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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

CHINO BASIN MUNICIPAL WATER DISTRICT, Plaintiff, v. CITY OF CHINO, et al., Defendants.	CASE NO. RCV 51010 RESPONSE TO REPORT AND RECOMMENDATION OF SPECIAL REFEREE Date: 9/9/98 Time: 8:30 a.m. Dept.: RC-H Specially assigned to the Honorable Judge J. Michael Gunn

PRELIMINARY

Chino Basin Watermaster ("Watermaster") has filed two motions to be heard on September 9, 1998. The following only addresses the motion on the "Scope and Level of Detail for the Optimum Basin Management Program."

On July 29, 1998, the Special Referee filed her "Report and Recommendation of Special Referee Regarding Chino Basin Watermaster June 29, 1998 Recommended Scope of Work for the Development of an Optimum Basin Management Program for the Chino Basin" ("Referee's Report"). The Watermaster generally agrees with the Referee's Report and offers the following responses to the specific questions raised by the Referee's Report.

The Advisory Committee and the Pools have made recommendations to the

Watermaster concerning this response. The Watermaster has considered those recommendations. We have also attached a technical report by Mark J. Wildermuth dated August 14, 1998 ("Wildermuth Report") to explain the comments presented herein and to respond to the technical issues raised in the letter of Luhdorff & Scalmanini dated July 21, 1998 ("Scalmanini letter") appended to the Referee's Report.

WEBSITE

The Special Referee says: "The website information has not been as timely or complete as it might be." (Referee's Report, p.2, line 2.)

Watermaster recognizes the website is a valuable tool for communication with the parties. The preparation of the Optimum Basin Management Program ("OBMP") has consumed most of the staff's time to the exclusion of website update. The Special Referee's reminder is well taken. Watermaster will place more emphasis on keeping the website current.

PROGRESS REPORTS

The Special Referee notes "quarterly progress reports" will be submitted next on September 15. (Referee's Report, p.2, lines 18-22.) The quarterly reports should commence September 30 (and each 90 days thereafter) because this hearing will generate information for the first report.

DEFINITION OF GOALS

The Special Referee asks: "How can the Watermaster define its goals before it sets out the problems that it intends to address?" (Referee's Report, p.4, lines 5-6.)

The goal of the Watermaster is to maximize the beneficial use of the waters of the Basin. To some extent, this goal is independent of the problems. But, the Watermaster has compiled a list of problems and recognizes the list can be expanded to reflect additional problems discovered as the process moves forward. The Wildermuth Report identifies "problems" to be addressed by the OBMP.

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LIMITATIONS OF THE JUDGMENT

The Special Referee next asks: "The phrase 'within the provisions of the Judgment' suggests that some limitation is intended as to the ultimate scope of the OBMP and its implementation. Is a limitation intended, and if so, what is it?" (Referee's Report, p.4, lines 14-16.)

The phrase "within the provisions of the Judgment" is not intended to limit the scope of the OBMP or its implementation. The phrase was included to acknowledge the Watermaster's powers are limited by the Judgment. If the OBMP discloses "problems" which need to be addressed and the Judgment does not empower the Watermaster to address those problems, the Watermaster will first attempt to obtain the commitment of an agency having jurisdiction and, failing that, will request the court to consider an amendment to the Judgment empowering the Watermaster to address the issue if necessary.

INTERESTS TO BE ADDRESSED

The Special Referee asks two related questions: "What has already defined the 'interests that can be addressed'?" (Referee's Report, p.4, line 21), and, "Are the 'interests that can be addressed' only those that have consensus?" (Referee's Report, page 4, line 22.)

The scope of the OBMP should include interests specifically identified in the Judgment and the more general category of interests which can affect the Basin. The Scoping Plan, the initial draft OBMP, and the Wildermuth Report identify those interests. Watermaster is hopeful these documents include all appropriate matters. However, the Watermaster will address all interests reasonably related to the Judgment and the OBMP. Stated the other way, consensus is not needed to identify an interest as worthy of discussion. On the other hand, trivial interests or interests not reasonably related to the Judgment or OBMP will not be pursued.

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MISSION STATEMENT

The Special Referee asks: "The question raised by the mission statement is whether any or all of these approaches would satisfy the mission statement's criterion that they be 'within the provisions of the Judgment.'" (Referee's Report, p.5, lines 8-10.)

As mentioned above, the phrase "within the provisions of the Judgment" was not meant to be a limiting phrase and should be deleted. The OBMP should discuss "problems" and address "interests" reasonably related to the implementation of the Judgment or OBMP.

FUNDING MONITORING PROGRAMS

The Special Referee points out the importance of water monitoring. (Referee's Report, p.5, lines 11-20.) The Special Referee observes: "If grant funding is not obtained, it is not clear that the OBMP will include monitoring as part of the implementation programs." (Referee's Report, p. 5, lines 25-26.)

Monitoring can be expensive. Before imposing these costs on the parties, Watermaster wants to be assured the type of monitoring is necessary (for example, why order an expensive test for a substance until there is some indication the substance is a problem), and that the cost is as contained as possible. Every reasonable effort should be made to obtain grants to fund such programs. Funding will probably not completely satisfy the requirements for any specific program or project, let alone all such programs and projects. The availability of grants will affect the timing, but not the extent of monitoring programs implementing the OBMP. The Watermaster will implement such programs and projects identified in the OBMP even if state or federal assistance is not obtained.

FUNDING OTHER PROJECTS

The Wildermuth Report shows the cost by order of magnitude of some of the programs and projects likely to be identified in the final OBMP. This report demonstrates the development of feasible methods to finance the projects will be the key to implementation in many cases. A measure of the Watermaster's understanding

of the importance of financing programs is the fact the Watermaster has engaged a financial consultant (Richard Atwater of Bookman-Edmonston Consulting Engineers) to advise in this area.

MANAGEMENT CONCEPTS

After referencing several exhibits to the Judgment, the Special Referee says: "There were other provisions, as well, that are referenced to explicitly being in the interests of 'sound basin management' which should be considered in conjunction with the OBMP scoping, and reflect suggestions included in the Attachment B letters." (Referee's Report, page 6, lines 9-11.)

The management concepts referenced in the Judgment should be explicitly inventoried in the OBMP. Other management concepts suggested by interested persons during the process of developing the OBMP will be included in the OBMP as appropriate.

ROLE OF LEGAL COUNSEL

The Special Referee has observed: ". . . Watermaster Board's legal counsel should provide guidance to the Watermaster Board as to the concept already adopted in the mission statement that the ultimate groundwater management program be 'within the provisions of the Judgment.'" (Referee's Report, p.6, lines 15-18.)

As mentioned above, the phrase "within the provisions of the Judgment" was not meant to be a limitation. To this extent, advice of counsel is unnecessary. Legal counsel should also provide guidance on the OBMP process and assistance in implementing the OBMP. It bears emphasis legal counsel should not be called upon to fulfill a policy-making role.

IMPLEMENTATION

The Special Referee acknowledges the important work completed in September 1995. (Referee's Report, p.7, lines 3-7.) The Special Referee then concludes the Watermaster should focus on implementation. (Id, at lines 7-10.)

Watermaster will consider the earlier report but the final OBMP should include

the most recent data and policy decisions necessary for the OBMP.

CONCLUSION AND SUMMARY

The Special Referee has presented useful comments on the Watermaster's Scoping Motion. We hope this response to the Special Referee's questions will confirm the Watermaster and the Special Referee are in basic agreement concerning the scope of the OBMP.

Based on the motion, the Special Referee's comments, and this response, Watermaster requests to the court to:

1. Approve "the Scope of work for the development of an Optimum Basin Management Program for the Chino Basin," as submitted by Watermaster in the report dated June 29, 1998, and revised this submittal.

2. Direct the Watermaster to proceed with the OBMP consistent with the approved Scope of Work.

3. Such other orders as the court deems appropriate.

Dated: August 28, 1998

LEMIEUX & O'NEILL

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WE INC.

MEMORANDUM

To:	Traci Stewart	From:	Mark J. Wildermuth
CC:	LeClaire and Burror, WE, Inc.	Date:	8/14/98
Subject:	Schneider & Scalmanini Comments, re OBMP scope	File:	OBMP Scoping

☑ URGENT ☑ FOR REVIEW ☑ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

Per your request I have reviewed the Special Referee's July 28, 1998 *Report and Recommendation of Special Referee Regarding Chino Basin Watermaster June 29, 1998 Recommended Scope of Work for the Development of an Optimum Basin Management Program for the Chino Basin.* I have tried to respond to comments regarding the technical scope of work from the Special Referee and the consultant, Mr. Scalmanini. The Special Referee's comments that relate to the OBMP mission statement will need to be responded to by you. I have included a revised version of the June 25, 1998 version of the OBMP scope that includes modifications that respond to comments made by the Special Referee and the consultant. Additions to the scope are indicated with a wavy underline and deletions are indicated by a strikethrough.

