

Draft

**Environmental Impact Report on  
Conveyance of Nonproject Groundwater  
from the Mendota Pool Area  
Using the California Aqueduct**

*Prepared for:*

Westlands Water District  
3130 North Fresno Street  
Fresno, CA 93720  
Contact: Marc Carpenter  
(209) 224-6578

*and*

Mendota Pool Group  
1384 East Goshen  
Fresno, CA 93720  
Contact: John C. Bryner  
(209) 498-5815

*Environmental Consultant:*

Jones & Stokes Associates, Inc.  
2600 V Street, Suite 100  
Sacramento, CA 95818-1914  
Contact: Douglas Brewer

October 1995

C - 0 3 8 5 5 6

C-038556

This document should be cited as:

Jones & Stokes Associates, Inc. 1995. Environmental impact report on conveyance of nonproject groundwater from the Mendota Pool area using the California Aqueduct. Draft. October. (JSA 94-145.) Sacramento, CA. Prepared for Westlands Water District and Mendota Pool Group, Fresno, CA.

# Table of Contents

---

	Page
<b>Chapter 1. Introduction</b> .....	1-1
PROJECT BACKGROUND .....	1-1
PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT .....	1-1
TERMINOLOGY USED IN THE ENVIRONMENTAL IMPACT REPORT .....	1-1
SCOPE OF THE ENVIRONMENTAL IMPACT REPORT .....	1-2
PUBLIC REVIEW PROCESS .....	1-2
REPORTING AND MONITORING PROGRAM .....	1-2
ORGANIZATION OF THE REPORT .....	1-3
<b>Chapter 2. Project Description</b> .....	2-1
PURPOSE OF AND NEED FOR THE PROJECT .....	2-1
Westlands Water District Water Supply .....	2-1
Use of Groundwater .....	2-1
Water Supply Outlook .....	2-3
Relationship of This Project to Similar Conveyance Projects .....	2-3
PROPOSED PROJECT .....	2-4
Project Objectives .....	2-4
Project Description .....	2-4
POTENTIAL ALTERNATIVES .....	2-14
No-Project Alternative .....	2-14
Increased Land Retirement .....	2-14
Alterations to the Westlands Water District Irrigation Distribution System .....	2-14
Construction of Water Storage Facilities within Westlands Water District .....	2-15
Construction of New Wells .....	2-15
Increased Water Conservation .....	2-15
Acquisition of Supplemental Water .....	2-15
Reduced Groundwater Pumping .....	2-15
<b>Chapter 3. Executive Summary</b> .....	3-1
SUMMARY DESCRIPTION OF THE PROPOSED PROJECT .....	3-1
Purpose and Need .....	3-1
Brief Project Description .....	3-1
CEQA Compliance .....	3-1
Known Areas of Controversy .....	3-2
Impact Summary .....	3-2
Alternatives to the Project .....	3-10
General Discussion of Impacts of Proposed Project .....	3-10
Comparative Merits of Project Alternatives .....	3-11
Cumulative Effects .....	3-11
Growth-Inducing Effects .....	3-11
<b>Chapter 4. Groundwater</b> .....	4-1
SETTING .....	4-1
Hydrogeology .....	4-1
Groundwater Pumping .....	4-7
Groundwater Levels .....	4-13
Subsidence .....	4-27

