to April 2004. Comparing monument elevations over the April-to-April period is meant to reveal the inelastic component of compaction, if any, which may be occurring in the region. The assumption here is that in April 2004 water levels in the region have recovered to the April 2003 levels; thus the measured vertical displacement does not include the elastic component of aquifer system deformation. Water levels measured as part of the IMP (in the vicinity of Ayala Park) support this assumption. Examination of Figure 2-5 shows that the monuments near Ayala Park experienced little to no subsidence over this time period. However, the monuments located in the northern portions of the surveyed area showed small but measurable subsidence of the land surface (on average about 0.04 feet). Maximum subsidence of about 0.08 feet was recorded at monuments located along Philadelphia Street between Pipeline and Ramona Avenues. Water level and groundwater production data have not been collected or analyzed as part of the IMP in these northern portions of the survey area; hence, it is not yet possible to classify the nature of the subsidence in this region (*i.e.* elastic vs. inelastic), since it is not known whether water levels in 2004 had recovered to their 2003 levels.

The color-coded background in Figure 2-5 represents the subsidence that occurred in the area over the October 1993 to December 1995 period as measured by InSAR. The subsidence shown by this InSAR data has been interpreted as primarily permanent subsidence caused by inelastic aquifer-system compaction. If so, the survey data in Figure 2-5 are indicating that the distribution of inelastic compaction in 2003-04 is significantly different than the distribution of inelastic compaction that occurred during the early 1990s. In particular, maximum permanent subsidence of about 1 foot in 1993-95 was measured in the vicinity of Ayala Park by InSAR, whereas in 2003-04 the survey data are indicating minimal permanent subsidence, if any, in this same area.

Figures 2-6 and 2-7 display the vertical and horizontal displacement at monuments of the Ayala Park Array that occurred from April 2003 to November 2003 and November 2003 to April 2004, respectively. The determination of horizontal displacement of monuments was accomplished through the processing of distance and angle measurements between adjacent monuments, and is based on the assumption that the southeastern monument was stable over the period of measurement. The methods used to measure the horizontal displacement of monuments at the Ayala Park Array are currently being refined by AE. These figures show:

- significant horizontal displacement of the ground surface over the course of the pumping and recovery seasons in the vicinity of the historic fissure zone
- the elastic nature of the land surface displacement over the course of the pumping and recovery seasons
- the apparent presence of a groundwater barrier within the deep aquifer system (see Section 5.3.4 below).

Groundwater production and water-level data show that pumping of wells perforated within the deep aquifer system (>300 ft-bgs) causes water-level drawdowns in the deep aquifer system on the order of 150 feet. However, these large drawdowns do not propagate east of the fissure zone. During the pumping season of 2003 (April to November) vertical displacement of the land surface (i.e. subsidence) was generally greater on the west side of the fissure zone where water-level drawdown was greatest. During

the recovery season of 2003-04 (November to April) vertical displacement of the land surface (i.e. rebound) was again greater on the west side of the fissure zone where water-level recovery was greatest.

In other words, the groundwater barrier in the deep aquifer system aligned with the fissure zone causes greater water-level fluctuations on the west side of the barrier where the pumping is concentrated. These greater water-level fluctuations west of the barrier cause greater deformation of the aquifer-system matrix which, in turn, causes greater vertical land surface deformation on the west side of the barrier. The InSAR data corroborate the existence of the groundwater barrier by showing maximum subsidence west of the barrier (0.2ft) and virtually no subsidence east of the barrier during the course of one pumping season (April-1993 to September 1993). In addition, the pattern of horizontal displacement of benchmarks over the pumping and recovery seasons likely reflects, in part, the differential compaction of the aquifer system across the fissure zone.

In June 2005, the entire network of monuments was surveyed for vertical displacement and, at the Ayala Park array of monuments, for horizontal displacement. The results of this survey are currently being processed.

Monitoring of Ground Surface Deformation—InSAR. Vexcel Corporation of Boulder, Colorado – a company that specializes in remote sensing and radar technologies – conducted a "proof of concept" study of historical synthetic aperture radar data that was acquired over the MZ-1 area. The objective of this study was to generate cumulative displacement maps over relatively short time steps (April to November 1993). The MZ-1 Technical Group deemed the study successful, and approved follow-up study by Vexcel to perform a comprehensive analysis of all historical synthetic aperture radar data (1992-2003) to characterize in detail the history of subsidence in MZ-1.

The comprehensive analysis was completed during the first quarter of calendar 2005. However, the usable data in this analysis only spanned the 1992-2000 period. Dr. David Cohen of Vexcel presented the InSAR results by to the MZ-1 Technical Committee in March 2005. Figures 2-8 and 2-9 display the summary results of the InSAR analysis of land subsidence for the periods of 1992-1995 and 1996-2000.

The InSAR results were generally consistent with the ground level survey data collected over a similar period with respect to the areal extent and magnitude of historical subsidence. The InSAR data show that:

- the rate of subsidence in the south area of MZ-1 has declined over time, particularly since about 1995.
- currently, the aquifer system is experiencing mainly elastic compression and expansion in the south area of MZ-1.
- the central area of MZ-1 is displaying greater rates of subsidence than the south area (near Ayala Park). This subsidence is probably due to aquifer system compaction, but pumping and water level data that would define this relationship have not yet been collected and analyzed in the central area of MZ-1.
- a steep gradient of subsidence exists across the fissure zone. The steep gradient extends north of the fissure zone to about Francis Street. In addition, the spatially continuous InSAR data show that the gradient of subsidence is steeper across the fissure zone than is shown by surveys of discrete benchmarks, which further supports the potential link between the subsidence and the fissuring. The existence of this steep gradient across the fissure zone also supports/reveals the existence and extent of the groundwater barrier.

Conclusions

There are five major conclusions that have been derived from the IMP to date:

1. The current state of aquifer-system deformation in south MZ-1 (in the vicinity of Ayala Park) is essentially elastic. Little, if any, inelastic (permanent) compaction is now occurring in this area, which is in contrast to the past when about 2.2 feet of land subsidence occurred, accompanied by ground fissuring, from about 1987-1995.

2. Groundwater production from the deep, confined aquifer system in this area causes the greatest stress to the aquifer system. In other words, pumping of the deep aquifer system causes water-level drawdowns that are much greater in magnitude and lateral extent than drawdowns caused by pumping of the shallow aquifer system.

3. Water-level drawdowns due to pumping of the deep aquifer system can cause inelastic (permanent) compaction of the aquifer-system sediments, which results in permanent land subsidence. The initiation of inelastic compaction within the aquifer system was identified during this investigation when water levels fell below a depth of about 250 feet in the PA-7 piezometer at Ayala Park.

4. Through this study, a previously undetected barrier to groundwater flow was identified. The barrier is located within the deep aquifer system and is aligned with the zone of historical ground fissuring. Pumping from the deep aquifer system is limited to the area west of the barrier, and the resulting drawdowns do not propagate eastward across the barrier. Thus, compaction occurs within the deep system on the west side of the barrier, but not on the east side, which causes concentrated differential subsidence across the barrier and creates the potential for ground fissuring.

5. InSAR and ground-level survey data indicate that permanent subsidence in the central parts of MZ-1 (north of Ayala Park) has occurred in the past and continues to occur today. The InSAR data also indicate that the groundwater barrier extends northward into central MZ-1. These observations suggest that the conditions that very likely caused ground fissuring near Ayala Park in the 1990s are also present in central MZ-1, and should be studied in more detail.