COMMENT. Page 3 of Special Referee's report, last paragraph, second sentence starting with "*Mr. Scalmanini alludes to the fact that the Scope of Work does not appear, however, to include a discussion of what the problems in the basin are, and the goals may not be fashioned to address specific problems. There have been several reports that have described the basin and supply and demand projections; the Watermaster has apparently decided to present that same information again in the OBMP. In order to set goals and adopt criteria, however, a "problem statement" should be developed and included in the OBMP Scope of Work, as well. How can the Watermaster define its goals before it sets out the problems that it intends to address?*" Mr. Scalmanini's comments are on page 2 of his letter dated July 21, 1998.

RESPONSE. The scope of work presumes the reader has an understanding of the problems in the basin and this presumption has led to the comment. The management problems in the Chino Basin are just that: management problems. Most of the producers know or have knowledge of the water level and water quality problems in the basin. The real challenge is to develop institutional arrangements to address these problems. The purpose of Tasks 2 and 3 (and

Sections 2 and 3) is to get everybody on the same page from a planning perspective. The resource and planning information developed in Sections 2 and 3 is a substantial improvement to similar information developed for the *Chino Basin Water Resources Management Study.* There is no doubt that the information developed in Tasks 2 and 3 will be used to define some of the goals developed in Task 1 as well as management elements of the OBMP. The Task description for Task 1.3 states "*Watermaster will review the program goals memorandum and provide written and oral comments. The program goals memorandum will be revised based on these comments. It is anticipated that the memorandum will be revised two to three times.*" To make this clearer, I have prepared proposed changes to the scope of work in Tasks 1, 2 and 3 and the outline of Sections 1, 2 and 3. These are shown in the attached revised *Scope of Work for the OBMP.*

COMMENT. Page 2 of Mr. Scalmanini's July 21, 1998 letter; section entitled *Need for OBMP Goals.* Mr. Scalmanini's comments in summary are that: (1) OBMP goals should come before the scope is defined; and (2) these goals should define how the basin should look in the future at fixed points in time, thus becoming a benchmark from which the success of the OBMP can be assessed. This benchmarking process can be used to refine the OBMP if the goals are not achieved.

The Special Referee references Mr. Scalmanini's letter and quotes a June 29, 1998 letter from Gerard J. Thibeault of the Regional Water Quality Control Board. *"(1) Specific, measurable, short-term and long term water quality goals for the basin should be developed during the OBMP process. The Regional Board has established Basin Plan Objectives for the Chino Basin and it is understood that these objectives may be modified by the results of the TIN/TDS Task Force. Watermaster should clearly state those goals that it will commit to achieving regarding the improvement of water quality, either in relationship to the Regional Board's objectives or some other measurable target."* Mr. Thibeault's letter goes on to state: *A timeline, with milestone dates, for achieving water quality goals should also be developed. Without a timeline, water quality improvement can always be deferred to the future. (3) An Acceptable monitoring program should be developed for evaluating progress towards achieving water quality goals. Clear improvement in the water quality of Chino Basin should be demonstrated.* The implication in Mr. Scalmanini's comment, and Mr. Thibeault's letter, is that numeric water quality objectives should be established.

RESPONSE. (1) The scope of work, as proposed, defines a set of parallel processes necessary to develop the OBMP in the timeframe allotted. The OBMP goals are being developed in the engineering process. This is being done because of the short timeframe required by the Court to complete the OBMP. This is a marked improvement over the process used to conduct the *Chino Basin Water Resources Management Study.* In that study, the goal to *manage the total water resources to meet projected demands at a minimum cost and acceptable water quality* was developed with almost no discussion. It is worth noting that the *Chino Basin Water Resources Management Study* contains no benchmarks to determine success or trigger mechanisms for re-evaluation. The intent of the study was to maximize the future beneficial use of the water resources of the Chino Basin area.

(2) It is possible that some numerical metrics or objectives could serve as benchmarks for measuring the OBMP success and act as trigger mechanisms to update or revise the OBMP if these objectives are not being achieved. Such metrics might include groundwater production, groundwater level and water quality statistics at key locations and at fixed points in time. For example, it may be appropriate in areas where there is a subsidence threat to establish maximum levels of groundwater production and target groundwater elevations at key wells. I recommend that the scope of Tasks 1 and 5 and the outline of Sections 1 and 5 be modified to reflect this. Earlier versions of the OBMP contained language to develop a timeframe for periodic review and update of the OBMP. I have prepared proposed changes to the scope in Tasks 1 and 5 and Sections 1 and 5. These are shown in the attached revised *Scope of Work for the OBMP.*

I talked to Mr. Thibeault on the telephone on August 6, 1998, regarding the intent of his June 29, 1998, letter. It was not his intent to mean that Watermaster must adopt numeric water quality objectives; rather that Watermaster commit to an action plan with a timetable that will produce demonstrable improvements in groundwater quality.

- Watermaster should not commit to numeric water quality goals in the OBMP. The 1991 *Nitrogen and TDS Study, Santa Ana Watershed* (James M. Montgomery, 1991) and *Final Summary Report* (Wildermuth, 1991) summarize the cost to improve water quality (nitrogen and TDS) in the upper Santa Ana Watershed and contain plans to do so for each subbasin in the Basin Plan. In one alternative, the goal was to improve water quality and to achieve basin plan objectives over a 20-year period (1995 to 2015). For the Chino Basin, this was projected to require:

    - 480 mgd of desalter and ion exchange treatment capacity to treat contaminated groundwater
    - construction of 170 new extraction wells to feed the remediation treatment plants
    - construction of about 330 new injection wells to return treated water back to the aquifer
    - new replenishment obligation of 106,000 acre-ft to replace brine blow down from the ion exchange and desalters, and
    - construction of 96 mgd of new surface water treatment capacity to treat state project water prior to injection.

Everything listed above is in addition to what is necessary to put the groundwater to beneficial use as has been customarily done. That is, in addition to the 140,000 to 160,000 acre-ft of production for traditional beneficial uses, about 529,000 acre-ft of production, treatment and injection would occur each year. The present value cost of this exercise was estimated at almost $3 billion in 1990 dollars. Considerable piping and pumping costs were not factored into this cost estimate including piping and pumping: to collect contaminated water from wells, to convey treated groundwater and treated imported water to injection wells, and to convey imported water from Metropolitan's Foothill Feeder to new water treatment plants that would treat imported water prior to injection. Therefore, the cost cited above is lower than what would really be incurred. The Regional Board staff acknowledged that this was too costly and not feasible. Part of what makes this so costly is that there are dischargers in the basin

who are allowed to discharge nitrogen and TDS at levels that exceed basin plan objectives to subbasins that have no assimilative capacity for nitrogen and TDS.

COMMENT. Page 2 of Mr. Scalmanini's July 21, 1998 letter; section entitled *Basin Management Concepts.* Mr. Scalmanini's comments that three of the management components described in the OBMP scope of work have been recognized in Exhibit B and that the scope recognizes that other management components may be necessary and added later. He goes on to suggest that four other specific components should be added: stabilization of subsidence, basin salt balance, groundwater quality goals with a timeline, and water resources monitoring and future OBMP evaluation/updating.

RESPONSE. Stabilization of subsidence and water resources monitoring will definitely be included in the OBMP. The scope allows additional concepts to be added in Task 4 at the discretion of the OBMP stakeholders.

COMMENT. Page 3 of Mr. Scalmanini's July 21, 1998 letter, section entitled Ground-water Monitoring as a Management Component, first paragraph "*I would suggest that the OBMP should include three aspects of ground-water monitoring: 1) a discussion of historical and current monitoring, on which the descriptions of historical and current basins conditions will be based; 2) a description of a monitoring network and program which will be implemented on an ongoing basis, including responsible parties for field measurements and subsequent data collection and storage; and 3) a discussion of how the OBMP will be evaluated based on (monitored) basin response to the management components which are adopted and implemented; this latter use will, of course, also be the basis for modification of the OBMP as described in Section 4 of the Scope*".

RESPONSE. I agree with all three of Mr. Scalmanini's comments. I have prepared proposed changes to the scope in Tasks 2, 4 and 5 and Sections 2, 4 and 5. These are shown in the attached August 1998 revised *Scope of Work for the OBMP.*

COMMENT. Page 3 of Mr. Scalmanini's July 21, 1998 letter, section entitled Ground-water Monitoring as a Management Component, second paragraph, and third sentence to end of paragraph. Mr. Scalmanini's comments in summary are that: (1) the period of intense monitoring is short and lacking monitoring details; and (2) the monitoring program will be an important part of the management program and effectively be "*a forever*" program.

RESPONSE. The scope of Watermaster's current groundwater level monitoring program is to perform a comprehensive groundwater level assessment including all measurable wells in the basin for four rounds starting in the spring of 1998 and concluding in the fall of 1999. Watermaster will measure groundwater levels in about 500 wells and obtain groundwater level from well owners and cooperating agencies from about 300 additional wells. These data will be reviewed in the winter of 1999 and a new, effectively "*forever*" groundwater level monitoring program will be

developed using a key well network if possible. A similar program will be developed for groundwater quality starting in fiscal year beginning in July 1999. Both of these groundwater monitoring programs were in development prior to the OBMP process and are now included in the OBMP process. These programs will go forward with or without funding from a Section 205(j) grant.