Groundwater Quality .....	4-29
IMPACTS AND MITIGATION MEASURES .....	4-37
Approach .....	4-37
Thresholds of Significance .....	4-37
Groundwater Overdraft .....	4-42
Groundwater Levels .....	4-43
Subsidence .....	4-52
Groundwater Quality .....	4-57
<b>Chapter 5. Surface Water .....</b>	<b>5-1</b>
REGIONAL SURFACE WATER FEATURES .....	5-1
Millerton Reservoir .....	5-1
San Luis Reservoir .....	5-1
Delta-Mendota Canal .....	5-3
Mendota Pool .....	5-3
Panoche Creek .....	5-3
WWD Distribution System .....	5-3
OVERVIEW OF WATER QUALITY REGULATORY STRUCTURE .....	5-7
California State Water Resources Control Board .....	5-7
U.S. Environmental Protection Agency .....	5-7
California Department of Health Services .....	5-7
State Water Project .....	5-7
Katz Water Transfer and Conveyance Bill .....	5-10
DELTA WATER CONDITIONS .....	5-10
Municipal Water Quality Investigations Program .....	5-10
Delta Water Quality .....	5-10
Safe Drinking Water Act .....	5-10
California Department of Water Resources Policy on Groundwater Pumping into State Water	
Project Facilities .....	5-19
Central Valley Project Policy on Pumping Nonproject Water into the Delta-Mendota Canal .....	5-19
State Water Project Article 19 Objectives .....	5-25
Delta-Mendota Canal and Mendota Pool Water Quality .....	5-25
San Joaquin River Water Quality .....	5-29
California Aqueduct Water Quality .....	5-31
Groundwater Quality .....	5-31
IMPACTS AND MITIGATION MEASURES .....	5-41
Impact Assessment Methodology .....	5-41
Mendota Pool Mass-Balance Spreadsheet Model .....	5-42
Criteria for Determining Impact Significance .....	5-46
Impacts of the Proposed Project .....	5-46
Effects on Water Levels and Flow .....	5-83
<b>Chapter 6. Biological Resources .....</b>	<b>6-1</b>
BACKGROUND .....	6-1
SPECIAL-STATUS SPECIES .....	6-1
SETTING .....	6-1
Mendota Wildlife Management Area .....	6-1
Mendota Pool .....	6-2
Fallow Agricultural Lands in WWD .....	6-4
IMPACTS AND MITIGATION MEASURES .....	6-4
Impact Assessment Methodology .....	6-4
Impact Mechanisms and Significance Criteria .....	6-4
Impacts of the Proposed Project .....	6-6
<b>Chapter 7. Alternatives to the Proposed Project .....</b>	<b>7-1</b>
CEQA REQUIREMENTS .....	7-1
PROJECT PURPOSE AND NEED .....	7-1

ALTERNATIVE SCREENING PROCESS .....	7-1
Land Retirement .....	7-2
Interconnection of WWD Laterals 5-8 with New Storage Capacity .....	7-2
Construction of New Wells within WWD .....	7-4
Improved Irrigation Efficiency (Conversion from Furrow to Drip or Sprinklers) .....	7-5
Reduced Pumping Alternative .....	7-5
Conclusion .....	7-6
INTERCONNECTION OF LATERALS 5-8 WITH NEW STORAGE CAPACITY .....	7-6
Surface Water Quality Impacts .....	7-6
Groundwater Impacts .....	7-6
Biological Impacts .....	7-7
REDUCED PUMPING ALTERNATIVE .....	7-7
Surface Water Quality Impacts .....	7-7
Groundwater Impacts .....	7-8
Biological Impacts .....	7-10
NO-PROJECT ALTERNATIVE .....	7-10
GENERAL COMPARISON OF ALTERNATIVES .....	7-10
<b>Chapter 8. Cumulative Impacts .....</b>	<b>8-1</b>
<b>APPROACH .....</b>	<b>8-1</b>
Legal Requirements .....	8-1
Impact Assessment Methodology .....	8-1
Impact Significance Criteria .....	8-2
<b>ALTERNATIVES EVALUATED IN THE CUMULATIVE IMPACT ANALYSIS .....</b>	<b>8-3</b>
Future No-Project Alternative .....	8-3
Canalside Project .....	8-5
Groundwater Conveyance Programs in Other Districts .....	8-5
<b>CUMULATIVE EFFECTS OF FUTURE NO-PROJECT ALTERNATIVE AND MENDOTA POOL PROJECT .....</b>	<b>8-5</b>
Groundwater Overdraft Impacts .....	8-5
Groundwater Level Impacts .....	8-14
Subsidence Impacts .....	8-15
Groundwater Quality Impacts .....	8-16
Surface Water Quality Impacts .....	8-16
Biological Impacts .....	8-17
<b>CUMULATIVE EFFECTS OF FUTURE NO-PROJECT ALTERNATIVE, MENDOTA POOL PROJECT, AND CANALSIDE PROJECT .....</b>	<b>8-17</b>
Groundwater Overdraft Impacts .....	8-17
Groundwater Level Impacts .....	8-18
Subsidence Impacts .....	8-18
Groundwater Quality Impacts .....	8-19
Surface Water Quality Impacts .....	8-19
Biological Impacts .....	8-23
<b>CUMULATIVE EFFECTS OF FUTURE NO-PROJECT ALTERNATIVE, MENDOTA POOL PROJECT, CANALSIDE PROJECT, AND GROUNDWATER CONVEYANCE PROJECT IN OTHER DISTRICTS .....</b>	<b>8-23</b>
Groundwater Impacts .....	8-23
Surface Water Quality Impacts .....	8-23
Biological Impacts .....	8-23
<b>CUMULATIVE EFFECTS OF FUTURE NO-PROJECT ALTERNATIVE AND REDUCED PUMPING ALTERNATIVES FOR CANALSIDE PROJECT AND MENDOTA POOL PROJECT .....</b>	<b>8-23</b>
Groundwater Overdraft Impacts .....	8-23
Groundwater Level Impacts .....	8-25
Subsidence Impacts .....	8-25
Groundwater Quality Impacts .....	8-25

