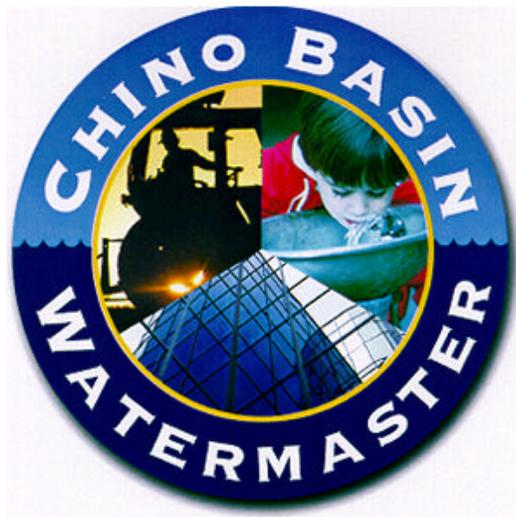


Chino Basin Watermaster Status Report No. 7

(Covering March 2002 through May 2003)



June 2003



OPTIMUM BASIN MANAGEMENT PROGRAM

In its Order of September 28, 2000 extending the term of the nine-member Watermaster Board, the Court ordered Watermaster to provide semiannual reports regarding the progress of OBMP implementation. By a subsequent Order of October 17, 2002, the Court added additional reporting items. In Status Report Number 4, filed with the Court on September 30, 2002, Watermaster notified the Court that Watermaster intended to voluntarily accelerate the reporting schedule due to the rapid pace of OBMP implementation. In its Annual Report that was filed with the Court on September 30, 2003, Watermaster provided its intended schedule for future reporting. (See Watermaster 25th Annual Report Exhibit B.)

This Status Report Number 7 is filed pursuant to this schedule and reports on the period from March 1, 2002 to May 31, 2003.

PROGRAM ELEMENT 1 – DEVELOP AND IMPLEMENT COMPREHENSIVE MONITORING PROGRAM

Groundwater-Level Monitoring



Watermaster has four active groundwater level monitoring programs operating in the Chino Basin – a semiannual Basinwide program, two semimonthly programs associated with the Chino-I and Chino-II desalter well fields, and an intensive water-level monitoring program associated with land-surface monitoring (see Land-Surface Monitoring below) in Management Zone 1.



Semiannual Water-Level Monitoring Program. Watermaster initiated the semiannual Basinwide groundwater-level monitoring program in 1999. The Spring 2003 round of testing began in April and will be completed in June 2003.

Chino I and Chino II Desalter Well Field Monitoring Programs. Watermaster staff continued to collect groundwater-level data at about 250 wells twice a month in and around the Chino-I and Chino-II desalter well fields during this reporting period.



Watermaster staff has begun the process of analyzing hydrogeology, well construction, and groundwater-level data in the vicinity of the Chino-I Desalter well field in an effort to develop a key well groundwater-level monitoring network. This key well network will be reviewed and finalized during the next reporting period, and will likely reduce the number of monitoring wells in the Chino-I program by two-thirds.



Management Zone 1 Interim Monitoring Program. Watermaster consultants have initiated a groundwater-level monitoring program to collect data at about 45 wells in the southern portion of Management Zone 1 (City of Chino area). Data is being collected manually at all wells at least once a month and by automated pressure transducers at selected wells at least once every 15 minutes.



Groundwater-Quality Monitoring

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During Fall 2001 and Spring 2002, Watermaster completed a reduced-scale groundwater-quality monitoring survey for wells in the capture zone of the existing and proposed desalter wells. Partial funding was provided through the California State Water Resources Control Board under Section 205(j) of the Federal Clean Water Act, Agreement Number 00-199-250-0. The draft 205(j) Report was submitted to the SWRCB in October 2002.

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Three-Year Sampling Program of All Accessible Private Wells. During this quarter, Watermaster continued the first year of a three-year sampling program in which all accessible private wells in the southern portion of the Chino Basin will be sampled (about 150 to 200 wells each year). Through the end of May 2003, almost 140 wells had been sampled. Watermaster is continuing the cooperative monitoring program described in the Implementation Plan. Watermaster obtains data every six months from the Department of Health Services for the municipal water agencies and from the Department of Toxic Substances Control and the Regional Board for most of the other wells in the Basin. All this data is uploaded and maintained in a relational database, with spatial access through a GIS.