COMMENT. Page 4 of Mr. Scalmanini's July 21, 1998 letter, section entitled General Comment, Core Values, second sentence *"This statement could literally be interpreted to mean groundwater quality, when produced (pumped from wells), would meet appropriate standards for intended beneficial use."*

RESPONSE. The core value refers to water supplied for use and does not mean that groundwater will be made to meet the appropriate standards for intended beneficial use *in situ.*

COMMENT. Page 4 of Mr. Scalmanini's July 21, 1998 letter, section entitled General Comments, Section 3 Water Demands and Water Supply Plans, first sentence *"... I would suggest that the subheadings "Source Water Supply" and "Reclaimed Water Flows are not part of Section 2..."*

RESPONSE. I disagree. The source water supply subsection is a quantification of the water quality problem faced by water supply entities. The reclaimed water flows subsection describes a resource available to water supply agencies and is an integral part of future water supply plans, the quality of which is dependent on source water quality of the water supply agencies.

COMMENT. Page 4 of Mr. Scalmanini's July 21, 1998 letter, section entitled General Comments, Section 3 Water Demands and Water Supply Plans, last sentence *"...Future Water Supply Plans and Source Water Supply are redundantly included twice."*

RESPONSE. The suggested correction is included in the August 1998 version of the OBMP scope.

COMMENT. Page 4 of Mr. Scalmanini's July 21, 1998 letter, section entitled General Comments, Implementation Plan, first paragraph, last sentence *"... I would suggest that the "Timeline for Component Implementation" be extracted (it is not an action item) and be reinserted as a subheading at the same level as "Action Items"...."*

RESPONSE. The suggested change is included in the August 1998 version of the OBMP scope.

COMMENT. Page 5 of Mr. Scalmanini's July 21, 1998 letter, section entitled General Comments, Implementation Plan, second paragraph, first sentence "*... implementation of the OBMP will be contingent on acquiring outside funding...*"

RESPONSE. The OBMP will be implemented. Specific components, in addition to meeting the goals developed in the OBMP development process, may be structured to be eligible for funding from outside sources. Should funding from outside sources not be available, other funding mechanisms will be sought, other components will be implemented to accomplish the same goal or the implementation timing will be adjusted based on financial feasibility for the end user.

COMMENT. Page 5 of Mr. Scalmanini's July 21, 1998 letter, section entitled General Comments, Implementation Plan, third paragraph, in total.

RESPONSE. The suggested change, with slightly different wording is included in the August 1998 version of the OBMP scope in both Section 5 and Task 5.

COMMENT. Page 5 of Mr. Scalmanini's July 21, 1998 letter, section entitled Appendices, in total.

RESPONSE. There appears to be confusion. The reference to appendices in the OBMP document outline is for task memoranda that will be completed during the OBMP process and not the exhibits that were attached to the OBMP scope for review by the Special Referee.

RECOMMENDED SCOPE OF WORK
for the Development of the
Chino Basin
Optimum Basin Management Program

Prepared by

Chino Basin Watermaster

June 25, 1998
Revised August 14, 1998

RECOMMENDED SCOPE OF WORK
for the Development of the
Chino Basin
OPTIMUM BASIN MANAGEMENT PROGRAM

Development of the Optimum Basin Management Program (OBMP) requires three parallel processes: institutional, engineering and financial. The institutional process defines the management agenda, directs the engineering and financial processes and builds an institutional consensus for Optimum Basin Management Program implementation. The engineering process develops planning data and evaluates the technical and economic performance of the Optimum Basin Management Program proposals. The financial process will develop alternative financing plans for the Optimum Basin Management Program as it evolves. These processes will provide feedback to each other as the Optimum Basin Management Program is developed.

Institutional Process

The institutional process includes the following tasks:

Task 1 Identify needs and interests of interested parties.
Task 2 Establish meeting schedule necessary to complete OBMP within time-frame allocated.
Task 3 Develop and refine recommended scope of work based on needs identified.
Task 4 Identify early implementation actions and develop list of potential components of the OBMP to balance needs and interests expressed.
Task 5 Evaluate components and develop recommended management program and implementation plan.

The first three tasks are completed with the submission of the recommended scope of work to the Special Referee and the Court. The meeting schedule has been set for the second and fourth Thursdays of each month, unless more meetings (e.g. subgroups or working committees) are suggested on an as needed basis. New needs and interests may be identified as progress to complete the OBMP is made and they will be addressed during development of the final OBMP document.

Task 4 work has begun with several early implementation action items having already been approved and with initial management concepts submitted to begin the list of potential components of the OBMP. The management concepts being submitted represent concepts or implementation plans that describe the party's vision of the Optimum Basin Management Program. Submission of management concepts will continue into July and August and should reflect the needs and interests that were previously identified for the Optimum Basin Management Program. These proposals will be presented to the group for discussion, and the discussion will center on identifying

components of the proposals that best balance the competing needs and interests for basin utilization. All proposals submitted will be discussed and listed.

For Task 5, those proposals that appear the most promising will be forwarded to the engineering and financial consultants for reconnaissance-level, technical, economic and financial analyses. The results of the engineering and financial analyses will be submitted back to the producers and Watermaster for review. It is anticipated this will be a lengthy and iterative process that should continue as long as necessary within the time constraints described in the Judge's ruling.

Working together, the producers and the Watermaster Board will by the conclusion of Task 5, recommend an Optimum Basin Management Program. The recommendation will include a proposed implementation plan. The engineering and financial consultants will prepare the final Optimum Basin Management Program documents for Watermaster to submit to the Special Referee and the Court.

Engineering Process

The engineering process is fairly well defined and is included in a subsequent section of this document. The tasks include:

Task 1 Develop Optimum Basin Management Program Criteria
Task 2 Assess Current State of the Basin
Task 3 Describe Water Demands and Water Supply Plans
Task 4 Develop the Components of the Optimum Basin Management Program
Task 5 Develop Implementation Plan
Task 6 Finalize Optimum Basin Management Program Document

The first three tasks define the planning environment that forms the basis for the Optimum Basin Management Program. Tasks 4 and 5 respond directly to the institutional process and include evaluation of Optimum Basin Management Program proposals and the preparation of an implementation plan. The Optimum Basin Management Program document will be developed in Task 6.

Financial Process

The financial process will review the Optimum Basin Management Program proposals that have been through the institutional and engineering processes. It tentatively includes the following tasks:

Review the economic analyses of the components of the Optimum Basin Management Program
List the available funding sources that may be appropriate
Describe the terms and conditions for these sources
Describe the requirements and procedures for obtaining funding from these sources

Describe the timeline for obtaining funding from these sources
Develop a robust financial plan for the final Optimum Basin Management Program including:
Palette of funding sources
Administrative activities
Institutional activities (lobbying, partnering, etc.)

A very tentative, draft scope of work for the financial process is included in the final section of this document. It was developed without the review of a financial consultant, and without the benefit of feedback through the institutional process. Therefore, it will change as the program develops.

SCHEDULE

Figure 1 shows the phasing of the tasks and the parallel processes for the development of the Optimum Basin Management Program. The timing of specific milestones has been tailored to fit the schedule in the Judge's ruling. It includes review points for the Special Referee and the Court during the development of the Optimum Basin Management Program.

OUTLINE OF OPTIMUM BASIN MANAGEMENT PROGRAM DOCUMENT

The outline presented below demonstrates what the Optimum Basin Management Program development process will produce for approval by the court and implementation by Watermaster. By *starting with the end in mind,* it demonstrates the timeline and process necessary to develop the program content and implementation plan. The Optimum Basin Management Program document will at a minimum contain five sections:

Section 1	Optimum Basin Management Program Criteria
Section 2	Current State of the Basin
Section 3	Water Demands and Water Supply Plans
Section 4	Components of the Optimum Basin Management Program
Section 5	Implementation Plan

Section 1 defines the Optimum Basin Management Program criteria and thereby the scope of the Optimum Basin Management Program. Section 2 describes the historical change in storage, current groundwater quality and recent changes in groundwater quality. Section 3 describes the need for groundwater in the Chino Basin and how the producers would likely act without the Optimum Basin Management Program. Section 4 describes the components of the Optimum Basin Management Program that are necessary to accomplish the mission of the Optimum Basin Management Program and to satisfy the demands described in Section 3 with the resources described in Section 2. Section 5 describes the implementation plan for the Optimum Basin Management Program including timing and financial aspects.

Section 1 Optimum Basin Management Program Criteria

The purpose of this section is to define the physical limits of the Basin, interests within the Basin, objectives, mission statement, and key definitions and assumptions of the Optimum Basin Management Program.

Description of the Basin. The description will include the Basin's boundaries (legal and physical), area, volume, geology, climate and hydrology in a manner written for basin managers (as opposed to geologist and engineers). The hydrologic description will include historical inflows and outflows. This information is readily available from the CBWRMS and other studies.

Mission Statement. The producers and Watermaster developed the following mission statement. *The purpose of the Optimum Basin Management Program is to develop a groundwater management program ~~within the provisions of the Judgment~~ that enhances the safe yield and the water quality of the basin, enabling all groundwater users to produce water from the basin in a cost-effective manner.*

Core Values. The producers and Watermaster have adopted the following core values:

Water Quality - All producers desire to produce water of a quality that is safe and suitable for the intended beneficial use.

Long View - All producers desire a long term, stable planning environment to develop local water resources management projects. The producers, independently and through Watermaster, will strive to take the long view in their planning assumptions and decisions to ensure a stable and robust management program.