Figure 2-1 - Piezometric and Extensometer Data

Ayala Park Piezometer/Extensometer Facility

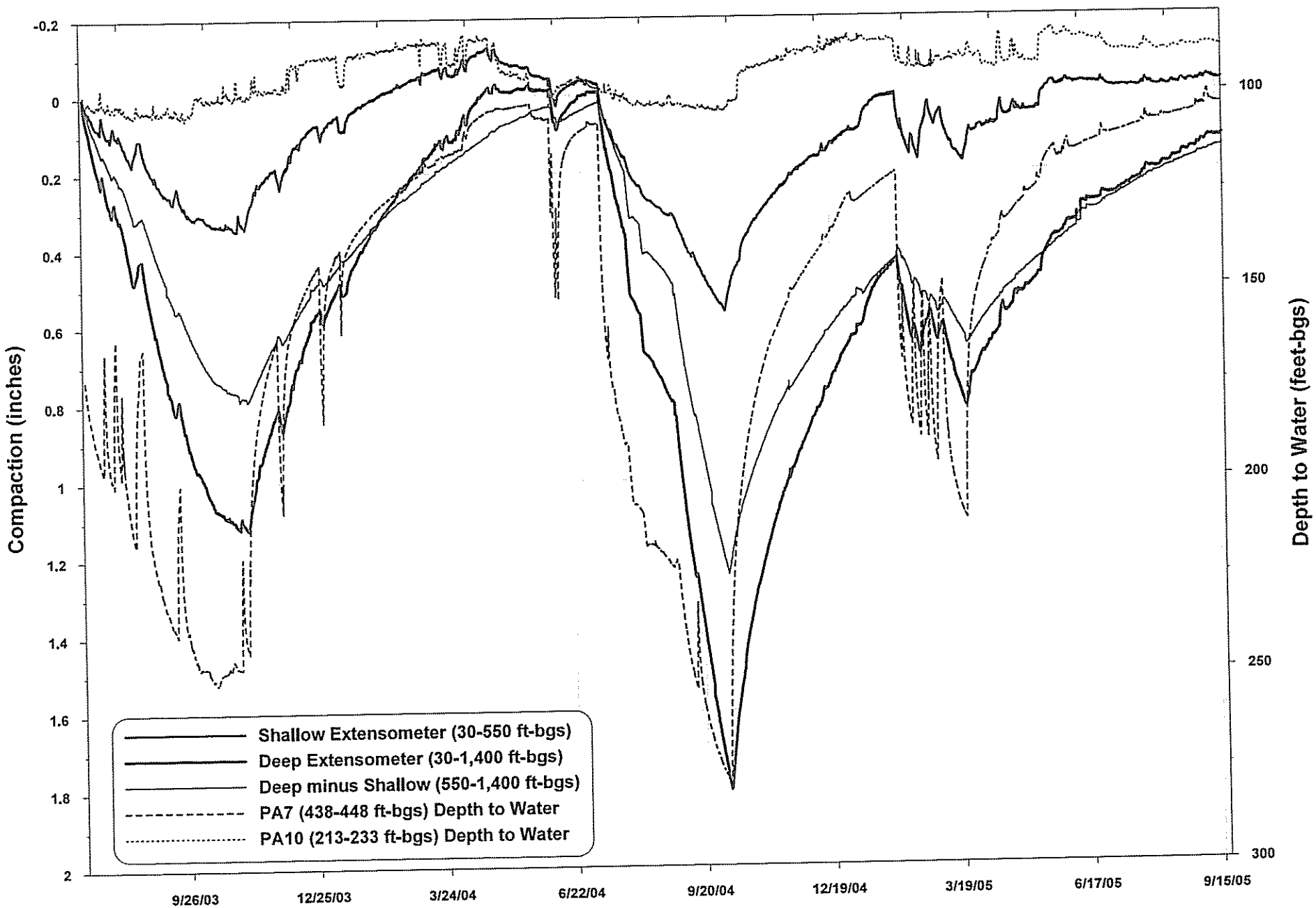
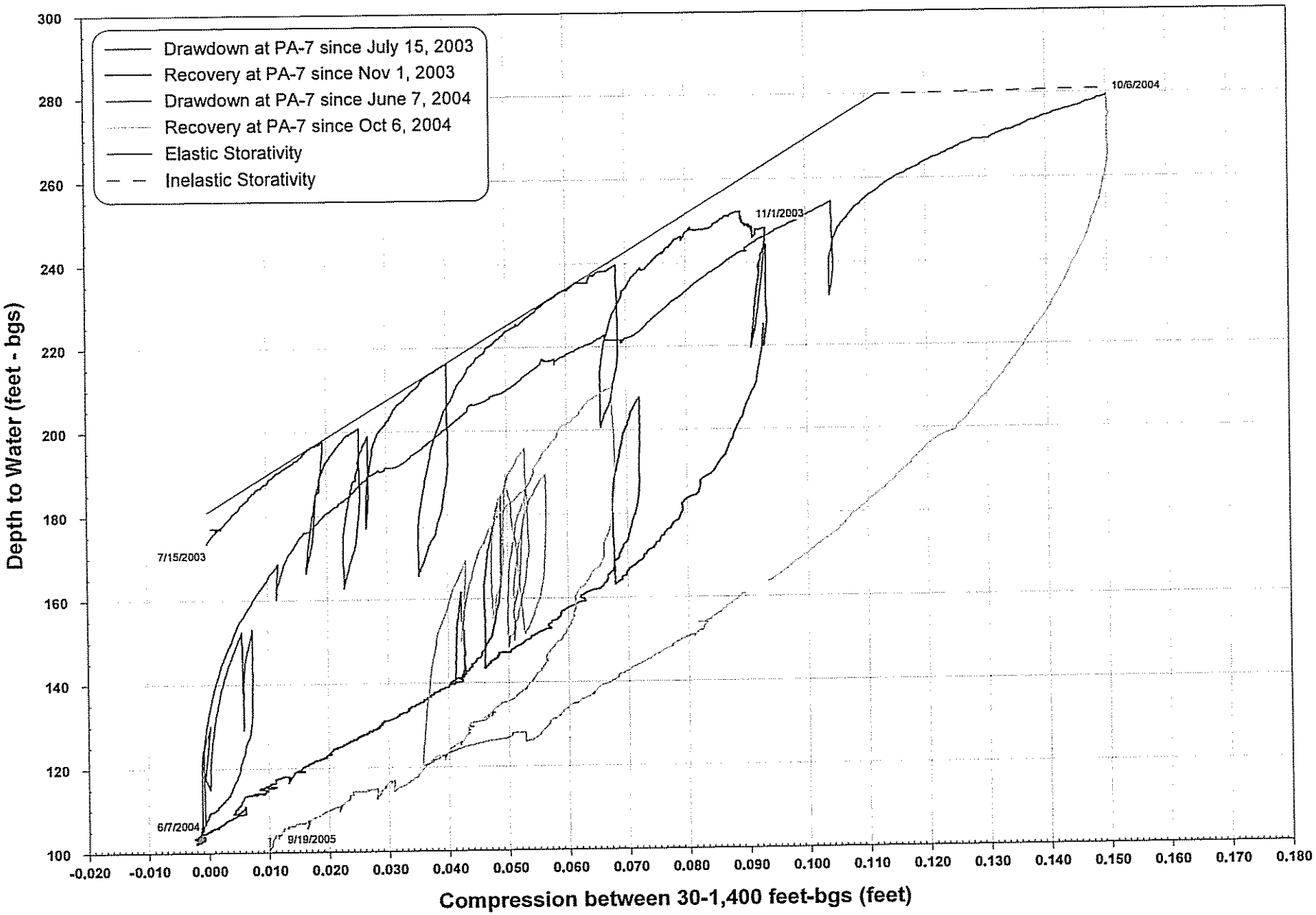
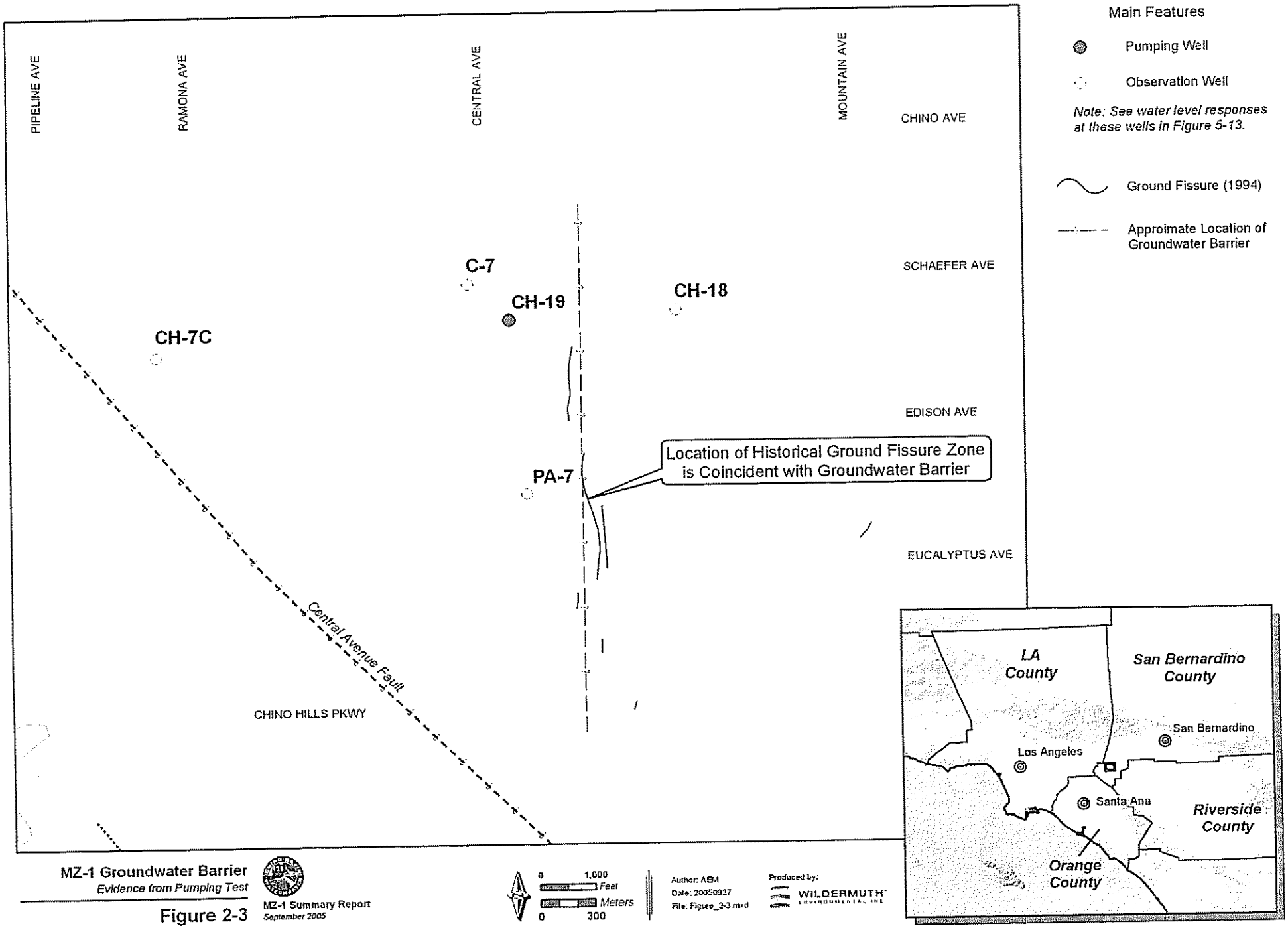