Extensive Range of Substances Being Tested

- All groundwater samples are being analyzed for general mineral and general physical parameters.
- Wells not previously sampled and analyzed for constituents that were added to the evolving groundwater-quality monitoring program (e.g., hexavalent chromium, silica, barium, etc.) in 1999-2001 are being sampled for those constituents.
- Wells within or near the two Volatile Organic Compound (VOC) plumes are being analyzed for VOCs, in addition to the other parameters.
- All wells are being analyzed for perchlorate due to its widespread presence in the 1999-2001 sampling program.
- Analysis for 1,2,3-trichloropropane has been added to the monitoring program for all wells. This chemical was detected in several wells above 50 parts per trillion (old detection limit).

New Testing Method Measures Parts Per Trillion of TCP. In the 2002-03 monitoring program, a new analytical methodology is being used to achieve a detection limit of 5 parts per trillion for 1,2,3-TCP, which is its California Action Level. The wells chosen for the 2002-03 monitoring program are primarily located between the Chino I Desalter well field and the Santa Ana River. These wells were prioritized for 2002-03 to aid in the development of a monitoring program to demonstrate hydraulic control in the southern portion of Chino Basin. (See the Cooperative Effort to Determine State of Hydraulic Control discussion in Program Elements 6 and 7.)



Prioritizing Wells to Serve Multiple Purposes

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GROUND

Wells were prioritized for 2002-03 to aid in the development of a monitoring program to demonstrate hydraulic control in the southern portion of Chino Basin. (See the Cooperative Effort to Determine State of Hydraulic Control discussion in Program Elements 6 and 7.)

Groundwater-Production Monitoring

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All Meters Scheduled for Installation Before July 2003. The primary activity with regard to production monitoring continues to be the installation of meters on wells operated by members of the Agricultural Pool. Initially, Watermaster counted about 540 active agricultural wells. Watermaster intends to equip 385 of these wells with operating meters. The other 159 wells were forecast to be inactive or destroyed within two years. As of May 31, 2003, 369 of these wells are metered, with the remainder to be metered by July 2003.

All Producing Wells Are Monitored Quarterly. Watermaster staff reads private wells with meters. A method appropriate to the Chino Basin area is used to estimate production at privately owned wells that do not have meters.

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Need For Water Use Disposal Form To Be Reviewed. The OBMP Implementation Plan includes a provision that requires the producers to submit a water use and disposal form describing the sources of water used by each producer and how that water is disposed of after each use. The water use and disposal form and reporting has not been implemented, because much of the information that would have been collected using this form is being collected as part of other monitoring activities and analyses. In the second half of fiscal 2003-2004, Watermaster anticipates discussions regarding the need for this form.

Surface-Water Monitoring

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GROUND

Measure Water Quality and Water Levels In Recharge Basins. Watermaster conducts a surface-water monitoring program to measure the water quality of water in recharge basins and the water levels in some of these basins. The purpose of this program is to estimate the volume and quality of recharge. This information will be used in subsequent years to estimate the safe yield of the Basin and for other management purposes.

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During this reporting period, Watermaster staff has collected water quality samples at selected recharge basins following rain storms where storm water is found in the basins. Thirty-seven (37) composite samples, including repeat sampling, were collected from March 4, 2003 through May 7, 2003.

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Surface-Water Monitoring for Santa Ana River to Begin In June 2003. One of the goals of the OBMP is to maximize Chino Basin yield. One of the key components to maximizing yield is to minimize groundwater discharge to the Santa Ana River and, in some reaches of the River, to maximize recharge of the Santa Ana River into the Chino Basin. Watermaster developed a surface-water monitoring program for the Santa Ana River that, in conjunction with Watermaster groundwater-monitoring programs, will be used to characterize what reaches of the River are gaining water from the Basin, and to determine if significant discharge of Chino Basin groundwater to the Santa Ana River is



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occurring. Surface water monitoring for the Santa Ana River was scheduled to begin in June 2003. A conceptual monitoring plan involving Inland Empire Utilities Agency, Orange County Water District, the Regional Water Quality Control Board, and Watermaster was finalized. IEUA, OCWD, the Regional Board, and Watermaster determined that the conceptual monitoring plan was adequate and determined to move forward with the development of a detailed work plan to implement a surface-water and groundwater monitoring program. The work plan is in preparation and should be completed by the end of June 2003.