Increased Local Supplies - All producers will, for an undetermined time into the future, be dependent on high quality imported water for direct uses and for groundwater replenishment. Because high quality imported supplies may not be available, the producers will strive to minimize their dependency on imported water and to increase their dependency on local supplies when economically justified.

Groundwater Storage - Unused groundwater storage capacity in the Chino Basin is a precious natural resource. The producers will manage the unused storage capacity to maximize the water quality and reliability and minimize the cost of water supply for all producers. The plan will encourage the development of regional conjunctive use programs.

Storm Water Recharge - The producers will strive to increase storm water recharge and thereby maintain and enhance the safe yield and water quality.

Reclaimed Water Recharge - The safe yield of the Chino Basin will be enhanced through the recharge of reclaimed water. The producers will strive to maximize the recharge of reclaimed water to enhance the safe yield and water quality.

Cost Of Groundwater Supplies - The producers are committed to finding ways to subsidize the cost of using poor quality groundwater in a cost effective and efficient manner.

Interests within the Basin. An inventory of the interests within the basin will be described in the Optimum Basin Management Program.

Program Goals. ~~Based on consensus,~~ a clear statement of the program goals will be developed for the interests described in the Optimum Basin Management Program, the needs and interest described in Exhibit A, and the results of the water resources assessments described in Sections 2 and 3 (and developed in Tasks 2 and 3). If appropriate, specific numerical goals could be established and management components will be implemented to achieve these goals. For example, it may be appropriate in areas

where there is a subsidence threat to establish maximum levels of groundwater production and target groundwater elevations at key wells.

Definitions and Planning Assumptions. The definition of some terms used in the Optimum Basin Management Program will be stated. For example, the term *optimal* will be defined so that we will know if the Optimum Basin Management Program satisfies the definition. An example of a key planning assumption to be decided is what will be assumed for Metropolitan Water District of Southern California's (Metropolitan) imported water cost, and whether or not we will allow these costs (or Metropolitan programs) to influence the Optimum Basin Management Program. Economic evaluation methods and criteria are another example of key definitions and assumptions that need to be described herein.

State and Federal Regulations. State and Federal regulations regarding drinking water and reclaimed water will be described including numerical criteria and the relationship between source water quality and reclaimed water quality discharged to the environment. The numerical criteria include drinking water quality standards, receiving-water quality standards, waste discharge requirements, and waste increments. The proposed *drinking water source water assessment and protection* regulations and *regulations for planned recharge projects that use reclaimed water* will be summarized and their relevancy to the Optimum Basin Management Program will be discussed.

Section 2 Current State of the Basin

Estimates of the historical groundwater storage and water quality will be prepared to show how the availability and quality of groundwater have changed in response to climate, land use and basin management practices. These estimates will be based on the groundwater monitoring work done by Watermaster, the state of the watershed work being done by the Regional Water Quality Control Board, the CBWRMS, and other sources. Historical groundwater production patterns will be illustrated with maps and tables. Pollution sources and their strengths will be identified. The purpose of this section is to develop as complete an assessment of the state of the basin as possible. Problem descriptions including source and magnitude, if known, will be described. These problem statements will be utilized to refine some of the goals described in Section 1. Likewise, some of the goals described in Section 1 will require some additional research for Task 2 and will end up being described in Section 2. This section will have the following subsections and content:

Groundwater Storage Time History

Historical Groundwater Level Monitoring

Methodology for Estimating Groundwater Storage

Time History of Groundwater Storage for the Basin

- Five to ten maps showing groundwater levels throughout the basin

- Table showing the time history of groundwater storage in the basin
- Time history plot of groundwater storage over time

Localized Time Histories of Groundwater Storage

- Table showing the time histories of groundwater storage for each subarea
- Time history plots of groundwater storage over time for the subarea (grouped)

Factors that Change Groundwater Storage

- Table comparing groundwater storage to time histories of climate, groundwater pumping, volume in storage accounts and artificial recharge
- Time history plot comparing groundwater storage to time histories of climate, groundwater pumping, volume in storage accounts and artificial recharge

Groundwater Production Time History

Historical Groundwater Production Monitoring

Sources of Groundwater Production Data

Historical Groundwater Production

- Tables showing groundwater production by type (pool), and by subarea
- Time history plots of groundwater production by type (pool) and by subarea
- Five to ten maps showing spatial distribution of groundwater production

Factors that Impact Groundwater Production

- Table comparing groundwater production to time histories of climate, water quality, and land use.
- Time history plot comparing groundwater storage to time histories of climate, groundwater pumping, volume in storage accounts and artificial recharge

Historical and Current Groundwater Quality

Historical Groundwater Quality Monitoring

Sources of Groundwater Quality Data

Sources of Water Quality Degradation

Non-point Sources

- Series of TDS, nitrate, herbicide and pesticide maps spanning the period 1960 to 1997
- Series of land use maps for the period 1933 through 1993
- Series of representative TDS, nitrate herbicide and pesticide time histories spanning the period 1960 to for subareas
- Tables showing the current concentration and mass of TDS and nitrate for the basin as a whole and the subareas

Point Sources

- Map showing the location of known and suspected point sources and associated water quality anomalies

Role of the Vadose Zone

Summary of Groundwater Level, Groundwater Storage, Production and Water Quality Problems

- Table and maps summarizing groundwater level, groundwater storage, production and water quality problems

Section 3 Water Demands and Water Supply Plans

The purpose of this section is to describe current production patterns and how production patterns could change in the future. Estimates of historical, current and future water demands and the cost of production from the Chino Basin will be developed for all municipal and industrial producers and agricultural producers in the aggregate. The water supply plans of municipal and industrial producers will be described. A change in future production patterns could result in a loss of yield if groundwater production is shifted north to find better water quality or better production capability. Problem descriptions including source and magnitude will be described. These problem statements will be utilized to refine some of the goals described in Section 1. Likewise, some of the goals described in Section 1 will require some additional research for Task 3 and will end up being described in Section 3. The criteria to develop groundwater treatment facilities in the southern part of the basin as the land converts from agricultural to urban uses will be developed. Costs associated with production will be estimated. The work done in the CBWRMS will be used as a starting point for this section. This section will have the following subsections:

Methodology for Estimating Demands

Sources of Demand Data

Historical and Current Water Demands
- Tables listing the time history of water demand by entity
- Time history plots grouped by type and total

Current Water Supply Plans and Costs
- Tables showing water supply plans and cost for each appropriator, overlying non-agricultural producer and the overlying agricultural pool in aggregate

Future Water Demands, Supply Plans and Costs
- Tables showing future (stepped and ultimate, depending on availability) water supply plans and cost for each appropriator, overlying non-agricultural producer and the overlying agricultural pool in aggregate
- Map(s) (one to two) showing the showing spatial distribution of future groundwater production

Source Water Supply
- Tables showing the current and future TDS and nitrate concentrations in the water supply for each appropriator, overlying non-agricultural producer and the overlying agricultural pool in aggregate

~~Future Water Demands, Supply Plans and Costs~~

- ~~Tables showing future (stepped and ultimate, depending on availability) water supply plans and cost for each appropriator, overlying non-agricultural producer and the overlying agricultural pool in aggregate~~
- ~~Map(s) (one to two) showing the showing spatial distribution of future groundwater production~~

~~Source Water Supply~~

- ~~Tables showing the current and future TDS and nitrate concentrations in the water supply for each appropriator, overlying non-agricultural producer and the overlying agricultural pool in aggregate~~

Reclaimed Water Flows

- Tables showing the current and future reclaimed water discharges and associated TDS and nitrate concentrations in reclaimed water for each POTW

Summary of Water Supply Problems

- Table and maps summarizing water supply problems

Section 4 Components of the Optimum Basin Management Program

This section will contain descriptions of components of the Optimum Basin Management Program. These components will be described in enough detail to allow Watermaster to design appropriate projects and to develop agreements regarding the operation of the Basin. The components described below are based on several years of study by Watermaster. Other components may be necessary and added through the current process. The Optimum Basin Management Program will be modified over time and the components described in the first Optimum Basin Management Program can be modified, deleted and/or new components can be added in subsequent revisions to the Optimum Basin Management Program.

Groundwater Storage Management. This component consists of the establishment of implementation criteria that encourage best use of the available groundwater storage volume for individual producers and the producers in aggregate. Individual producers want to store water temporarily in the groundwater basin to better manage their water supply systems. Some of this water is lost to the Santa Ana River and how these losses are accounted for will be determined. The same is true when water is temporarily stored as either cyclic storage or in a conjunctive use program. This section will have the following subsections:

Losses to River from Storage

Cyclic Storage and Conjunctive Use

- Maps showing the location of cyclic storage and conjunctive use features
- Tables and figures that describe cyclic storage and conjunctive use operations and losses from storage

Limits on Local Storage Accounts, Cyclic Storage and Conjunctive Use

- Tables and figures that show the volume of water in local storage accounts, proposed storage limits, and accounting for losses,
- Tables and figures that show the volume of water in cyclic storage and other storage accounts, their proposed storage limits, and accounting for losses

Groundwater Level and Storage Monitoring Requirements

The technical work to support this component for the first Optimum Basin Management Program has mostly been done by Watermaster.