Figure 2-2 -- Stress-Strain Diagram

PA-7 vs. Deep Extensometer



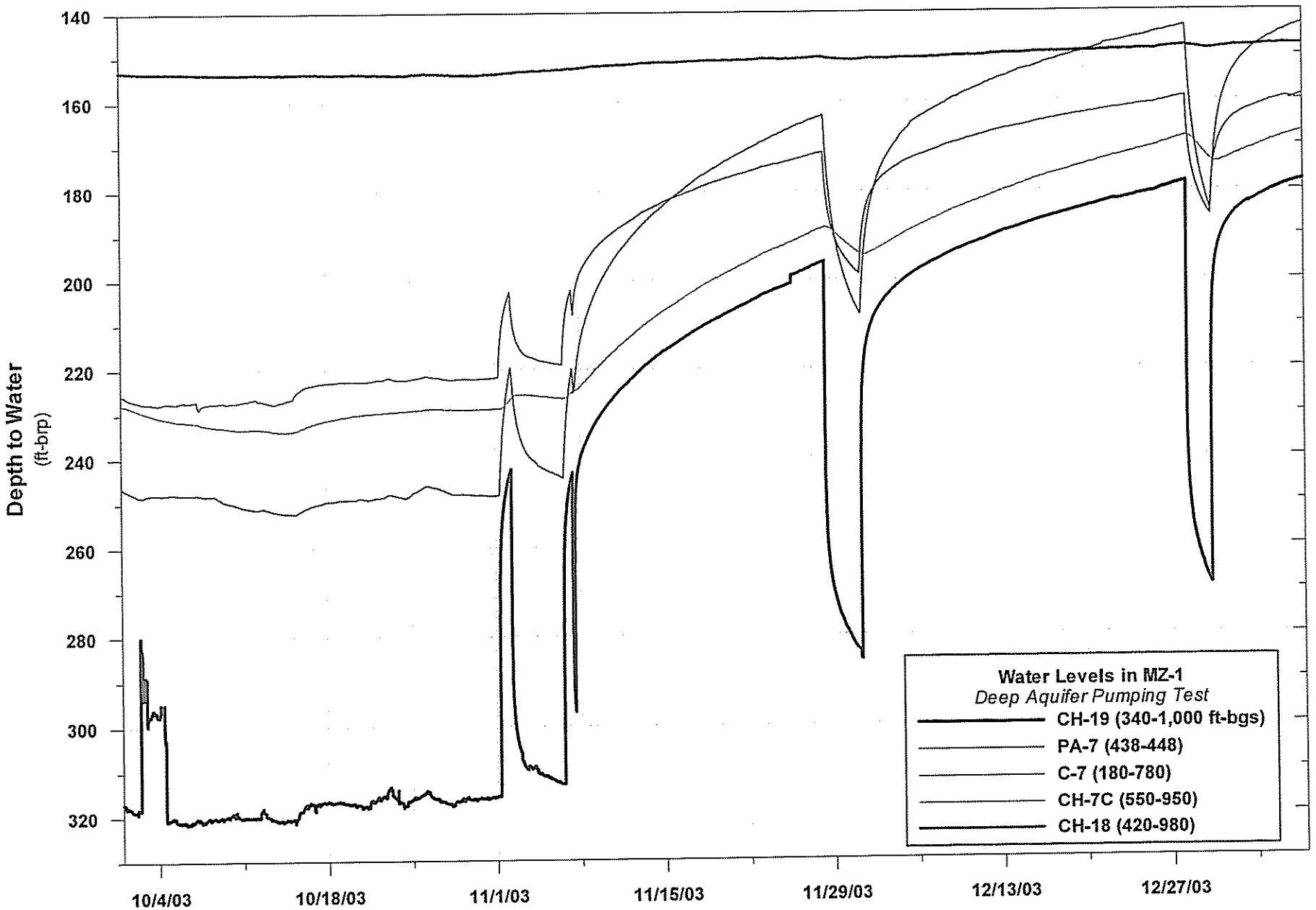


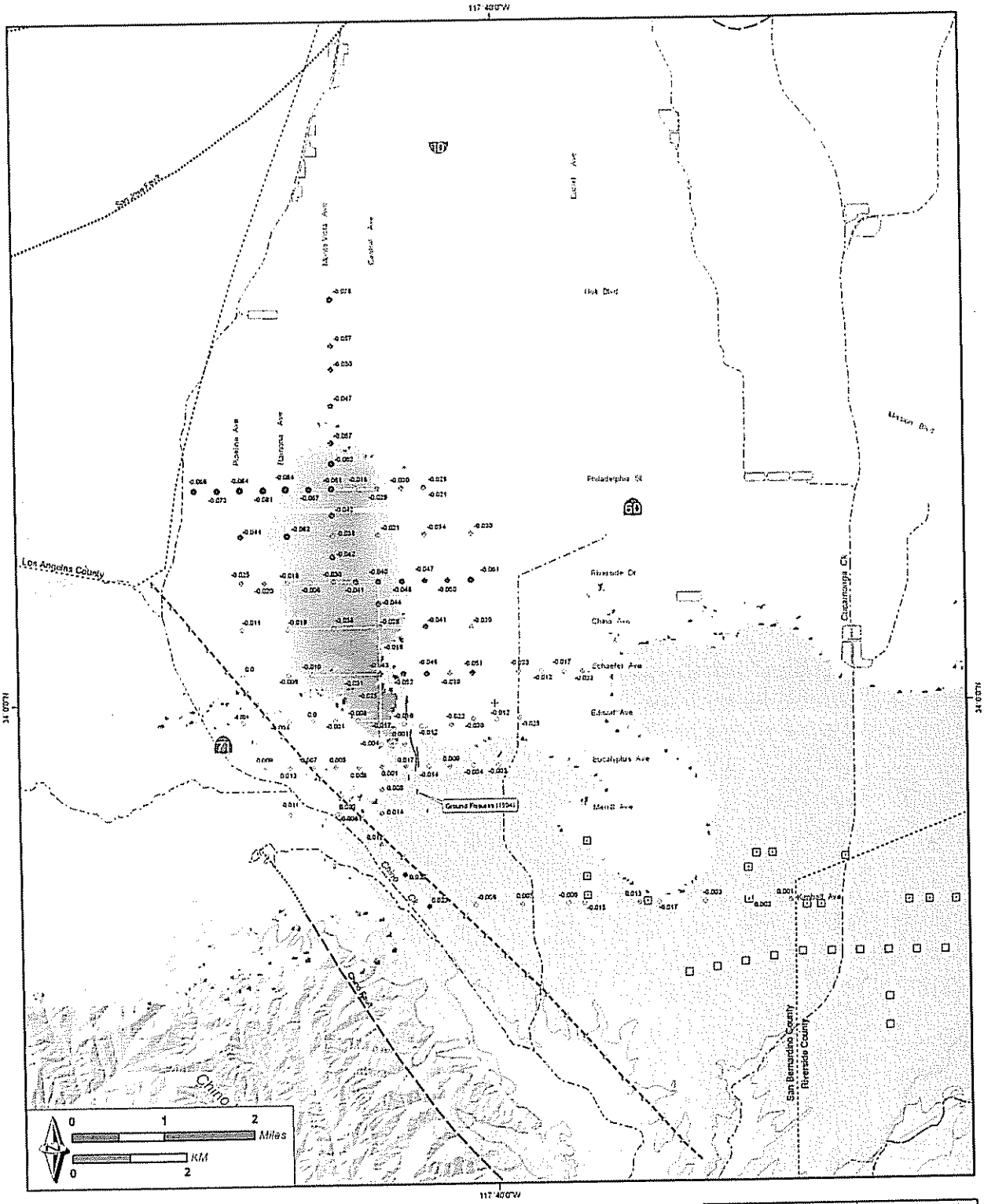
MZ-1 Groundwater Barrier
Evidence from Pumping Test

Figure 2-3

MZ-1 Summary Report
September 2005

Figure 2-4
Water Level Responses at Nearby Wells to Pumping at CH-19





Main Features

- -0.010 to -0.050
- -0.060 to -0.070
- -0.040 to -0.050
- -0.020 to -0.030
- -0.001 to -0.010
- 0.0
- 0.001 to 0.020

Relative Change in Land Surface Altitude as Measured by Leveling Surveys April 2003 - April 2004 (feet)

+ 1.0 / 0.0 / - 1.0

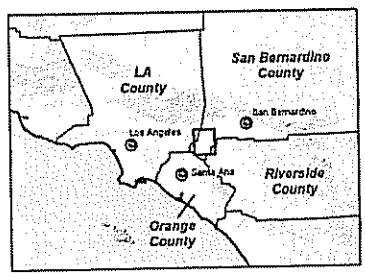