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Watermaster consultants met with the staff of the U.S. Geological Survey, which will conduct stream gauge measurements at 4 ad hoc stations in the Santa Ana River between MWD Crossing and Prado Dam: SAR at Van Buren, SAR at Etiwanda, SAR at Hamner, and SAR at River Road. Another ad hoc station will measure discharge from Hole Lake near the Santa Ana River.

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Watermaster will collect water quality samples at these ad hoc stations on a bi-weekly basis from June through September 2003. In addition, Watermaster will obtain discharge and quality data for permanent USGS and OCWD stream gauge locations on the Santa Ana River and its tributaries. Discharges from POTWs will also be quantified.

During the next reporting period, Watermaster intends to enter into and begin to implement a contract with USGS to perform monitoring on the Santa Ana River.

Land-Surface Monitoring

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GROUND

Multifaceted Approach. Watermaster staff is developing a multifaceted land-surface monitoring program to develop data that will assist in the development of a long-term management plan for Management Zone 1. The monitoring program consists of three main elements:

1. An aquifer-system monitoring facility located in the southern portion of Management Zone 1 – an area that has experienced concentrated and differential land subsidence and ground fissuring. One major component of the aquifer system monitoring facility is multiple-depth piezometers that measure water level and pressure changes at 11 different depths. Another major component will be a dual borehole extensometer that measures deformation within the aquifer system at deep and shallow levels.

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The extensometer is expected to be installed in June 2003. Together, the two devices will correlate the hydraulic and mechanical responses of the aquifer system to different aquifer stresses, such as pumping at wells.

2. Synthetic aperture radar interferometry (InSAR) that will measure land surface deformation across the entire Chino Basin.



3. Benchmark surveys along selected profiles of the Chino Basin. The benchmark surveys will (1) establish a datum from which to measure future land surface deformation, (2) “ground-truth” the InSAR data, (3) allow determination of historical subsidence at any historical benchmarks that can be recovered, and (4) evaluate the effectiveness of the long-term management plan.

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During the current period, the MZ-1 Technical Committee approved the proposed selected profiles for benchmark surveys.

Progress During This Reporting Period. The Ayala Park Extensometer drilling/completion contract was awarded to Layne Christensen, and work began on April 7, 2003. A deep extensometer borehole was drilled to a depth of 1,410 feet, and the shallow extensometer borehole was drilled to 540 feet. Deep and shallow extensometer construction was completed on May 5, 2003. Construction of the extensometer well head and building is underway and should be completed by June 27, 2003. The target date for extensometer completion and the commencement of data collection is July 1, 2003.

Depth-Specific Data. Permanent transducers and data logging equipment are recording depth-specific groundwater-level data at the Ayala Park piezometers. Transducers also are recording groundwater-level data at wells owned by the cities of Chino and Chino Hills, and are recording groundwater-level data and “on/off” pumping cycles at active production wells. The State of California (CIM) and Watermaster have signed an access agreement that will allow water-level and production monitoring to begin at CIM wells. It is anticipated that all monitoring equipment be installed in June 2003.

Aquifer Stress Tests. During the reporting period, Watermaster, with the assistance of the cities of Chino Hills and Chino, conducted aquifer stress tests (pumping tests) while monitoring water levels and groundwater production at nearby monitoring wells, production wells, and at the Ayala Park piezometers. The objectives and proposed methods of this testing and monitoring were distributed to and approved by the MZ-1 Technical Committee at the March 12, 2003 meeting.

Controlled Pumping. The reconnaissance pumping tests were to consist of controlled pumping in both the deep and shallow aquifer systems. The deep pumping test was conducted at Chino Hills Well 19 for a 48-hour period (April 17-19, 2003) at a pumping rate of about 1,750 gallons per minute (gpm). The shallow pumping test will not be conducted until the wells at CIM have been instrumented with transducers. However, shallow pumping did occur at Chino Hills Well 1A for a 40-hour period (April 5-7, 2003) at a pumping rate of about 700 gpm as part of normal operations. This shallow pumping has provided valuable data from the shallow aquifer system in lieu of a controlled pumping test during this reporting period. Most other wells in the immediate vicinity were not pumping during these tests due to the forbearance agreement, which assisted in the interpretation of the data.

Preliminary observations and conclusions derived from analysis of these data are:

- Deep pumping at Chino Hills Well 19 (screened interval = 340-1,000 ft-bgs) did not affect water levels in the two shallowest piezometers, PA-11 (139-149 ft-bgs) and PA-10 (213-233 ft-bgs), or in the two deepest piezometers, PB-2 (1,086-1,096 ft-bgs) and PB-1 (1,209-1,229 ft-bgs).

