

# 1. INTRODUCTION

## 1.1 Background and Purpose

The primary objective of this investigation is to develop and apply models to estimate specific impacts of the dry-year yield program on the Chino Basin. The impacts evaluated in this investigation include groundwater-level impacts during the put, hold, and take periods; the losses of water from increases in groundwater storage; and the change in direction and speed of known water quality anomalies. Dry-year yield as used herein is groundwater storage and recovery program where supplemental water is stored in the Chino Basin during years of surplus supplemental water and is extracted from the basin in years when the availability of supplemental water is limited. The specific dry-year yield program investigated in this effort is a 100,000 acre-ft storage program that was developed jointly by the Chino Basin Watermaster (CBWM), Inland Empire Utilities Agency (IEUA) and the Metropolitan Water District of Southern California (Metropolitan).

Black and Veatch Corporation was the lead consultant in the development of the facility and related operating plans for the dry-year yield program. Starting in February of 2002, Black and Veatch developed a series of preliminary dry-year yield plans with the participating water agencies. These plans were subsequently refined through an exhaustive series of meetings and engineering studies. The investigation reported herein is an assessment of the groundwater-related impacts from the proposed dry-year yield facility and operating plans. Black and Veatch is preparing a report that describes the facility and operating plans for the CBWM-IEUA-Metropolitan 100,000 acre-ft dry-year yield program. The Black and Veatch report will be available in late July or August of 2003.

The model developed herein is referred to throughout the text as the 2003 Watermaster model. This model can be used to support Watermaster's decision processes for future expanded storage and recovery programs and other groundwater management activities of the Watermaster.

## 1.2 Report Organization

This report contains the following sections:

Section	Contents
1	<i>Section 1 Introduction</i>
2	<i>Section 2 Geology and Hydrogeology</i> is a complete update to the geology and hydrogeology section of the Optimum Basin Management Program (OBMP) Phase 1 Report (WEI, 1999). This section describes the aquifer system in the Chino Basin and the basic structural framework of the Chino Basin groundwater model.
3	<i>Section 3 Groundwater Quality</i> is a complete update of the groundwater quality conditions section of the <i>OBMP Phase 1 Report</i> (WEI, 1999) and the <i>OBMP Initial State of the Basin Report</i> (WEI 2002). This section describes existing and past water quality conditions for constituents of interest in the Chino Basin, and it describes previously characterized and uncharacterized water quality anomalies.
4	<i>Section 4 Conceptual Model</i> is description of the spatial and temporal scope of the 2003 Watermaster Model and includes a summary description of the recharge and discharge components of the basin.



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5	<i>Section 5 Model Description</i> is a summary description of the modeling tools used in this investigation and the integration of these tools into the 2003 Watermaster Model.
6	<i>Section 6 Model Calibration</i> describes calibration strategy and results for the 2003 Watermaster Model.
7	<i>Section 7 Dry-Year Yield Program Impacts</i> describes the planning basis for baseline OBMP conditions, the simulation of a baseline scenario representing the implementation of the OBMP without the dry-year yield program, the simulation of the dry-year yield program, the impacts of the dry-year yield program, and the determination of material physical injury from the dry-year yield program.
8	<i>References</i>
Appendices	<p><i>Appendix A Comparison of Groundwater Model Projected Time Histories at Wells for the Calibration Period</i></p> <p><i>Appendix B Groundwater Model Projected Time Histories at Wells for Baseline Scenario</i></p> <p><i>Appendix C Groundwater Model Projected Time Histories at Wells for the Dry-Year Yield Scenario</i></p> <p><i>Appendix D Planning Information Prepared By Black &amp; Veatch – Asset Inventory and Water Supply Plans for Producers Participating in the Dry Year Yield Program</i></p>