Relative Change in Land Surface Altitude as Measured by InSAR Oct 1993 - Dec 1995 (feet)

Other Features

- Ayala Park Extensometer Facility
- Chino Basin Desalter Well (Existing)
- Chino Basin Desalter Well (Planned)
- Chino Basin Hydrologic Boundary

Faults & Groundwater Divides

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain
- Groundwater Divide



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September 2005

Author: AEM
Date: 20050927
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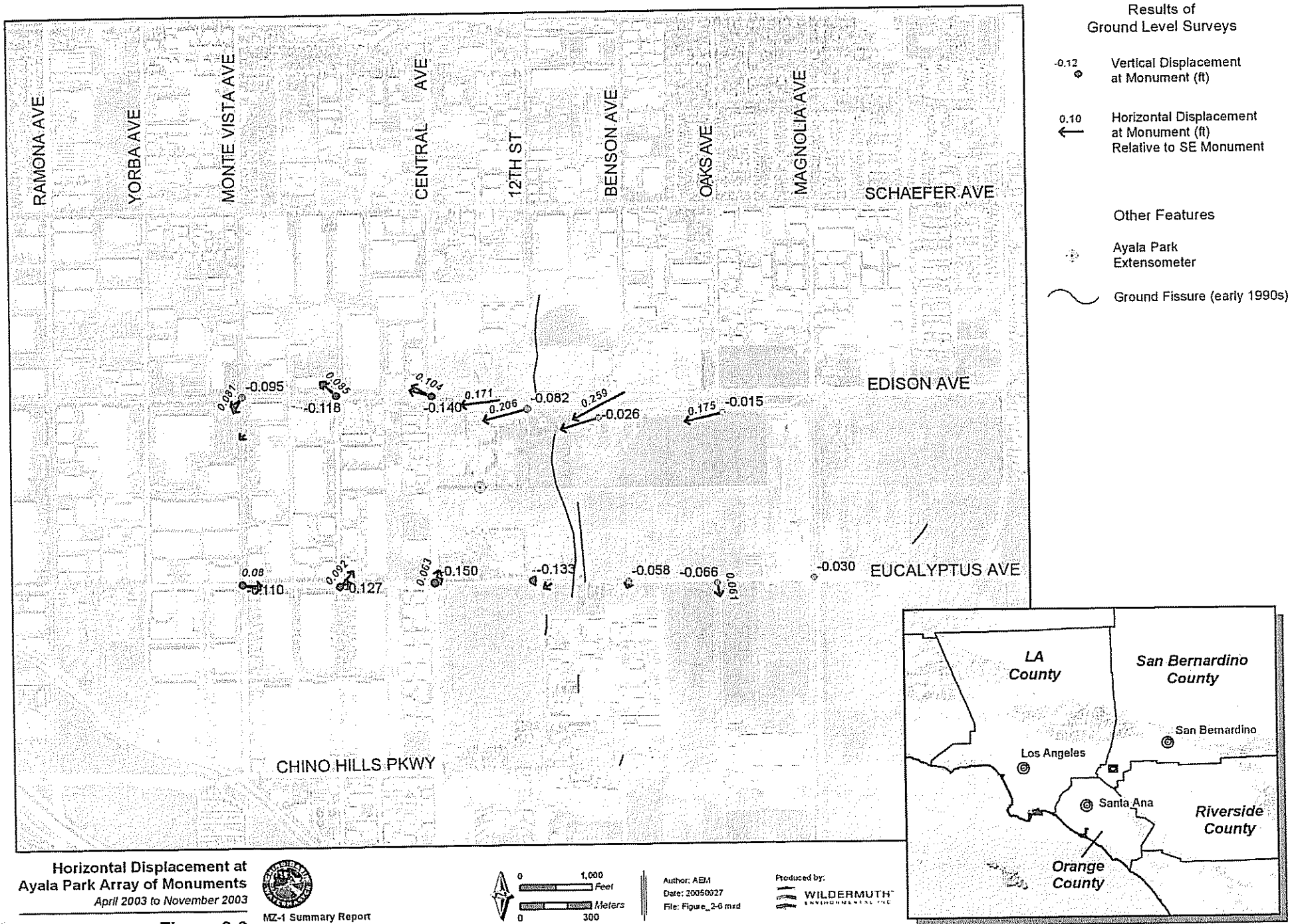
Ground Level Survey Results
April 2003 to April 2004