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- Deep pumping at Chino Hills Well 19 resulted in declining water levels in all other piezometers. The greatest water-level decline occurred in PA-7 (438-448 ft-bgs) and PB-6 (502-522 ft-bgs), which are both screened within coarse-grained units of the deep aquifer system.
- Shallow pumping at Chino Hills Well 1A (screened interval = 166-317 ft-bgs) resulted in immediately declining water levels in the two shallowest piezometers, PA-11 (139-149 ft-bgs) and PA-10 (213-233 ft-bgs). Water levels in PA-9 (336-346 ft-bgs) and PA-8 (394-399 ft-bgs) declined slightly hours after initial water-level decline in the shallower piezometers. No water-level decline was recorded at any of deeper piezometers.
- The deep and shallow aquifer systems are separated by a series of thick, fine-grained sedimentary units that occur between about 250-440 ft-bgs.
- A high permeability zone within the deep aquifer-system is located within a series of coarse-grained sedimentary units that occur from about 440-600 ft-bgs.
- Water levels at Chino Hills Well 18 were not affected by pumping at Chino Hills 19, which suggests that a groundwater barrier within the deep aquifer system may exist between the two wells.

The above observations and conclusions assisted in the final design of the deep and shallow extensometers (see above). This arrangement of extensometer anchors, along with the piezometer data, will enable distinction between compaction within the shallow aquifer system (0-300 ft-bgs), the upper, fine-grained portions of the deep aquifer system (300-440 ft-bgs), and the lower, fine-grained portions of the deep aquifer system (600-1,375 ft-bgs).

No significant activity occurred regarding InSAR monitoring during this period.

Benchmark Monument Network. Monument installation and the initial ground-level survey were completed on April 29, 2003. Monument installation and the initial survey were performed as per the final design of the benchmark monument network that was approved by the MZ-1 Technical Committee on the January 29, 2003. Survey data and all deliverables will be provided to Watermaster in June 2003, and will be presented at the next MZ-1 Technical Committee meeting. At the March 12, 2003 meeting of the MZ-1 Technical Committee, a Technical Progress Report on MZ-1 Monitoring Program was submitted to the committee (see attached March 12, 2003 Letter from WE Inc.) The report includes progress updates on benchmark surveys, InSAR data, aquifer-system monitoring, and a draft aquifer-system testing procedure.

Well Construction, Abandonment, and Destruction Monitoring



Watermaster staff monitors the condition of wells on a regular basis. Wells that may be improperly destroyed or abandoned are reported to Riverside and San Bernardino Counties as they are discovered.

Watermaster staff inspected 150 abandoned wells during a 2002-03 field inspection. It was determined that 113 of the wells were properly abandoned and 37 wells would require some modification to meet the standard for a properly abandoned well. A repair program was prepared and approved by Watermaster. Because of continued development in the agricultural area (additional abandoned and destroyed wells), the



number of abandoned wells in need of "repair" may change. A repair program contract is being prepared.

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Field repair is expected to begin in July 2003, with completion in three to six months. Riverside and San Bernardino Counties will be advised of the results. Ongoing land development will require continued well abandonment activity by Watermaster.



PROGRAM ELEMENT 2 – DEVELOP AND IMPLEMENT COMPREHENSIVE RECHARGE PROGRAM

The recharge element of the OBMP is one of the centerpieces of the OBMP since it is through the enhancement of the recharge capacity of the Basin that water in the Basin that is available for use can be maximized.

Recharge Facilities Improvement Project To Be Build In Six Construction Phases

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Bid package No. 1 was awarded to LT Excavating for \$6,996,640. Work began on March 24, 2003 with an estimated completion date of November 14, 2003. Excavation and embankment construction is well underway at RP-3 and College Heights Basins.

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Construction has been delayed at Turner No. 1, Turner Nos. 2,3, & 4, Lower Day, and Banana Basins, because permits from the San Bernardino County Flood Control District have not yet been issued. Work is expected to begin on those basins by June 1, 2002. The construction contract is roughly 10 percent complete as of May 20, 2003.

