

*Kaweah Delta Water Conservation District*

# **GROUNDWATER MANAGEMENT PLAN**

## **1997 ANNUAL REPORT**



# Kaweah Delta Water Conservation District

## **GROUNDWATER MANAGEMENT PLAN 1997 Annual Report**

September 1, 2004

### **BOARD OF DIRECTORS**

---

Russell Doe  
Don Mills  
Mark Watte  
Mike Shannon

Dale Hester  
Stan Gomes  
Ron Clark

### **DISTRICT STAFF**

---

Bruce George, General Manager  
Larry Dotson, Sr. Engineer  
Tom Weddle, Engineer

### **DISTRICT CONSULTANTS**

---

Dennis Keller, Keller & Wegley Consulting Engineers  
David Gardner, Fugro-West Inc.

Kaweah Delta Water Conservation District  
2975 North Farmersville Boulevard Farmersville, CA 93223

## **TABLE OF CONTENTS**

|  |           |
|--|-----------|
| <b>EXECUTIVE SUMMARY</b>                                 | <b>1</b>  |
| <b>GROUNDWATER MANAGEMENT PLAN</b>                       | <b>3</b>  |
| <b>GROUNDWATER MANAGEMENT</b>                            | <b>5</b>  |
| Recharge Basin Activities                                | 7         |
| Intra-District Water Transfers                           | 8         |
| Association Of Eastside Water Agencies                   | 9         |
| Tulare Irrigation District Water Resources Investigation | 9         |
| TID - City of Tulare Detachment Program                  | 10        |
| <b>GROUNDWATER MONITORING</b>                            | <b>11</b> |
| 1997 Groundwater Levels                                  | 12        |
| Hydrogeological Analysis                                 | 12        |
| Water Resources Investigation                            | 13        |
| <b>SURFACE WATER SUPPLY</b>                              | <b>14</b> |
| Summary of Water Year 1997                               | 16        |
| May 1, 1997 Water Conditions: Tulare Lake Region         | 18        |
| Cloud Seeding Activities                                 | 19        |
| Lake Enlargement Project                                 | 21        |
| <b>1997 IMPLEMENTATION SUMMARY</b>                       | <b>22</b> |

**TABLES**

Table 1: Current Plan Participants ..... 3  
Table 2: Proposed Plan Participants ..... 3  
Table 3: Uncontrolled Creeks ..... 14  
Table 4: Kaweah Flood Releases 1996-97 (Acre-Feet)..... 16  
Table 5: Groundwater Recharge Estimates 1996-97 (Acre-Feet)..... 17  
Table 6: May 1, 1997 Runoff Forecasts (Kaweah River At Terminus Reservoir)..... 18  
Table 7: Aircraft and Ground Generator Operations Summary..... 19

**FIGURES**

Figure 1: Groundwater Management Plan Area ..... 4  
Figure 2: Groundwater Recharge Facilities ..... 6  
Figure 3: Historical Average Depth to Groundwater (Fall Measurement)..... 12  
Figure 4: Historical Surface Water Flow Within District..... 15  
Figure 5: Surface Flows Comparison Within District ..... 17  
Figure 6: Kaweah River Target Area..... 20

**APPENDICES**

Appendix A: 1997 Annual Groundwater Management Plan Meeting Agenda & Participants  
Appendix B: 1997 Calendar Year Transfer Summary  
Appendix C: Surface Waters Within Kaweah Delta Water Conservation District  
Appendix D: 1997 Annual Groundwater Report

## **Executive Summary**

The Kaweah Delta Water Conservation District (Water Conservation District) is pleased to present this comprehensive report on the Groundwater Management Plan first adopted in 1995. Currently, there are three plan participants involved and the Water Conservation District continues to work with entities to enlist their participation.

### ***Groundwater Management***

Since the Water Conservation District's formation in 1927, a variety of programs have been implemented to promote groundwater recharge: including, recharge basin activities, water importation, and proactive efforts to prevent water exportation.