Safe Yield Management. This component includes a description of how production and recharge effect safe yield. The tradeoffs between moving future municipal groundwater production north to avoid the construction of expensive groundwater treatment facilities in the south will be described. Areas of localized overdraft will be delineated. The study of production patterns will be done early in the development of the Optimum Basin Management Program.

The optimization of the recharge of local water including runoff and reclaimed water will increase safe yield. A significant part of this work has been done and was reported in the Phase 1 Recharge Master Plan. The Phase 1 findings are being considered in the Optimum Basin Management Program and the subsequent phases of the Recharge Master Plan efforts may be implemented as part of the Optimum Basin Management Program. This section will have the following subsections:

Methodology for Analyzing Production Patterns

Optimizing Production Patterns

- Tables, figures and Maps illustrating the relationship of the spatial distribution of production on safe yield

Optimizing Recharge of Local Water

Runoff

- Revised tables, figures and maps from the *Recharge Master Plan showing* the recommended storm water, reclaimed water and imported water recharge plan

Costs

- Revised tables and figures that show cost and the phasing of facilities and associated costs over time

Groundwater Production Monitoring Requirements

Water Quality Management. Water quality is one of the primary motivators of the Optimum Basin Management Program. Water quality management will vary by constituent. Mineral constituents such as nitrate or TDS are expensive to treat, regional in extent, and are usually the results of non-point sources such as agriculture. Organics are relatively inexpensive to treat, travel in distinguishable plumes and are usually associated with point sources. Other constituents of concern include radionuclides, some metals and perchlorate. Watermaster and the Regional Board have developed a comprehensive database for water quality up through the middle of 1997. A summary of

water quality interests by constituent and point of discharge (if known) will be prepared. A series of groundwater treatment projects will be described to provide water of suitable quality for use by producers in the basin. This section will have the following subsections:

Groundwater Quality Challenge

- Maps and tables that describe the groundwater quality for each appropriator, overlying non-agricultural producer and the overlying agricultural pool in aggregate

Groundwater Supply Quality Improvement Projects

Alternatives

- Maps, tables and figures illustrating facilities layouts and descriptions, operating plans, beneficiaries and costs

Phasing of Promising Alternatives and Cost

- Maps, tables and figures illustrating facilities layouts and descriptions, operating plans, beneficiaries and costs

Groundwater Exchange with Outside of the Basin Interests

Alternatives

- Maps, tables and figures illustrating facilities layouts and descriptions, operating plans, beneficiaries and costs

Phasing of Promising Alternatives and Cost

- Maps, tables and figures illustrating facilities layouts and descriptions, operating plans, beneficiaries and costs

Groundwater Quality Monitoring Requirements

Integrating the Plan Components. The components described above need to be integrated in the Optimum Basin Management Program. This part of the document describes: the interrelationship of the components and the optimum range of implementation for each component based on the definition of optimality described in Section 1; institutional framework; and principles of agreement that are necessary to implement the components. This section will have the following subsections.

Range of Implementation Levels and Associated Costs for each Component for the Optimum Basin Management Program

Synergies and Tensions Among the Components

Recommended Range in Implementation Levels for each Component

- Maps, tables and figures illustrating facilities layouts and descriptions, operating plans, beneficiaries and costs

Institutional Framework

Integrating Monitoring Requirements

Principles of Agreement

Section 5 Implementation Plan

This section describes how the components of the Optimum Basin Management Program described in Section 4 will be mated with the temporal need for these components and how the components will be implemented. One premise of the program to be determined is how the components will be implemented, as they are actually needed or on a fixed time schedule. The implementation plan will identify a specific list of actions, the entities responsible for implementation and the basis for implementation. Alternatives for financing the program including the use of outside sources of capital will be described. Equitable repayment schemes developed from consensus based criteria will be described and a repayment scheme will be recommended. This Section will have the following subsections:

Action Items to Implement the Optimum Basin Management Program

~~Timeline for Component Implementation~~

- ~~Maps, tables and figures illustrating component location and phasing~~

Detailed Action Item List – including: narrative/quantitative description of the action; dependencies on other actions/components; parties involved in the action; institutional arrangements that need to be completed to launch the action; and cost.

Timeline for Component Implementation

- Maps, tables and figures illustrating component location and phasing

Financing the Optimum Basin Management Program

Capital Requirements

- Tables and figures that show the capital requirements over time

Funding Programs and Sources

Local State and Federal Government Sources – including descriptions of the programs, terms and conditions for these sources, requirements and procedures for obtaining funding from these sources, and a timeline for obtaining funding from these sources.

Institutional Sources – same as above as appropriate.

Revenue Generation and Repayment Plans

Recommended Financial Plan

Revision and Update Schedule for the Optimum Basin Management Program

Trigger Mechanisms

Periodic Revisions of Water Supply and Wastewater Plans
Periodic Comparison of Monitoring Program Data to Numeric Objectives

Recommended Revision and Update Process

Technical Appendices – Contains Task Memorandums for Engineering Work

Financial Appendices – Contains Task Memorandums for Financial Work

Institutional Appendices – Contains Needs and Interests Responses Received; Summary of Needs and Interests Responses Received; and Initial Management Concepts Submitted

SCOPE OF WORK FOR THE ENGINEERING PROCESS

This scope of work has been prepared to describe the tasks necessary to complete the Optimum Basin Management Program report as described in the proposed outline. The scope of work and its deliverables (presentations, technical memorandums, workshops and draft section reports) are structured to provide constant information flow to Watermaster and feedback from Watermaster to guide the development of the program.

Some of the tasks described below will be done jointly with the financial consultants or completely by the financial consultant. These Tasks are indicated by the inclusion of either *(to be done jointly by the engineering and financial consultants* or *(to be done by the financial consultants)* at the end of the task description. The engineering consultants will do all other tasks.

Task 1 Develop Optimum Basin Management Program Criteria

The purpose of Task 1 is to define the physical limits of the Basin, interests within the Basin, goals and objectives, and key definitions and assumptions of the Optimum Basin Management Program. The task deliverable is a draft of Section 1 of the Optimum Basin Management Program. This task consists of five subtasks as described below:

1.1 Develop Simple Physical and Hydrologic Description of Basin

A simple physical description of the basin will be prepared that will include the Basin's boundaries (legal and physical), area, volume, geology, climate and hydrology in a manner written for basin managers (as opposed to geologists and engineers). The hydrologic description will include historical inflows and outflows. This information is readily available from the CBWRMS and other available reports.

1.2 Describe Interests Within the Basin

An inventory of interests within the basin will be described, and those interests to be addressed by the Optimum Basin Management Program will be identified. Some of these interests have recently been submitted to Watermaster by some of the stakeholders during the Optimum Basin Management Plan scoping process. Other interest submittals will be solicited from stakeholders that have not commented. All interests will be categorized and summarized in tables and text.

1.3 Develop Optimum Basin Management Program Goals

Given the interests that can be addressed by the Optimum Basin Management Program, ~~and~~ the mission statement developed by Watermaster, and the results of the water resources assessments developed in Tasks 2 and 3 (and described in Sections 2 and 3), a set of draft program goals will be developed. These goals along with the results of Tasks 1.1 and 1.2 will be submitted to Watermaster in a memorandum format. Watermaster will review the program goals memorandum and provide written and oral comments at regularly scheduled meetings. The program goals memorandum will be revised based on these comments. It is anticipated that the memorandum will be revised two to three times. The program goals memorandum will consist of about 20 to 25 pages of text with an unknown number of tables, figures and maps.

1.4 Develop Key Definitions and Planning Assumptions

The definition of terms used in the Optimum Basin Management Program will be stated. For example the term *optimal* will be defined so that we will know if the Optimum Basin Management Program satisfies the definition. An example of a key planning assumption to be decided is what will be assumed for Metropolitan Water District of Southern California's (Metropolitan) imported water cost, and whether or not we will allow these costs (or Metropolitan programs) to influence the Optimum Basin Management Program. Assumptions regarding economic evaluation methods and criteria will also be made. If necessary, these assumptions can change during the study. State and Federal regulations regarding drinking water and reclaimed water will be described including numerical criteria and the relationship between source water quality and reclaimed water quality discharged to the environment. The numerical criteria include drinking water quality standards, receiving-water quality standards, waste discharge requirements, and waste increments. The proposed *drinking water source water assessment and protection* regulations and *regulations for planned recharge projects that use reclaimed water* will be summarized and its relevancy to the Optimum Basin Management Program will be discussed. A short memorandum will be prepared in draft form for review by Watermaster. Watermaster will review the program definitions and assumptions memorandum and provide written and oral comments at regularly scheduled meetings. The definitions and assumptions memorandum will be revised based on these comments. It is anticipated that the memorandum will be revised two to three times. The definitions and assumptions memorandum will consist of about 20 to 25 pages of text with unknown number of tables, figures and maps.

1.5 Prepare *Section 1 Optimum Basin Management Program Criteria*

A draft Section 1 will be prepared using products of Tasks 1.1 through 1.4 and the comments received on the task memorandums. Copies of draft Section 1 will be prepared and submitted to Watermaster for review and comment. The draft Section 1 will contain approximately 20 to 35 pages of text with numerous tables, figures and maps.