Surface Water Quality Impacts .....	8-26
Biological Impacts .....	8-26
<b>Chapter 9. Citations .....</b>	<b>9-1</b>
PRINTED REFERENCES .....	9-1
PERSONAL COMMUNICATIONS .....	9-7
<b>Chapter 10. Report Preparation .....</b>	<b>10-1</b>
WESTLANDS WATER DISTRICT .....	10-1
MENDOTA POOL GROUP .....	10-1
JONES & STOKES ASSOCIATES .....	10-1
Management Team .....	10-1
Technical Team .....	10-2
Production Team .....	10-2
SUBCONSULTANTS .....	10-2
<b>Appendix A. NOP Comment Letters .....</b>	<b>A-1</b>
<b>Appendix B. Effects of Elevated Salinity on Plant Growth .....</b>	<b>B-1</b>
<b>Appendix C. Calculation of Safe Yield .....</b>	<b>C-1</b>
<b>Appendix D. Economic Analysis of Mendota Pool Alternatives .....</b>	<b>D-1</b>

## Chapter 3. Executive Summary

### SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

#### Purpose and Need

The purpose of the Mendota Pool water conveyance project is to provide water to irrigable lands in WWD to offset cutbacks in WWD water supplies attributable to drought, the Central Valley Project Improvement Act (CVPIA), the Endangered Species Act (ESA), and new Delta water quality rules. The project would not increase the amount of water for farming activities but would replace water lost because of drought and increased environmental regulations that restrict water deliveries.

#### Brief Project Description

The Mendota Pool project is proposed by a group of farmers with wells located adjacent to the Mendota Pool. The project wells are located along the Fresno Slough arm of the Mendota Pool and along the San Joaquin River where it enters the Mendota Pool. Under the project, these farmers would continue to extract groundwater from their own wells, as they have done since 1990, and pump the water into the Mendota Pool for conveyance to the California Aqueduct using WWD pump stations at Laterals 6 and 7. The proposed project would pump and convey 54 TAF under current operating limitations at WWD Lateral 7. Project pumping could be increased to a maximum of 78 TAF if the Lateral 7 pump station were rehabilitated.

The objective of the project is to deliver water to farms for a cost of \$40-\$90 per af. The Mendota Pool project and other similar groundwater conveyance programs were operated on an interim basis during the 1989-1994 drought period, when CVP and SWP water supplies to state and federal contractors were reduced. CVP and SWP accepted well water into the aqueduct and wheeled or granted credit to their water users for future use as a means of managing and distributing scarce water supplies.

Groundwater must meet stringent water quality standards approved by DOHS, as determined by testing, before being accepted into the program. WWD staff is responsible for administering the water quality testing and reporting program, and all test results are forwarded to DWR. DWR monitors aqueduct water quality and the effects of nonproject groundwater inflows to ensure that water quality is not degraded substantially. The interim program helped to manage the limited water supplies and maintain agricultural productivity during the extended drought and while CVP supply was diminished because of increased environmental regulations that restricted water deliveries.

#### CEQA Compliance

To continue the conveyance program as a long-term solution to managing water supplies, DWR requested that WWD prepare an EIR on the effects of the project. DWR legal and technical staff assisted in determining the scope of the EIR. The NOP was distributed on August 24, 1994. Eleven comment letters were received during the NOP process. Based on the initial study responses and comments generated during the NOP process, the EIR focuses on three key technical areas: groundwater resources, including subsidence issues, water levels, groundwater quality, and groundwater overdraft; surface water quality; and biological resources.