Figure 2-5



Horizontal Displacement at Ayala Park Array of Monuments

April 2003 to November 2003

Figure 2-6

MZ-1 Summary Report
September 2005

0 1,000 Feet
0 300 Meters

Author: AEM
Date: 20050927
File: Figure_2-6.mxd

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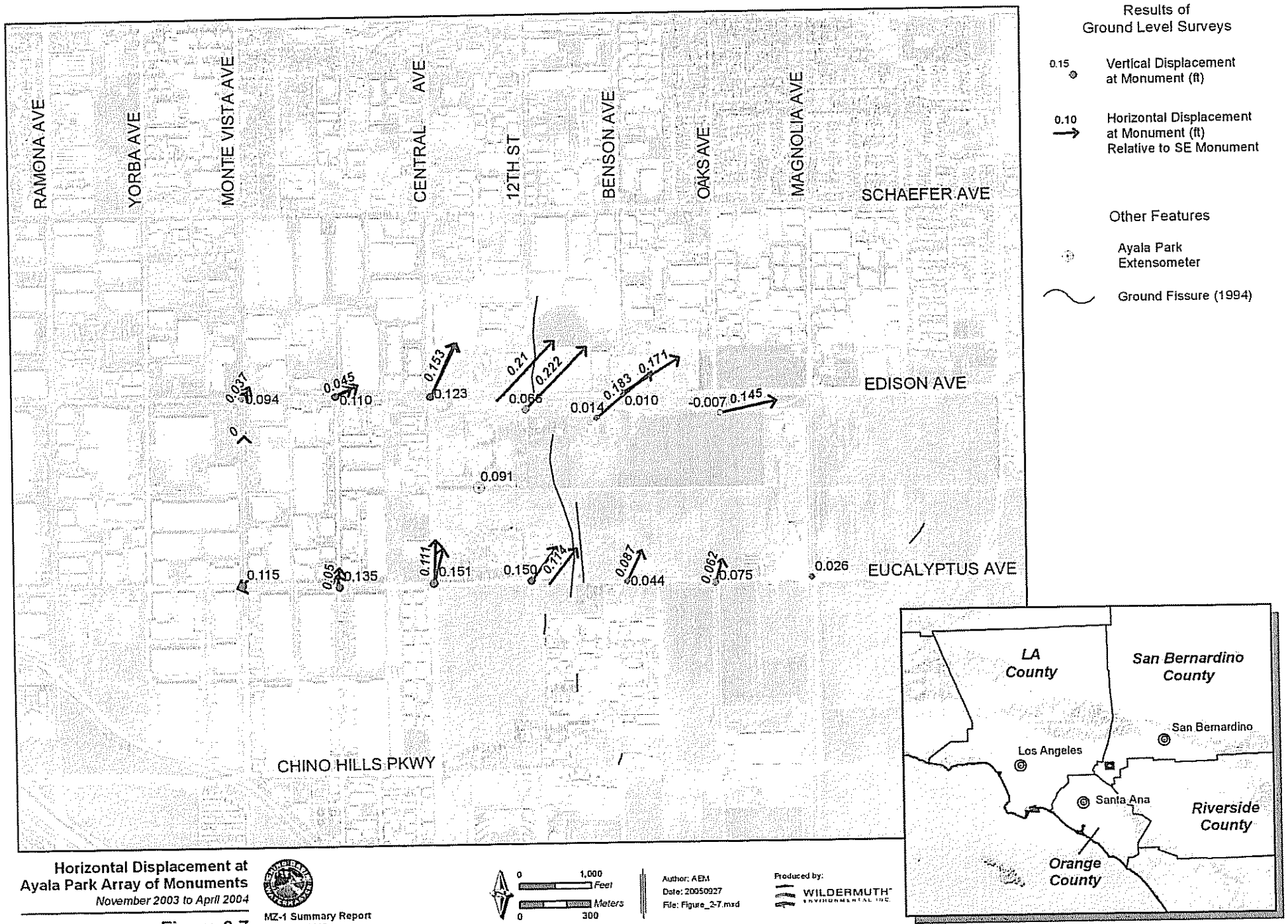