Task 2 Assess Current State of the Basin

The objective of this task is to prepare a concise description of the recent changes in groundwater storage and water quality of the Basin. The task deliverable is a draft Section 2 of the Optimum Basin Management Program.

Estimates of the historical groundwater storage, groundwater production, and water quality will be prepared to show how the availability and quality of groundwater have changed in response to climate, land use and basin management practices. These estimates will be based on the groundwater monitoring work done by Watermaster, the *State of the Watershed* work done by the Regional Water Quality Control Board (in preparation), the CBWRMS, and other sources. Pollution sources and their strengths will be identified. Maps and time history plots will be prepared to illustrate the findings. . Problem descriptions including source and magnitude will be described. These problem statements will be utilized to refine some of the goals described in Section 1. Likewise, some of the goals described in Section 1 will require some additional research for Task 2 and will end up being described in Section 2. This task consists of four subtasks as described below:

2.1 Describe Time Histories of Groundwater Storage for the Basin and Subareas within the Basin

A description of historical groundwater level monitoring program will be prepared. Groundwater level maps will be developed for 5 to 10 different years for the period 1960 through 1998. The selection of the years to be mapped will be based in part on extremes in the precipitation record, annual pumping volumes and available data. The groundwater in storage in the basin will be estimated for each of the years that groundwater levels are mapped. Groundwater level time history plots will be developed for a set of representative wells (20 to 30) distributed throughout the Basin. The change in storage in the Basin as a whole and in several (up to 10) subareas of the Basin will be estimated and correlated to climate, production, production in nearby areas, volume of storage accounts, and artificial recharge.

2.2 Describe Temporal and Spatial Distribution of Groundwater Production

A description of historical groundwater production monitoring program will be prepared. The groundwater production histories for the Chino Basin will be compiled for all known producing wells in the Chino Basin. A production time history will be developed with maps to show the changes in the spatial pattern and magnitude of groundwater production in the Basin. Groundwater production information is readily available from Watermaster. The change in groundwater production in the Basin as a whole and in several (up to 10) subareas of the Basin will be estimated and correlated to climate, water quality and land use changes. The safe yield estimates developed for the Judgment and more recent estimates presented in the Phase 1 Report for the *Recharge Master Plan Report* will be described. The impact of past and future activities that could affect safe yield will be described.

2.3 Describe Temporal and Spatial Distribution of Groundwater Quality

A description of historical groundwater quality monitoring program will be prepared. A time series of maps showing the change in concentration of TDS, nitrate, and selected metal and organic constituents will be developed to show the spatial and temporal patterns of groundwater quality. Chemical time histories for a set of representative wells (20 to 30) distributed throughout the Basin will be developed and graphically compared to climatic indices, drinking water standards and Basin Plan objectives. Water quality trends in the Basin as a whole and in several (up to 10) subareas of the Basin will be described and correlated to land use, historical waste discharge, climate, and artificial recharge. Water quality anomalies from known point sources (such as industrial sites and landfills) and unknown sources will be described based on readily available information.

The vadose zone contamination interest described in past Basin Planning documents, the Metropolitan Storage Program Environmental Impact Report, and the CBWRMS will be characterized in the context of current and future water quality.

2.4 Prepare *Section 2 Current State of the Basin*

A draft Section 2 will be prepared using products of Tasks 2.1 through 2.3. Copies of draft Section 2 will be prepared and submitted to Watermaster for review and comment. The draft Section 2 will contain approximately 30 to 35 pages of text with numerous tables, figures and maps.

Task 3 Describe Water Demands and Water Supply Plans

The objectives of this task are to develop estimates of current and future water demands for all Chino Basin groundwater producers, and to describe water supply plans with and without the Optimum Basin Management Program. This work was done in the early 1990's for the CBWRMS. The work proposed herein will update and expansion of this earlier work. The deliverable for this task is a draft Section 3 of the Optimum Basin Management Program. Estimates of historical, current and future water demands and the cost of production from the Chino Basin will be developed for all municipal and industrial producers and agricultural producers in aggregate. The water supply plans of municipal and industrial producers will be described. Problem descriptions including source and magnitude will be described. These problem statements will be utilized to refine some of the goals described in Section 1. Likewise, some of the goals described in Section 1 will require some additional research for Task 3 and will end up being described in Section 3. The need for groundwater treatment facilities in the southern part of the basin will be projected. Costs associated with current and future production will be estimated using the criteria, assumptions and methods developed in Task 1. The work done in the CBWRMS will be used as a starting point for this section. This Task consists of four subtasks as described below:

3.1 Estimate Current and Future Water Demands for Each Member of the Appropriative and Overlying non-Agricultural pools and the Overlying Agricultural Pool in Aggregate

Task 3.1.1 Obtain information from producers. Each member of the appropriative and overlying non-agricultural pools will review the data and assumptions used to develop water demand projections from the CBWRMS and provide comments and revisions, as necessary, to update the information for their entity. The types of data used for demand forecasts are land use (or other units of water use), assumed temporal change in land use, and associated unit water duties. Water supply plan information includes the identification of each source, seasonal capacity and demand on each source. Each member of the overlying non-agricultural pool and appropriative pool will be contacted and requested to review the CBWRMS for their water supply plans, current and projected demands; and to provide comments and suggested changes. One presentation at a meeting will be made to review the CBWRMS methodology and to provide direction to the members.

Task 3.1.2 Compile changes into a memorandum for agency review. The suggested changes will be compiled in a letter report and distributed back to the members for review and comments. The letter report will consist of about five to seven pages of text and 20 to 30 tables.

3.2 Update Demand Estimates and Water Supply Plans for Each Member of the Appropriative and Overlying non-Agricultural pools and the Overlying Agricultural Pool in Aggregate

Task 3.2.1 Revise CBWRMS water demand forecasts. Using the updated data developed in Task 3.1, new water demand forecasts will be prepared and described in tabular and graphical formats.

Task 3.2.2 Revise the CBWRMS water supply plans. The water supply plans associated with the demands will be described in tabular and map formats. The water supply plans will be developed on an annual basis considering seasonal and climatic extremes. A task memorandum that summarizes these results will be prepared and submitted to Watermaster for review and

comment. The water demand and supply plan information will be revised based on comments received on the task memorandum. The task memorandum will consist of about 10 to 15 pages of text and about 20 to 30 tables.

3.3 Estimate the Cost of Groundwater Production for Each Member of the Appropriative and Overlying non-Agricultural pools and the Overlying Agricultural Pool in Aggregate

Task 3.3.1 Obtain groundwater production costs information from the appropriative and overlying non-agricultural pools. A uniform information request form will be developed and provided to the producers in the appropriative and overlying non-agricultural pools. The form will itemize capital and operations and maintenance costs (fixed and variable), so that production costs can be compared among producers in a consistent manner. The request form will be explained to the members at a meeting. Each member of the appropriative and overlying non-agricultural pools will respond to this information request in a timely manner.

Task 3.3.2 Estimate cost of groundwater production. Using the data collected in Task 3.3.1 and the water supply plan forecasts in Task 3.2, the current and projected costs of groundwater production will be estimated. A task memorandum that summarizes these results will be prepared and submitted to Watermaster for review and comment. The groundwater production costs information will be revised based on comments received on the task memorandum. The task memorandum will consist of about five to ten pages of text and about 20 to 30 tables.

3.4 Estimate the Composite TDS and Nitrate Concentrations of the Water Supplies for Each Member of the Appropriative and Overlying non-Agricultural pools and the Overlying Agricultural Pool in Aggregate

Task 3.4.1 Estimate trends in water supply system composite TDS and nitrate concentrations from observed source data and compare to estimates prepared by purveyor. The trend in TDS and nitrate concentration for each well used by the producers in the appropriative and overlying non-agricultural pools will be estimated from TDS and nitrate concentration data from each well. The trend in TDS and nitrate concentration for non-well sources will be estimated based on available data and engineering judgment. The composite supply TDS and nitrate concentration will be based on these results and the water supply plans developed in Task 3.2. TDS and nitrogen interests related to water supply will be characterized from the water supply system composites. A brief task memorandum will be prepared and distributed to members for review and comment. The task memorandum will consist of about five to ten pages of text and an unknown number of tables, figures and maps.

Task 3.4.2 Estimate the waste increments and waste discharge concentrations to groundwater and the Santa Ana River. CBMWD, Upland, JCSD and the WRRWTP-JPA will provide their current and recent past estimates of the TDS waste increments from municipal and industrial use, and waste discharge TDS and nitrogen concentrations from reclamation plants. Estimates of the TDS and nitrate waste increments and waste discharge concentrations to groundwater will be obtained from the CBWRMS and the TIN/TDS study. An estimate of the projected TDS in reclaimed water will be prepared.

Task 3.4.3 Demonstrate the sensitivity of reclaimed water quality to source water quality. The sensitivity of TDS in reclaimed water produced by reclamation plants to TDS in supply sources will be assessed by looking at the trends in TDS in groundwater and other sources, individually and in combination with other sources. A task memorandum will be prepared and distributed to members for review and comment. The task memorandum will consist of about five to ten pages of text and an unknown number of tables, figures and maps.