Bid Package No. 2 will contain improvement to Ely, Eighth Street, and Declez Basins, including the installation of four rubber dams, and drop inlets at three locations. Bid Package No. 2 will be out to bid on June 12, 2003. Construction of elements included in Bid Package No. 2 is expected to start by July 1, 2003 and be completed in 238 calendar days (February 23, 2004). The installation of the rubber dams/diversion structures is to be completed before October 15, 2003, which is the start of the rainy season. The diversion facilities are to be operational by December 31, 2003.

Bid Package No. 3, which includes the Jurupa and Hickory Force Mains, is to be out to bid by the middle of June. Bid Package No. 4, which includes the Jurupa and Hickory Pump Stations, is to be issued for bid by middle of July.

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The preliminary design of elements included in Bid Package No. 5, primarily the MWD Turnouts, is underway. The preliminary design of elements in Bid Package No. 6, which includes the SCADA System, is complete. The final SCADA design is expected to begin in August 2003.

Groundwater Recharge Coordinating Committee

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On April 1, 2003, members of the Chino Basin Watermaster, IEUA, San Bernardino County Flood Control and Conservation District, and the Chino Basin Conservation District met as part of the first Groundwater Recharge Coordinating Committee (GRCC). The formation of the GRCC is outlined in the Agreement for Operation and Maintenance of Facilities to Implement the Chino Basin Recharge Master Plan. The GRCC will meet to monitor and coordinate recharge effort associated with the Recharge Facilities Improvement Project. The GRCC's initial efforts were focused on defining additional operation and maintenance costs associated with the Recharge Facilities Improvement Project. Watermaster has developed a draft 2003-2004 budget that has budgeted approximately \$440,000 for the operation and maintenance activities.



Santa Ana River Fully Appropriated Stream (FAS) Petition and Application



Watermaster's Santa Ana River Application to Appropriate, which was filed by Watermaster in trust for the Parties to the Judgment, is reported under Program Element 2. This is because the water referenced under Watermaster's Application is seasonal storm flows that have been and will be recharged pursuant to this Program Element.



On May 20, 2003, the SWRCB provided formal notice to all the participants in the Santa Ana River process of protests that have been filed to the various applications. A 30-day period was provided for responses to the protests.

The U.S. Forest Service, California Department of Fish & Game, East Valley Water District, and the Cucamonga County Water District have protested Watermaster's Application. As previously reported, the Forest Service has informally agreed to withdraw its protest. Watermaster is confident that all issues raised in the protests can be satisfactorily resolved.



**PROGRAM ELEMENT 3 –
DEVELOP AND IMPLEMENT WATER SUPPLY PLAN FOR THE IMPAIRED AREAS OF
THE BASIN; AND**

**PROGRAM ELEMENT 5 –
DEVELOP AND IMPLEMENT REGIONAL SUPPLEMENTAL WATER PROGRAM**

These program elements focus on the shift of production in the southern end of the Basin away from agricultural uses and toward urban uses. Without the OBMP, this land use conversion would have resulted in a decrease in production in the southern end of the Basin, which would ultimately have led to rising water levels. If groundwater levels in the southern end of the Basin rise too high, then water may “spill” out of the Basin and into the Santa Ana River. Such uncontrolled spillage could reduce the overall Safe Yield of the Basin. The Basin will be managed to avoid this possibility.

Directly tied to the threat of rising water levels in the southern area is the impaired ability of producers in the southern end of the Basin to pump water due to water quality concerns. The ability to compensate for the loss of agricultural production with increased appropriative production is inhibited because of water quality concerns in this part of the Basin. Production in this area therefore requires water treatment. This issue is addressed through the construction of desalter facilities.



The Chino I Desalter Expansion Project. This includes construction of 4.9 million gallons per day (mgd) of expanded treatment capacity (nitrate removal) in parallel with the existing treatment facilities, as well as associated raw water and product water delivery facilities. The Chino I Desalter was originally constructed by SAWPA to provide a total of 9,200 acre-feet per year of product water deliveries. The product water will have TDS and nitrate concentrations of 350 mg/L and 25 mg/L, respectively. The CDA authorized the drilling and awarded a contract for the Chino I Desalter Expansion wells.

Watermaster staff and consultants have been involved in reviewing the proposed well designs for new wells for the Chino I desalter. Watermaster’s role has been to make sure that the well designs are consistent with the intent of the OBMP and Peace Agreement. Three of the four Desalter 1 expansion wells have been drilled. The fourth well is pending.