Horizontal Displacement at Ayala Park Array of Monuments

November 2003 to April 2004

Figure 2-7

MZ-1 Summary Report
September 2005

0 1,000 Feet
0 300 Meters

Author: ABM
Date: 20050927
File: Figure_2-7.mxd

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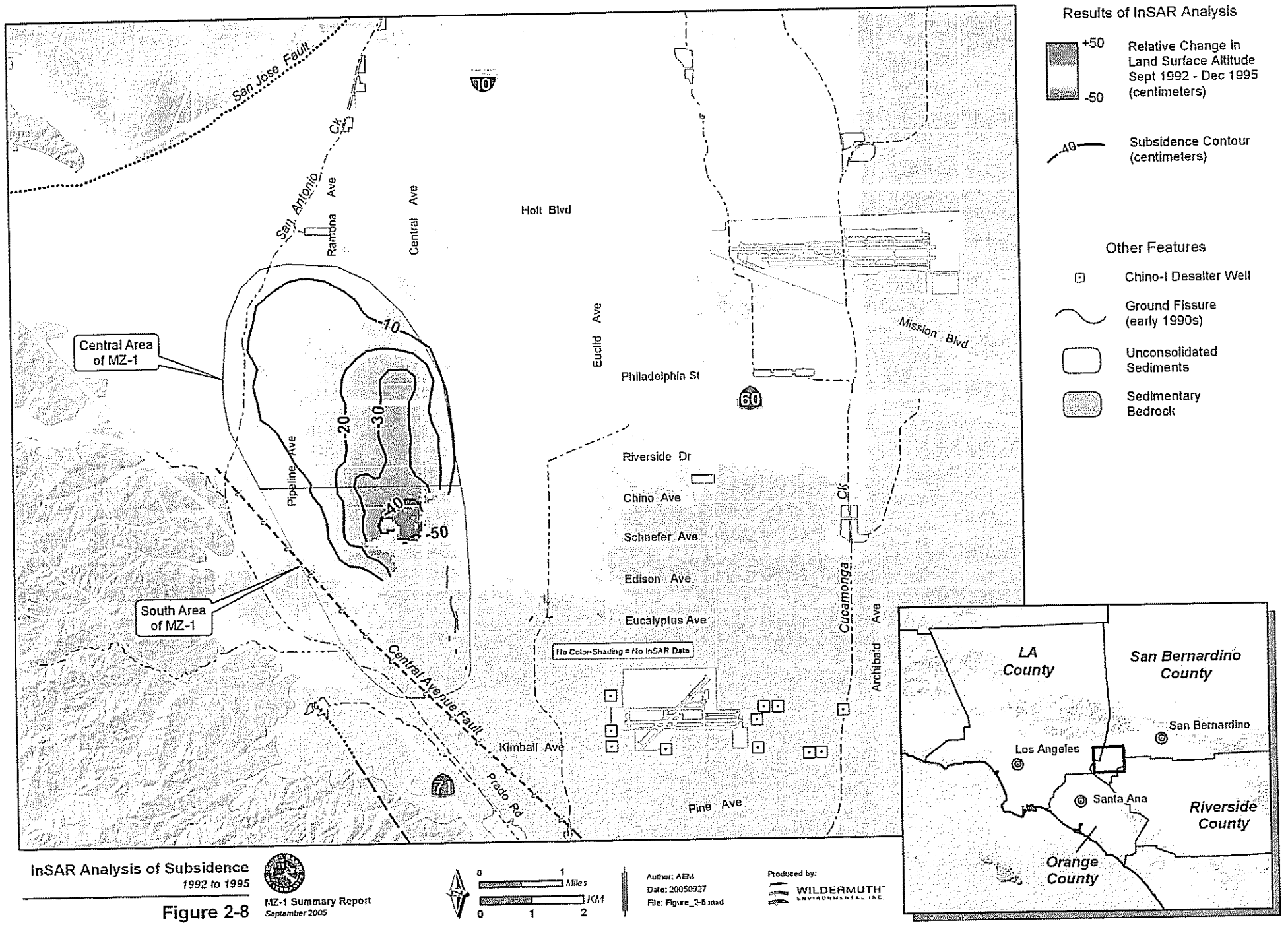
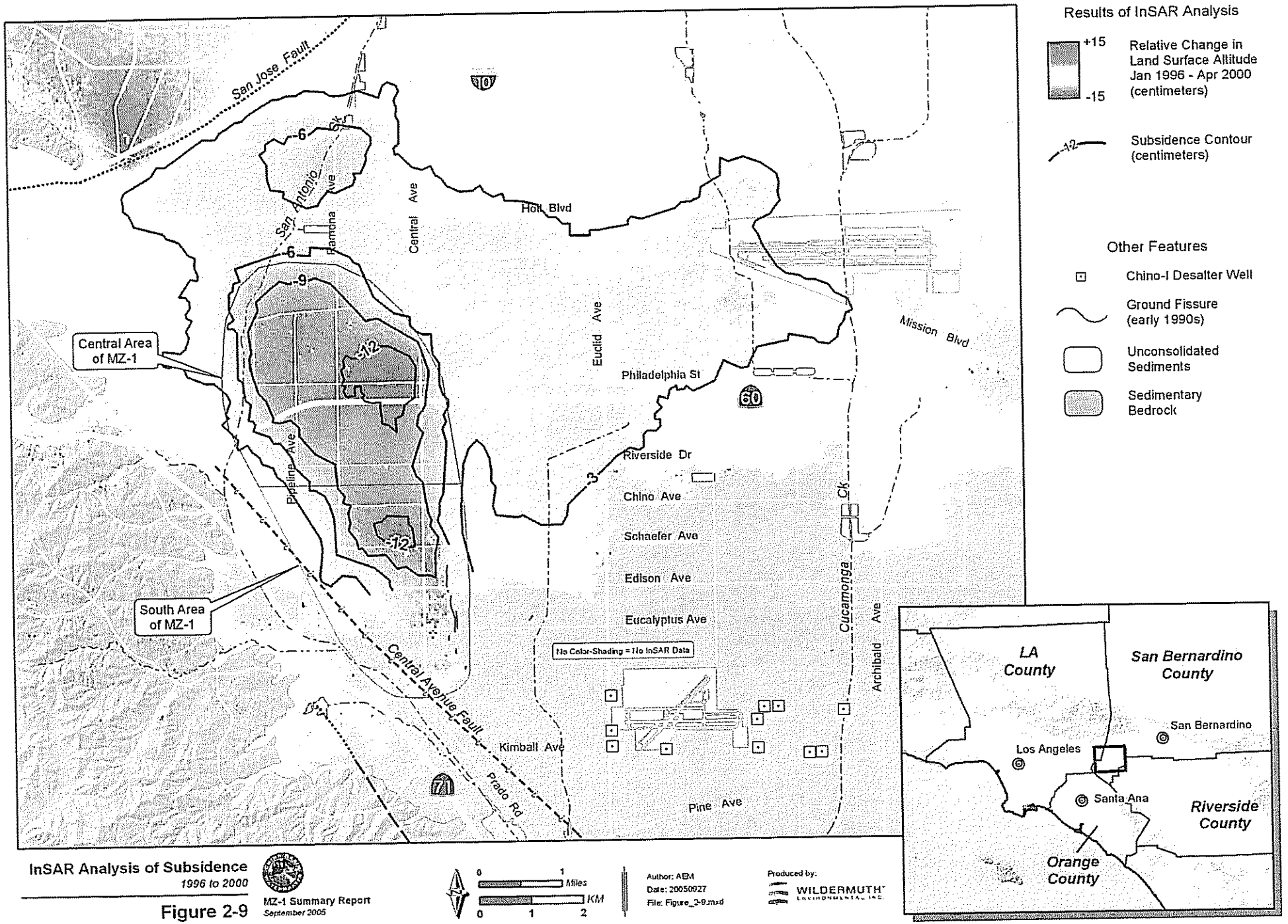


InSAR Analysis of Subsidence
1992 to 1995

Figure 2-8

MZ-1 Summary Report
September 2005



InSAR Analysis of Subsidence
1996 to 2000

Figure 2-9

MZ-1 Summary Report
September 2005

3. ONGOING AND RECOMMENDED WORK

This section describes:

- the ongoing work of the IMP, which includes the continued monitoring of the aquifer system and land surface deformation and the development of analytical and numerical models of groundwater flow and aquifer-system deformation.
- the work that is currently being implemented that was not initially part of the IMP, but has been recommended by MZ-1 Technical Committee and/or Watermaster based on data obtained during the IMP period. This work includes the expanded aquifer-system monitoring in the central area of MZ-1, and the monitoring of horizontal ground surface deformation along Schaefer Avenue.

Continued Monitoring

Aquifer-System Monitoring. Aquifer-system monitoring efforts will continue for the duration of the IMP. The MZ-1 Technical Committee will likely recommend that the aquifer-system monitoring efforts continue, albeit at a reduced scope, as part of the long-term management plan. Electronic data from the Ayala Park Extensometer facility and from water level recording transducers in surrounding wells will be collected and entered into the MZ-1 database once every two months. The purpose of this continued monitoring effort is to (1) continually evaluate the effectiveness of the long-term plan, and (2) verify the accuracy of the groundwater flow and subsidence models that are being used as management tools.

InSAR. The MZ-1 Technical Committee is recommending that on-going InSAR monitoring of land surface deformation be conducted on a semi-annual interval (spring and fall data acquisition and interferometric analysis) for the next two years. This analysis will (1) reveal seasonal and annual ground surface displacement across the entire MZ-1 area, and (2) be compared to ground-level survey data collected at the same interval (see Section 5.4.2 below) to help determine a long-term strategy to monitor ground surface deformation.

Ground Level Surveying. The MZ-1 Technical Committee is recommending that the entire network be surveyed twice per year for the next two years (during the spring and fall of each year). The ground level survey data will be compared against the InSAR data (see above) to help determine a long-term strategy to monitor ground surface deformation.

Development of Analytical and Numerical Models

The objectives of aquifer-system modeling in MZ-1 are:

- To evaluate fluid withdrawal as the mechanism of historical land subsidence and fissuring
- To predict the effects of potential basin management practices on groundwater levels and land subsidence and fissuring (forecasting tool)

In other words, if a model can be constructed that simulates past drawdown and associated land subsidence, then the model represents an additional line of evidence that fluid withdrawal was the mechanism of historical land subsidence. In addition, the model can be used to predict future drawdown and associated land subsidence that would result from potential basin management practices.