3.5 Prepare *Section 3 Water Demands and Water Supply Plans*

A draft Section 3 will be prepared using products of Tasks 3.1 through 3.4 and the comments received on the task memorandums. Copies of draft Section 3 will be prepared and submitted to Watermaster for review and comment. The draft Section 3 will contain approximately 30 to 35 pages of text with numerous tables, figures and maps.

Task 4 Develop the Components of the Optimum Basin Management Program

The purpose of this task is to develop Program components that, when implemented, will meet the Program objectives developed in Task 1. These components will be developed in enough detail to allow Watermaster to design appropriate projects and to develop agreements regarding the operation of the Basin. The deliverable for this task will be a draft of Section 4 of the Optimum Basin Management Program. This task consists of seven subtasks as described below:

4.1 Develop Groundwater Storage Management Plan Component

Task 4.1.1 Describe processes for losses from storage, and obtain consensus on methodology and current thinking on storage limits. The previous letter report developed by *Mark J. Wildermuth, Water Resources Engineers,* and the most current proposal developed by Watermaster staff will be distributed to the members for review. A memorandum summarizing the current status of storage limits will be prepared and transmitted with the above.

Task 4.1.2 Develop technical and administrative procedures to set storage limits and to account for losses for water stored in local storage accounts, cyclic storage accounts, and supplemental water storage accounts. This subtask will be an iterative process. Proposals for these procedures will be developed and submitted to Watermaster prior to a regularly scheduled meeting. These proposals will include a groundwater level and storage-monitoring plan that will identify the type and frequency of monitoring, entities responsible for monitoring, and the procedure to analyze monitoring data and report the results of the monitoring program. A presentation on the proposal will be made at the meeting. Comments received will be incorporated and the process will be repeated two to three times. Each proposal will be written in memorandum format and consist of about 12 to 15 pages of text with associated tables and figures.

4.2 Develop Safe Yield Management Plan Component

Task 4.2.1 Describe process for loss of yield if production shifts from the south to the north. A presentation will be made at a regularly scheduled meeting to describe the underlying physical processes that control the relationship between production location and safe yield.

Task 4.2.2 Reconnaissance-level evaluation of the loss of yield that will occur if production is shifted north. The Rapid Assessment Model will be used to evaluate the loss of yield if production in the southern part of the basin is moved northward. A baseline groundwater production plan will be developed that maintains groundwater production in the south, and an alternative plan will be developed where groundwater production is moved northward to areas of potable groundwater quality. These plans will be simulated with the RAM tool. The annual increase in groundwater outflow from the basin that will occur when production is moved north is equivalent to the change in yield. Sensitivity studies will be done to characterize the change in yield as a range.

Task 4.2.3 Review Phase 1 Recharge Master Plan, revise findings and adopt key findings. A memorandum will be prepared that describes and updates the key findings of the Phase 1 Recharge Master Plan.

Task 4.2.4 Develop Monitoring Plan. A plan will be developed to monitor and analyze groundwater levels, basin outflow, and production to assess changes in safe yield caused by changes in the location of groundwater production and artificial recharge. The monitoring program will include the type and frequency of monitoring, entities responsible for monitoring, and the procedure to analyze monitoring data and report the results of the monitoring program.

Task 4.2.5 Estimate costs and benefits of the safe yield management component. The costs and benefits associated with changing groundwater production patterns (Task 4.2.2) and artificial recharge will be described using the format and criteria described in Task 1.5. The cost and benefits due to changing (or not changing) groundwater production patterns will be primarily based on avoided replenishment costs. The costs and benefits for artificial recharge will be primarily an update of the cost and benefit analysis done in the Phase 1 Recharge Master Plan Report.

Task 4.2.6 Prepare Task 4.2 Memorandum. A task memorandum will be prepared to document the findings of Task 4.2. The memorandum will consist of about 15 to 20 pages of text and contain numerous tables, figures and maps.

4.3 Develop Water Quality Management Plan Component

Task 4.3.1 Describe the historical, current and anticipated challenges to produce water of suitable quality for each member of the appropriative and overlying non-agricultural pools, and the overlying agricultural pool in the aggregate. This task is an expansion of Task 3.4.1 and will include other contaminants that have been found or threaten groundwater use in the Chino Basin.

Task 4.3.2 Develop list of local and/or regional projects to ensure that groundwater quality will improve or can be treated and put to beneficial use. A list of projects will be developed to produce groundwater of suitable quality for beneficial use. These projects could include in situ and well head treatment, well field relocation (dodge and drill), and dilution. For each project the following will be developed:

- An operating plan
- Facilities layout and description
- Direct beneficiaries
- Costs
- Monitoring requirements

The cost analysis will be based on the criteria and format developed in Task 1.5, the groundwater quality conditions described in Tasks 3.4.1 and 4.3.1. The project list and descriptions developed in the CBWRMS will be used as a starting point.

Task 4.3.3 Evaluate potential for groundwater exchange with outside basin interests. Another way to provide potable water to the southern part of the Chino Basin would be to provide treated imported water (or other potable imported supplies) to the cities of Chino, Chino Hills, Norco and Ontario, and JCSD, in lieu of treated groundwater. The additional cost of pipelines and treatment plants necessary to provide treated state project water to these areas would be offset by allowing water agencies outside of the basin to purchase un-pumped groundwater yield. In theory, the maximum cost of water developed by this project should be less than the cost of treated imported water. This alternative will be evaluated in this task. Up to three alternative plans to accomplish the exchange will be evaluated. Each exchange plan will be evaluated in an identical

manner as the water quality projects are in Task 4.3.2. Each exchange plan will include a monitoring plan that will identify the type and frequency of monitoring and the procedures to analyze the monitoring data.

Task 4.3.4 Prepare Task 4.3 Memorandum. A task memorandum will be prepared to document the findings of Task 4.3. The memorandum will consist of about 30 to 35 pages of text and contain numerous tables, figures and maps.

4.4 Describe Monitoring Plan to Assess Compliance with Numeric Goals developed in Task 1.

If numeric goals are developed in Task 1, monitoring plan(s) will be developed to describe current ambient and future ambient groundwater conditions for comparison to numerical goals developed in Task 1. These plans will describe the type and frequency of monitoring, the procedures for analyzing the resulting monitoring data, and the entities responsible for data collection and analysis. The monitoring plans will be described in the Task 4.5 memorandum.

4.5 Describe a Range of Implementation Levels and Associated Costs for each Component for the Optimum Basin Management Program

Task 4.5.1 Describe the synergies and tensions among the components. The components described in Tasks 4.1, 4.2, 4.3 and 4.34 are not mutually independent. In some cases the components are complementary and in others they are in conflict. For example, the relocation of groundwater production to avoid groundwater quality problems may reduce the yield of the basin. Artificial recharge can augment safe yield and sometimes improve or degrade groundwater quality.

Task 4.5.2 Recommend a range in implementation levels and costs for each component. Based on the results of Tasks 4.1 through 4.4 and Task 1, a range of implementation levels for each component will be recommended. The range will be based on technical feasibility, water demands and cost.

Task 4.5.3 Prepare Task 4.4 Memorandum. A task memorandum will be prepared to document the findings of Tasks 4.4 and 4.5. The memorandum will consist of about 15 to 20 pages of text and contain numerous tables, figures and maps.

4.6 Describe Consistency of Optimum Basin Management Program Components with Responsibilities and Authorities of Watermaster Pursuant to the Judgment and Other Agencies

Task 4.6.1 Describe institutional framework. List and describe entities that can participate in the implementation of the Optimum Basin Management Program, and for each entity describe its:

- Geographic jurisdiction
- Responsibilities and powers
- Other attributes
- Ability to implement components of the Optimum Basin Management Program

The need for a new entity (such as a Joint Powers Agency) will be assessed based on the responsibilities and powers of existing entities and the responsibilities and powers needed to implement the Optimum Basin Management Program components.

Task 4.6.2 Prepare Task 4.6 Memorandum. A task memorandum will be prepared to document the findings of Task 4.6. The memorandum will consist of about 15 to 20 pages of text and contain an unknown number of tables, figures and maps.

4.7 Develop Principles of Agreement

Task 4.7.1 Develop initial set of principles of agreement. Agreements and other types of legal documents will need to be developed to implement the Optimum Basin Management Program components. In this task, the principles of these agreements will be described for each component and the entities that would participate in those agreements will be identified. A draft Task memorandum will be prepared and submitted to members for review and comment.

Task 4.7.2 Conduct meetings and workshops to forge consensus. Meetings with individual entities and a workshop will be done to obtain comments and suggestions, and to help move Watermaster to consensus. The task memorandum will be revised as necessary during the course of this task.

4.8 Prepare *Section 4 Components of the Optimum Basin Management Program*

A draft Section 4 will be prepared using products of Tasks 4.1 through 4.7 and the comments received on the task memorandums. Copies of draft Section 4 will be prepared and submitted to Watermaster for review and comment. The draft Section 4 will contain approximately 50 to 75 pages of text with numerous tables, figures and maps.