Wells

- Step drawdown testing and constant rate pumping test for Wells 13, 14, and 15 were completed in March 2003.
- The hydrogeologist’s recommended design flowrate is 2,200 gpm for Well 13, 2,000 gpm for Well 14, and 2,000 gpm for Well 15.
- Previously estimated flowrate from these wells was 1,500 gpm, with four wells required.
- Therefore, the CDA is considering eliminating one well from the Project (Well No. F12)



Off-Site Improvements

- Plans and specifications for the Chino Hills pump station are almost complete.



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- Final design plans and specifications for the product water pipeline in Euclid Avenue are scheduled to be completed in June 2003.
- Final design plans and specifications for the raw water pipelines are scheduled to be completed in June 2003.

On-Site Improvements

- The CDA received bids for the Ion Exchange Treatment System on April 17, 2003.
- Because award is based upon project life cycle costs, and due to correspondence from the apparent low bidder, the bids are currently being evaluated by the CDA and its attorney.
- Final design plans and specifications for all other onsite improvements are being developed. Additional facilities that are now included in the design are an air stripper to remove VOC's from the bypass wells, a new Ontario/Chino discharge pump station, and a diversion structure for plant emergency discharge to the City of Chino storm drain.

The Chino II Desalter Project. This includes 10 mgd of new treatment capacity, as well as raw water and product water delivery facilities. The final design of the Chino II Desalter is planned for completion in May 2003. The sites for the Chino II raw water supply wells are in the final stages of acquisition. Also, the well drilling contracts are under development.

Wells

- Nine potential well sites have been identified.
- CDA staff is continuing negotiation efforts with property owners for well sites.
- CDA staff is also continuing its coordination with the City of Ontario for two of these potential sites within a future development.

On-Site Improvements

- The Chino II Desalter final design plans and specifications are being prepared. Plans are at 80 percent done.



**PROGRAM ELEMENT 4 – DEVELOP AND IMPLEMENT COMPREHENSIVE
GROUNDWATER MANAGEMENT PLAN FOR MANAGEMENT ZONE 1**

*Program Element 4 details the steps to be taken by Watermaster to reduce or abate
subsidence and fissuring in Management Zone 1.*

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MZ1 Technical Committee. The MZ1 Technical Committee met on April 30, 2003. Committee representatives were informed of the status of the various efforts to implement the monitoring program (see Land-Surface Monitoring section of Program Element 1). The next meeting is tentatively scheduled for June 2003. The focus of the next meeting will be a more detailed examination of a possible deep well injection test.

Voluntary Forbearance. On May 28-29, 2003, the City of Chino and the City of Chino Hills submitted certifications documenting their respective voluntary participation in forbearance of groundwater production. Through the end of April 2003, both parties have all but met the forbearance goal of 1,500 acre-ft per year. Their totals through April are detailed below:

Agency	Forbearance through April 2003	Forbearance Goal 02/03
City Of Chino	1,384 acre-feet	1,500 acre-feet
City Of Chino Hills	1,396 acre-feet	1,500 acre-feet

There have been no observed impacts of volunteer participation in the Interim Plan. Installation of the monitoring equipment is not complete, but should be by the end of January 2004. Logic leads one to expect that reducing production in the area will not exacerbate the problem of subsidence and fissuring, and may help reduce the potential for its occurrence to the extent it is production related.

Watermaster is not aware at this time of other legal actions pending that would cause the issue of the Court’s jurisdiction over subsidence to resurface. In its October 17, 2002 Order, the Court ordered Watermaster to keep the Court apprised of any other legal actions that could cause the question of the Court’s jurisdiction over subsidence to arise. Watermaster is not aware at this time of any such actions.



**PROGRAM ELEMENT 6 –
DEVELOP AND IMPLEMENT COOPERATIVE PROGRAMS WITH THE REGIONAL
WATER QUALITY CONTROL BOARD, SANTA ANA REGION (REGIONAL BOARD)
AND OTHER AGENCIES TO IMPROVE BASIN MANAGEMENT; AND**

**PROGRAM ELEMENT 7 –
DEVELOP AND IMPLEMENT SALT MANAGEMENT PROGRAM**

Cooperative Programs With Regional Board and Other Entities. The “water quality committee” as envisioned in the OBMP Implementation Plan had not been formally constituted previously. Since the development of the OBMP, Watermaster has worked closely with the Regional Water Quality Control Board, the Department of Toxic Substances Control, and others to define water quality challenges and to refine the water quality management criteria in the Chino Basin. Watermaster has started a process to review water quality conditions in the Basin and to consider future water quality management activities beyond the Chino Basin desalting program. The ad hoc water quality committee (WQC) has been formed and has met twice to define the objectives and roles of the committee.