Three distinct modeling efforts will take place in sequence:

1. *Inverse analytical modeling.* This type of modeling will use groundwater level and production data collected as part of the aquifer-system stress testing (pumping tests) that were conducted in 2003 and

2004. The objectives are to determine the hydraulic and mechanical parameters of the aquifer-system and reveal XY-anisotropy. The results will be used in subsequent numerical modeling efforts.

2. *One-dimensional compaction modeling.* This type of modeling will use groundwater level and aquifer-system deformation data collected at the Ayala Park Piezometer/Extensometer Facility, as well as historical water level and subsidence data collected near Ayala Park. One objective is to determine the aquitard properties in the vicinity of Ayala Park. Areal extrapolation of aquitard properties will be based on geology and InSAR data, and the results will be used in the three-dimensional numerical modeling efforts (see Section 3). Another objective is to predict aquifer-system deformation due to predicted water level changes that may occur at Ayala Park in the future due to nearby pumping.

3. *Three-dimensional groundwater flow and subsidence modeling.* This type of modeling will use groundwater level and production data at all wells in the area and historical land subsidence data from ground level surveys and InSAR. Again, this model will attempt to match historical water level and subsidence data and, if successful, will serve as a forecasting tool for MZ-1 managers.

It is desirable that the calibration period for future groundwater flow and subsidence modeling begins before significant drawdown in MZ-1 (~1940). The comprehensive set of subsidence data in this region begins in 1987. If subsidence data exists prior to 1987, then it needs to be collected, evaluated, and linked to the post-1987 survey data if it is to be used in model calibration. Associated Engineers is currently investigating the quantity and quality of pre-1987 subsidence data in MZ-1, and will deliver a report containing these data in October 2005.

Expanded Monitoring

One of the key discoveries of the IMP has been the groundwater barrier located beneath the historic fissure zone. However, the northern and southern extent of this barrier is unknown. The MZ-1 Technical Committee is contemplating the expansion of the aquifer-system monitoring network to the north and south of its current extent to better characterize the location and effectiveness of the barrier. Further aquifer-system testing (i.e. pumping test) may be necessary as part of this effort.

The horizontal surveys will also be extended to the north over this two year period to include the benchmarks along Schaefer Avenue. The next survey of the entire monument network is planned for October 2005.

4. Development of the Long-Term Management Plan for MZ-1

Recall that the objective of the long-term management plan is to minimize or abate permanent land subsidence and ground fissuring in MZ-1. The modeling efforts described above will be critical to the development of the long-term plan, and the continual evaluation of plan in the future.

A workshop was held May 25, 2005 to update the Special Referee on IMP progress and development of the long-term management plan for MZ-1. The OBMP implementation plan called for the development of the long-term plan by June 2005. Because the modeling efforts were just begun in the summer of 2005, the Special Referee was notified before and during the workshop of the impending delay in the development of the long-term plan.

Subsequent to the workshop, the Special Referee issued a report to the Court (Appendix A). In the report, the Special Referee:

- indicated that the IMP progress and current activities are sufficient to warrant a delay in the development of a long-term plan
- indicated that it was incumbent upon Watermaster to request that the Court extend the period for completion of the long-term plan, and that Watermaster file with the Court a motion for an order to set a new schedule for the completion of the long-term plan
- requested that Watermaster produce a MZ-1 Summary Report (this report) that describes the IMP results and conclusions to date, and addresses outstanding issues such as other potential subsidence mechanisms and historical subsidence that pre-dates the 1990s
- requested that Watermaster provide "guidance criteria" to the MZ-1 producers in an effort to minimize the potential for future subsidence and fissuring until the completion of the long-term plan

Guidance Criteria to Minimize Subsidence and Fissuring

In response, Watermaster produced this summary report, and drafted a set of guidance criteria for MZ-1 producers. Again, the purpose of the guidance criteria is to minimize the risk of permanent subsidence and ground fissuring while the long-term plan is being developed. The guidance criteria are listed in Table 4-1 and below:

1. Table 4-2 lists the existing wells (hereafter the Managed Wells) and their owners (hereafter the Parties) that are the subject of these Guidance Criteria.

2. Figure 4-1 shows the area addressed by these Guidance Criteria (hereafter the Area of Subsidence Management). Within the boundaries of this area, both existing and newly-constructed wells are subject to being classified as Managed Wells. This is based upon the observed and/or predicted effects of pumping on groundwater levels and aquifer-system deformation. Initial Managed Well designations for wells that pumped during the IMP were based on effects measured at the Ayala Park Piezometer/Extensometer Facility. Additional Managed Well designations were made based on analysis of well construction and geology.

3. The Guidance Level is a specified depth to water measured in Watermaster's PA-7 piezometer at Ayala Park. It is defined as the threshold water level at the onset of inelastic compaction of the aquifer system as recorded by the extensometer, minus 5 feet. The 5-foot reduction is meant to be a safety factor to ensure that inelastic compaction does not occur. The Guidance Level is established by Watermaster based on the periodic review of monitoring data collected by Watermaster. The initial Guidance Level is 245 feet below the top of the PA-7 well casing.

4. If the water level in PA-7 falls below the Guidance Level, Watermaster recommends that the Parties curtail their production from designated Managed Wells as required to maintain the water level in PA-7 above the Guidance Level.

5. Watermaster will provide the Parties with real-time water level data from PA-7.

6. The Parties are requested to maintain and provide to Watermaster accurate records of the operation of the Managed Wells, including production rates and on-off dates and times. The Parties are requested to promptly notify Watermaster of all operational changes made to maintain the water level in PA-7 above the Guidance Level.

7. Watermaster recommends that the Parties allow Watermaster to continue monitoring piezometric levels at their wells.

8. Watermaster will evaluate the data collected as part of the MZ-1 Monitoring Program at the conclusion of each fiscal year (June 30) and determine if modifications, additions, and/or deletions to the Guidance Criteria are necessary. These changes to the Guidance Criteria could include (1) additions or deletions to the list of Managed Wells, (2) re-delineation of the Area of Subsidence Management, (3) raising or lowering of the Guidance Level, or (4) additions and/or deletions to the Guidance Criteria (including the need to have periods of water level recovery).

9. Watermaster cautions that some subsidence and fissuring may occur in the future even if these Guidance Criteria are followed. Watermaster makes no warranties that faithful adherence to these Guidance Criteria will eliminate subsidence or fissuring.

Development and Schedule of the Long-Term Plan

In a sense, the guidance criteria listed above are a *first draft* of the long-term plan. Over the next nine months (October 2005 to June 2006), Watermaster will conduct its modeling exercises and coordinate a series of meetings with MZ-1 producers that will likely lead to revisions of the guidance criteria.

Of particular interest to the affected Parties is the sixth criterion (6) listed above, which limits the timing of production from the Managed Wells to July through September of each year. It may be that the Managed Wells can be pumped at reduced rates over periods longer than three months, and still not cause drawdown below 245 feet at the PA-7 piezometer or inelastic compaction within the aquifer system. Watermaster's groundwater flow and subsidence models will help to address these unknowns prior to pumping by predicting:

- the water level response at PA-7 due to various proposed pumping scenarios, and
- the aquifer-system compaction response due to the water level responses.

In June 2006, after the MZ-1 meetings and modeling exercises, Watermaster will release an expanded *second draft* of the guidance criteria, which will be defined as the official long-term plan for MZ-1. A key element of the long-term plan will be the verification of the model predictions and the protective nature of the guidance criteria as related to permanent land subsidence and ongoing fissuring. This verification will be accomplished through continued monitoring and reporting by Watermaster and revision of the guidance criteria when appropriate (see Criterion 11 above). In this sense, the long-term plan will be adaptive.