The Water Conservation District currently has access to over 30 recharge basins that encompass close to 5,000 acres. In 1997, one potential basin sites was explored, and one site was purchased for use in the Kaweah River Corridor Enhancement Study. The site being evaluated is in the south-central area of the Water Conservation District and would provide an opportunity for recharge as well as flood control and balancing.

The Feasibility Study (Phase I) was completed on the Kaweah River Corridor Enhancement Study in 1994. The project is a multi-year study to evaluate the feasibility of developing integrated resource management projects within the Kaweah River corridor. The intent is to have this be a multiple use facility involving groundwater recharge to help offset pumping, stormwater layoff to help counteract the temporary discharge of stormwater in the City of Visalia, and environmental enhancement by restoring riparian and valley oak habitat along the Kaweah River corridor. In 1996 the Water Conservation District moved forward with Phase II of the Kaweah River Corridor Enhancement Study that involved evaluating potential sites, assessing environmental background data, and securing funding for the project. In 1997 the Water Conservation District selected and purchased the Hash property, or later named Oakes site, for the Kaweah River Corridor Enhancement Study.

The Water Conservation District continued discussions with Tulare Irrigation District regarding a water resources investigation they performed to maximize the utility of the

high-cost CVP-Friant Kern Canal water that they import. This report included proposals to improve delivery for irrigation and groundwater levels within TID's boundary.

**Groundwater Monitoring**

For the past 50 years, the Water Conservation District has been monitoring groundwater. Currently, over 300 wells are monitored twice a year. These measurements continue to indicate the Kaweah Delta Basin is an overdrafted basin. On average, the water table has dropped almost 5 inches a year, or more than 12 feet since 1952. Conversely, due to a wet year the 1997 groundwater measurements indicate the water table was 5.4 feet higher in spring 1997, compared to spring 1996, and 4.2 feet higher in fall 1997, compared to fall 1996.

**Water Supply**

1997 was an encouraging water year within the Water Conservation District's boundaries. Precipitation at Terminus for the water year was 19.64" or 128 % of normal. The May 1<sup>st</sup> snow pack was 85% of average, with an above average runoff and runoff in May. Lake Kaweah's inflow was 177 % of average for the 1997 water year. Terminus Dam at Lake Kaweah did fill, thereby capitalizing on the Lake's summer irrigation storage potential.

**Groundwater Management Plan**

On July 5, 1995, Kaweah Delta Water Conservation District adopted a Groundwater Management Plan (GMP) in accordance with the implementing provisions of AB3030. The Plan area is all the land within the Water Conservation District’s boundary shown on Figure 1 *Groundwater Management Plan Area*.

In accordance with the GMP objectives, the Water Conservation District has incorporated participation of several other entities in the Plan through *Memorandums of Understanding*. These current Plan participants and their service areas are shown on Figure 1 and are listed in the Table 1 below:

**Table 1: Current Plan Participants**

| <b>Agency</b>                      | <b>MOU Date</b> |
|------------------------------------|-----------------|
| Consolidated Peoples Ditch Company | 1995            |
| St. Johns Water District           | 1995            |
| Tulare Irrigation District         | 1996            |

The Water Conservation District is currently working with other urban entities to encourage their participation in the Plan. Those agencies with discussions underway are listed in the Table 2 below:

**Table 2: Proposed Plan Participants**

|                              |
|------------------------------|
| Lakeside Ditch Company       |
| Lakeside Irrigation District |
| City of Visalia              |

One of the regular plan activities includes an annual meeting with Plan participants and interested parties to review and discuss groundwater conditions, water supplies, groundwater recharge, recharge basin development and other activities directly and indirectly related to the Plan. The annual meeting for the 1997 Plan Year was held on August 27<sup>th</sup> and the agenda and attendance list is included in Appendix A of this report. Meetings are normally scheduled in the fall of each year. This year’s meeting focused on Plan Implementation, groundwater Recharge, and plans for a recently purchased basin.