Water Quality Management. In response to the results of Regional Board and Watermaster’s groundwater-quality monitoring programs (Program Element 1) Watermaster has refined its water quality monitoring to focus on the following key areas:

- Watermaster is identifying and characterizing water-quality anomalies, such as the VOC anomaly north of the Chino I Desalter well field.
- Watermaster staff continues to participate in the process to develop TMDLs for Reach 3 of the Santa Ana River and other water bodies in the lower Chino Basin.
- Watermaster staff is coordinating with the Regional Water Quality Control Board with regard to surface water quality and the Department of Toxic Substances Control with regard to developing a monitoring program to track perchlorate in groundwater in the Fontana area.

Watermaster and Regional Board Propose TDS and Nitrogen Objectives to Promote Maximum Benefit of Waters Available to the Chino Basin



Watermaster staff has been working with the Total Inorganic Nitrogen/Total Dissolved Solids (TIN/TDS) Task Force to revise the subbasin boundaries, and the TIN and TDS objectives for the Chino Basin to promote maximum beneficial use of waters in the Basin (as opposed to the Regional Board’s current, more rigid antidegradation-based objectives). The maximum beneficial use approach will increase water supplies and lower costs over time while meeting water quality requirements. In December 2002, Watermaster proposed specific subbasin boundaries, and TIN and TDS objectives for the Chino Basin to the RWQCB at a workshop regarding the Basin Plan update. The TIN/TDS Task Force and the Regional Water Board have reacted favorably to the Watermaster proposal and have modified it slightly, and it is Watermaster’s belief that the modified Watermaster proposal will be included in the Basin Plan update that will occur in 2003.



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Cooperative Effort to Determine State of Hydraulic Control. One outstanding issue to resolve regarding the Basin Plan changes is to develop a monitoring plan to evaluate the state of hydraulic control in the southern end of the Basin. Hydraulic control is one tool that can be used to maximize the safe yield of the Basin. Watermaster staff developed a monitoring program for OBMP purposes and described this effort in the Initial State of the Basin report (October 2002). The execution of this monitoring program is included in Program Element 1. Watermaster is collaborating with OCWD and IEUA, in an investigation to select existing wells and to site new multi-piezometer wells that will be used to monitor and assess the state of hydraulic control. This collaboration is unprecedented. Hydraulic control will become a commitment of Watermaster if the proposed subbasin boundaries, and TIN and TDS objectives for the Chino Basin, are adopted. Watermaster, OCWD, and Regional Board staffs are working to develop a monitoring program to assess the state of hydraulic control and to provide information to Watermaster to manage future production and recharge. The initial phase of the monitoring program should be initiated this fiscal year and completed by June 30, 2003. This program will change or adapt over time as new information is developed and will last for several years. The coordination and review of the hydraulic control monitoring data and the development of management programs to maintain hydraulic control have been added to Program Element 6 and 7.

Watermaster and IEUA have committed to the construction of a total of 10 new multi-piezometer wells during fiscal years 2003-04 and 2004-05. Watermaster filed an application for \$250,000 from the Local Groundwater Assistance Fund, sponsored by the California Department of Water Resources (DWR). This funding would support construction of piezometric monitoring wells that, in addition to some existing wells, would be used for monitoring and assessing the state of hydraulic control. DWR has indicated that Watermaster has been selected to receive a grant, but that funding is uncertain due to the State budget crisis.

Salt Budget Tool Was Used To Establish TDS Objectives

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Watermaster has developed a salt budget tool to estimate the current and future salt loads to the Basin and the salt benefits of the OBMP. This tool was used to establish TDS objectives for the northern part of the Basin based on maximum beneficial use of water available to the region. These projections were based on the water supply plan in the Implementation Plan and include alternative recycled water and State Project water recharge scenarios.

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Watermaster consultants are currently preparing a letter report describing the salt budget. This letter was originally scheduled to be submitted to Watermaster in December 2003 but has been deferred pending discussions with the Regional Water Quality Control Board regarding methods and the ongoing Basin Plan update. A report to Watermaster will likely be made in the next quarter.