The guidance criteria and the long-term plan discussed above relate to the management of pumping-induced subsidence within south MZ-1 (the Area of Subsidence Management in the terminology of the

guidance criteria). Recall that central MZ-1 is currently experiencing measurable land subsidence, and is the focus of an expanded effort to monitor piezometric levels and land surface deformation. An adaptive long-term plan will accommodate the results and modified recommendations that will emerge from the expanded monitoring of central MZ-1.

Table 4-1
Guidance Criteria for MZ-1 Producers

1. Table 4-2 lists the existing wells (hereafter the Managed Wells) and their owners (hereafter the Parties) that are the subject of these Guidance Criteria.
2. Figure 4-1 shows the area addressed by these Guidance Criteria (hereafter the Area of Subsidence Management). Within the boundaries of this area, both existing and newly-constructed wells are subject to being classified as Managed Wells. This is based upon the observed and/or predicted effects of pumping on groundwater levels and aquifer-system deformation. Initial Managed Well designations for wells that pumped during the IMP were based on effects measured at the Ayala Park Piezometer/Extensometer Facility. Additional Managed Well designations were made based on analysis of well construction and geology.
3. The Guidance Level is a specified depth to water measured in Watermaster's PA-7 piezometer at Ayala Park. It is defined as the threshold water level at the onset of inelastic compaction of the aquifer system as recorded by the extensometer, minus 5 feet. The 5-foot reduction is meant to be a safety factor to ensure that inelastic compaction does not occur. The Guidance Level is established by Watermaster based on the periodic review of monitoring data collected by Watermaster. The initial Guidance Level is 245 feet below the top of the PA-7 well casing.
4. If the water level in PA-7 falls below the Guidance Level, Watermaster recommends that the Parties curtail their production from designated Managed Wells as required to maintain the water level in PA-7 above the Guidance Level.
5. Watermaster will provide the Parties with real-time water level data from PA-7.
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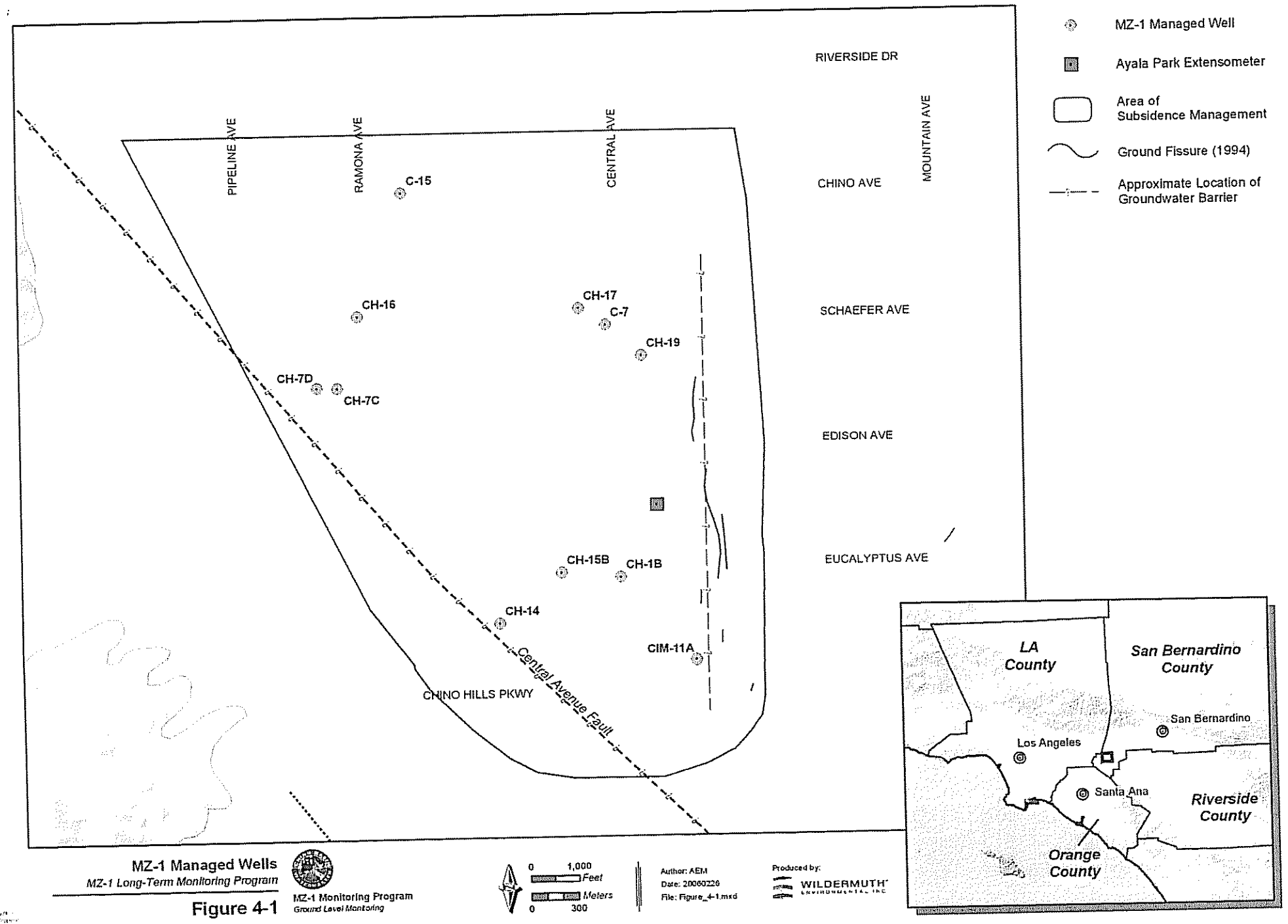
7. Watermaster recommends that the Parties allow Watermaster to continue monitoring piezometric levels at their wells.
8. Watermaster will evaluate the data collected as part of the MZ-1 Monitoring Program at the conclusion of each fiscal year (June 30) and determine if modifications, additions, and/or deletions to the Guidance Criteria are necessary. These changes to the Guidance Criteria could include (1) additions or deletions to the list of Managed Wells, (2) re-delineation of the Area of Subsidence Management, (3) raising or lowering of the Guidance Level, or (4) additions and/or deletions to the Guidance Criteria (including the need to have periods of water level recovery).
9. Watermaster cautions that some subsidence and fissuring may occur in the future even if these Guidance Criteria are followed. Watermaster makes no warranties that faithful adherence to these Guidance Criteria will eliminate subsidence or fissuring.

Table 4-2
MZ-1 Managed Wells

CBWM_ID	Owner	Well Name	Status	Screened Interval ft-bgs	Capacity gpm
600487	Chino Hills	1B	Inactive	440-470, 490-610, 720-900, 940-1180	up to 1200
600687	Chino Hills	7C	Inactive	550-950	–
600498	Chino Hills	7D	Inactive	320-400, 410-450, 490-810, 850-930	400
600495	Chino Hills	14	Inactive	350-860	300-400
600488	Chino Hills	15B	Active	360-440, 480-900	1500
600489	Chino Hills	16	Inactive	430-940	800
600499	Chino Hills	17	Active	300-460, 500-980	700
600500	Chino Hills	19	Active	340-420, 460-760, 800-1000	1100-1500
3600461	Chino	7	Inactive	180-780	
600670	Chino	15	Inactive	270-400, 626-820	
3602461	CIM	11A	Active	135-148, 174-187, 240-283, 405-465, 484-512, 518-540	500-600



MZ-1 Managed Wells

MZ-1 Long-Term Monitoring Program

Figure 4-1

MZ-1 Monitoring Program
Ground Level Monitoring

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APPENDIX A – SPECIAL REFEREE'S REPORT ON PROGRESS MADE ON IMPLEMENTATION OF THE WATERMASTER INTERIM PLAN FOR MANAGEMENT OF SUBSIDENCE