4.9 Review Economic Analyses of the Components of the Optimum Basin Management Program

The financial consultant will perform an independent review the economic analyses done in Tasks 4.1 through 4.4 and provide comments and suggestions. *(to be done by the financial consultants)*

Task 5 Develop Implementation Plan

This section describes how the components of the Optimum Basin Management Program described in Section 4 will be mated with the temporal need for these components and how the components will be implemented. The deliverable for this task is a draft Section 5 of the Optimum Basin Management Program. This task consists of four subtasks as described below:

5.1 Define the Actions to Implement the Optimum Basin Management Program

Task 5.1.1 Develop approximate criteria for phasing of components. An initial timeline will be developed that will show the approximate phasing and staging of the Optimum Basin Management Program components based on projected water demands and other factors. Other factors include the availability of supplemental supplies, regulatory compliance (mandated groundwater cleanup, etc.) and economics. Potential variations in the timeline due to climatic and regional economic factors will be developed.

Task 5.1.2 Develop list of action items. Develop a list of actions necessary to implement the components of the Optimum Basin Management Program that for each component include:

- Narrative/quantitative description of the action
- Dependencies on other actions/components
- Parties involved in the action
- Institutional arrangements that need to be completed to launch the action
- Cost

The time line developed in Task 5.1.1 will be expanded to show the timing and schedule dependencies of individual actions.

Task 5.1.3 Prepare Task 5.1 Memorandum. A task memorandum will be prepared to document the findings of Task 5.1. The memorandum will consist of about 10 to 15 pages of text and contain an unknown number of tables, figures and maps.

5.2 Financing the Optimum Basin Management Program

Task 5.2.1 Estimate the capital needs over time for the components of the Optimum Basin Management Program. Using the costs developed in Task 4 and the time line from Task 5.1, a future projection of the capital needs to implement the Optimum Basin Management Program will be developed. *(to be done jointly by the engineering and financial consultants)*

Task 5.2.2 Describe funding sources. Funding sources available for the components of the Optimum Basin Management Plan will be listed and described. The description will include the applicability to various components or sub-components, and terms and conditions. *(to be done by the financial consultants)*

Task 5.2.3 Describe revenue and repayment schemes. Describe revenue generation and repayment mechanisms within Watermaster or other assessment schemes that can be used to pay for the components in the Optimum Basin Management Plan. *(to be done by the financial consultants)*

Tasks 5.2.4 Develop Robust Financial Plan. Based on the results of Task 5.1 and the previous subtasks in Task 5.2, a robust financial plan will be developed to fund the implementation of the OBMP. The financial plan will include a palette of funding sources for each component of the OBMP, description of the administrative processes within Watermaster for generating revenues and repayment of OBMP related costs and institutional and advocacy activities such as partnering and legislative lobbying. *(to be done by the financial consultants)*

Task 5.2.5 Prepare Task 5.2 Memorandum. A task memorandum will be prepared to document the findings of Task 5.2. The memorandum will consist of about 5 to 10 pages of text and contain an unknown number of tables, figures and maps. *(to be done jointly by the engineering and financial consultants)*

5.3 Develop Procedure to Review and Update the Optimum Basin Management Program

Task 5.3.1 Develop Trigger Mechanisms to Determine When the Optimum Basin Management Program Should be Reviewed and Updated. The Optimum Basin Management Program should be periodically reviewed to ensure that the program is meeting its' goals as described in Task 1 and that the program is consistent with then current planning, technological, social, and financing conditions. This will require periodic review of monitoring data, and water resources planning conditions including water supply and wastewater plans, and financing conditions. The inability to achieve a numerical goal by a fixed time may trigger an automatic review of the Optimum Basin Management Program. The trigger mechanisms and periodic review frequency will be defined in this task.

Task 5.3.2 Define the Revision and Update Process. The process used to revise and update the OBMP will be described. The results of Tasks 5.3.1 and 5.3.2 will be described in a task memorandum. The memorandum will consist of about 5 to 10 pages of text and contain an unknown number of tables, figures and maps. *(to be done jointly by the engineering and financial consultants)*

5.4 Conduct meetings and workshops to forge consensus.

Meetings with individual entities and a workshop will be held to obtain comments, suggestions and help move Watermaster to consensus. The task memorandums developed in Tasks 5.1 ~~and 5.2~~ through 5.3 will be revised as necessary during the course of this task. *(to be done jointly by the engineering and financial consultants)*

5.5 Prepare *Section 5 Implementation Plan*

A draft Section 5 will be prepared using products of Tasks 5.1 through ~~5.3~~ 5.4 and the comments received on the task memorandums. Copies of draft Section 5 will be prepared and submitted to Watermaster for review and comment. The draft Section 5 will contain approximately 35 to 40 pages of text with numerous tables, figures and maps.

Task 6 Finalize Optimum Basin Management Program Document

The purpose of this task is to combine the draft sections of the Optimum Basin Management Program into one complete draft report for review by Watermaster and a final report for the Special Referee and the court. The deliverables will be a draft report and a final report. This task consists of two subtasks as described below:

6.1 Compile Task Reports and Associated Comments into a Draft Report

A draft report will be compiled from draft Sections 1 through 5. The task memoranda and supporting technical work will be included as technical appendices. The draft report will be submitted to Watermaster for review and comment. Comments will be received in writing and at regularly scheduled meetings

6.2 Prepare Final Report

Comments on the draft report will be incorporated and included in a final report. The final report will be submitted to Watermaster. Watermaster will submit the final report to the Special Referee and the court.

TENTATIVE SCOPE OF WORK FOR THE FINANCIAL PROCESS

This scope of work has been prepared without input from a financial consultant and without significant discussion in the institutional process. The intent is to describe possible tasks necessary to complete the financial portion of the Optimum Basin Management Program report as described in the proposed outline. The scope of work and its deliverables (presentations, technical memorandums, workshops and draft section reports) are structured to provide constant information flow to Watermaster and feedback from Watermaster to guide the development of the program.

Some of the tasks described below will be done jointly with the engineering consultants These Tasks are indicated by the inclusion of *(to be done jointly by the engineering and financial consultants)*. The financial consultants will do all other tasks. The financial

process will review the Optimum Basin Management Program proposals that have been through the institutional and engineering processes. It includes the following tasks:

Task 4 Develop the Components of the Optimum Basin Management Program

4.9 Review Economic Analyses of the Components of the Optimum Basin Management Program

The financial consultant will perform an independent review of the economic analyses done in Tasks 4.1 through 4.4 and provide comments and suggestions.

Task 5 Develop Implementation Plan

The tasks that are part of the financial process include:

5.2 Financing the Optimum Basin Management Program

Task 5.2.1 Estimate the capital needs over time for the components of the Optimum Basin Management Program. Using the costs developed in Task 4 and the time line from Task 5.1, a future projection of the capital needs to implement the Optimum Basin Management Program will be developed. *(to be done jointly by the engineering and financial consultants)*

Task 5.2.2 Describe funding sources. Funding sources available for the components of the Optimum Basin Management Plan will be listed and described. The description will include the applicability to various components or sub-components, terms and conditions, and the procedures for obtaining funding from these sources. The timeline for obtaining funding from these sources will be described.

Task 5.2.3 Describe revenue and repayment schemes. Describe revenue generation and repayment mechanisms within Watermaster or other schemes that can be used to pay for the components in the Optimum Basin Management Plan.

Tasks 5.2.4 Develop Robust Financial Plan. Based on the results of Task 5.1 and the previous subtasks in Task 5.2, a robust financial plan will be developed to fund the implementation of the OBMP. The financial plan will include a palette of funding sources for each component of the OBMP, description of the administrative processes within Watermaster for generating revenues and repayment of OBMP related costs and institutional and advocacy activities such as partnering and legislative lobbying.

Task 5.2.5 Prepare Task 5.2 Memorandum. A task memorandum will be prepared to document the findings of Task 5.2. The memorandum will consist of about 5 to 10 pages of text and contain an unknown number of tables, figures and maps. *(to be done jointly by the engineering and financial consultants)*

5.3 Conduct meetings and workshops to forge consensus.

Meetings with individual entities and a workshop will be held to obtain comments, suggestions and help move Watermaster to consensus. The task memorandums developed in Tasks 5.1 and 5.2 will be revised as necessary during the course of this task. *(to be done jointly by the engineering and financial consultants)*

CHINO BASIN MUNICIPAL WATER DISTRICT V. CITY OF CHINO et al.
CASE NO. RCV 51010

PROOF OF SERVICE

I, Michelle Lauffer:

1. I am over the age of 18 and not a party to this action. My business address is Chino Basin Watermaster, 8632 Archibald Avenue, Suite 109, Rancho Cucamonga, California 91730.

2. On today's date, I served the documents identified below by placing a true and correct copy of same in sealed envelopes addressed to each of the addresses shown on the attached mailing lists.

1) **RESPONSE TO REPORT AND RECOMMENDATION OF SPECIAL REFEREE.**

2) **TECHNICAL REPORT BY WILDERMUTH ENVIRONMENTAL INC., DATED AUGUST 14, 1998.**

3. I then placed said envelopes for collection, processing and mailing by Chino Basin Watermaster personnel with the United States Postal Service on today's date, following Chino Basin Watermaster's ordinary business practices. Pursuant to these practices, with which I am familiar, such sealed, addressed envelopes are deposited in the ordinary course of business with the United States Postal Service on the same date they are collected and processed, with postage thereon fully prepaid.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on August 28, 1998, at Rancho Cucamonga, California.

Michelle Lauffer

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