PROGRAM ELEMENT 8 – DEVELOP AND IMPLEMENT GROUNDWATER STORAGE MANAGEMENT PROGRAM; AND

PROGRAM ELEMENT 9 – DEVELOP AND IMPLEMENT STORAGE AND RECOVERY PROGRAM

This section summarizes the work accomplished to date and the work planned over the next few months for the Chino Basin Dry Year Yield (DYY) Program. The DYY Program is a conjunctive use program between the Metropolitan Water District of Southern California (Metropolitan) and several Basin appropriators, which would develop a maximum of 100,000 acre-feet of storage. This Program also explores the potential for using up to 500,000 acre-feet of storage capacity.

◀ ON-GOING ▶

Conduct Groundwater Modeling. The groundwater model is nearing completion and simulations of DYY Program scenarios are being conducted. The model results will be summarized in the Preliminary Design Report (PDR) and detailed in a separate stand-alone report due shortly. Prior to completing the PDR, Watermaster is using the model to:

- develop future replenishment and wet-water recharge criteria based on requirements described in the Section 7.1 b of the Watermaster Rules and Regulations regarding the balance of recharge and discharge;
- evaluate the cumulative effects of transfers among the Parties as described in Section 9.3 a of the Watermaster Rules and Regulations;
- describe pumping patterns in Management Zone 1 that will not reduce piezometric levels below current conditions.

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These management criteria will be incorporated into the DYY program. The results of this work will be presented to the Pool Committees, Advisory Committee and the Watermaster Board in June 2003 and subsequently to the Court.

◀ BACK-GROUND

Engineering Review and Determination of the Operational Storage Requirement and Safe Storage. The Operational Storage Requirement was defined in the Peace Agreement as the part of the storage in the Chino Basin “necessary to maintain the safe yield” of the Basin (Peace Agreement, Exhibit – B Implementation Plan, page 37). Safe Storage is the maximum storage in the Basin that could occur without significant water quality and high groundwater related problems.

▲ THIS PERIOD

Watermaster is using the hydrology developed for the groundwater model and Monte Carlo methods to develop an estimate of the operational storage requirement.

TO COME ▶

The results of this work will be presented to the Pool Committees, Advisory Committee, and the Watermaster Board in June 2003 and subsequently to the Court. Criteria and methods are being discussed regarding the evaluation of safe storage and the estimate of safe storage will likely be developed later in calendar year 2003.

▲ THIS PERIOD

Other Uses of the Groundwater Model in OBMP Implementation. The groundwater model is also being used to assess the balance between recharge and discharge throughout the Basin, operational storage requirement and safe storage, and the



cumulative physical impact of transfers. This work started in March 2003 and will be submitted to the Watermaster Board in June 2003.

Groundwater Storage Program with MWD

THIS
PERIOD

Confirm Facilities and Locations. Additional effort was made to confirm the DYY Program facilities and locations. Each participating agency was given the opportunity to review its facility preferences and make modifications, if necessary. Several agencies requested additional facilities or modifications to previously proposed facilities, but have not finalized their facility preferences.

Develop Preliminary Design Report. The Preliminary Design Report (PDR) is under development and a draft will be prepared during the next few months. The PDR will be split into multiple volumes, one for each participating agency. Preliminary facility layout drawings and pipeline plans and profiles have been completed. Detailed descriptions of each groundwater treatment and well facility will be addressed over the next few months.

TO
COME

Develop Funding and Local Agency Agreements. The Groundwater Storage Program Funding Agreement between Metropolitan, IEUA, Three Valleys Municipal Water District (TVMWD), and Watermaster has been finalized and will be executed in June 2003.

M. FIFE TO ADD PARAGRAPH ON DYY CONTRACT & PROCESSING OF STORAGE ACCOUNT APPROVAL THROUGH WM.



ADMINISTRATIVE UPDATE

Watermaster Staff Restructuring

▲
THIS
PERIOD

In January of 2003, the Watermaster Board approved a restructuring plan. As a result, two positions are currently being advertised – Senior Engineer and Project Engineer. It is expected that the recruitment process will be concluded in July 2003. The open clerical positions are also expected to be filled in July 2003.

CONCLUSION

This reporting period has been an active time at the Watermaster. In addition to finalizing the Groundwater Storage Agreement with Metropolitan Water District of Southern California, Three Valleys Municipal Water District, and Inland Empire Utilities Agency, significant progress has been made on the Recharge Improvement Project and the Chino Basin's Maximum Benefit Proposal amendment to the Santa Ana Regional Water Quality Control Board's Basin Plan.