#### Agencies That Will Use the EIR

The EIR on the proposed project prepared by WWD will be reviewed by various state and local agencies to help them make decisions on granting permits and evaluate compliance with statutory and regulatory requirements. The following agencies are anticipated to use the EIR:

- Westlands Water District,
- California Department of Water Resources,
- California Department of Fish and Game, and
- California Department of Health Services.

This list is not inclusive; other agencies may use the EIR as well for their permitting processes.

## Known Areas of Controversy

The State CEQA Guidelines (Section 15123) require an EIR to identify areas of known controversy to the lead agency, including those issues raised by agencies and the public. Circulation of the NOP for the EIR identified the following areas of potential controversy:

- land subsidence attributable to groundwater withdrawal,
- incremental increases in regional groundwater overdraft,
- aqueduct water quality and salinity effects, and
- effects on raw water to downstream municipal users of aqueduct water.

## Impact Summary

Table 3-1 provides a summary of impacts of the proposed project.

### Beneficial Impacts

The following beneficial impact would occur under the proposed project:

- potential decreases in chlorides and total organic carbon in aqueduct deliveries.

### Less-than-Significant Impacts

The following less-than-significant impacts would occur under the proposed project:

- increased pumping costs for nearby well owners because of water-level drawdown;
- crop loss resulting from sudden loss of water production at nearby irrigation wells;
- potential increases in seepage from Mendota Pool resulting from project pumping;
- potential increases in shallow groundwater, salinity levels, and drainage problems within WWD from project water supplies;

- potential impacts on Reclamation's ability to meet contractual water quality requirements of water deliveries to the Exchange Contractors;
- potential incremental increases in salinity of water diversions for the Exchange Contractors;
- potential surface water quality degradation of the Mendota Pool and San Joaquin River from project discharges (TDS, chlorides, and sulfates);
- potential surface water quality degradation of the California Aqueduct from Lateral 7 discharges containing blended waters
  - 54-TAF Subalternative: predicted TDS, chloride, and sulfate levels
  - 78-TAF Subalternative: predicted chloride and sulfate levels;
- potential water quality impacts on municipal water suppliers downstream of project discharges (effects on local water suppliers and effects on SWP facilities);
- potential reduction in flood-carrying capacity of the San Joaquin River below Mendota Dam;
- potential incremental increases in subsidence in the upper aquifer system that may affect local flooding patterns;
- potential changes in water levels in Mendota Pool and streamflows in the San Joaquin River from groundwater pumping;
- potential effects on beneficial uses of aqueduct water and wastewater reclamation projects in southern California from increases in raw water salinity;
- reduced diversity and production of waterfowl food plants from increased salinity levels in Mendota Pool;
- reduced diversity and production of waterfowl and other water birds from increased salinity in Mendota Pool;
- potential mortality of special-status species from land subsidence caused by groundwater pumping;

Table 3-1. Summary of Impacts of the Proposed Project and Recommended Mitigation Measures

Impact	Level of Significance before Mitigation	Mitigation	Level of Significance after Mitigation
<b>DIRECT IMPACTS</b>			
<b>Groundwater</b>			
Contribution of groundwater pumping to regional groundwater overdraft and depletion of groundwater resources	S	<b>Mitigation Measure 4-1:</b> Decrease average annual pumping rate.	S <sup>a</sup>
Increased pumping costs for nearby well owners because of water-level drawdown	LTS	No mitigation is required.	--
Potential operational problems in nearby wells caused by water-level drawdowns from groundwater pumping at project wells	S	<b>Mitigation Measure 4-2:</b> Decrease average annual project pumpage to no more than 50 TAF/yr.	LTS <sup>b</sup>
		<b>Mitigation Measure 4-3:</b> Restrict maximum annual pumping rate.	
Crop loss resulting from sudden loss of water production at nearby irrigation wells	LTS	No mitigation is required.	--
Potential damage to structures caused by subsidence in the upper aquifer system above the Corcoran Clay	SU	<b>Mitigation Measure 4-2:</b> Decrease average annual project pumpage to no more than 50 TAF/yr.	SU <sup>c</sup>
		<b>Mitigation Measure 8-1:</b> Implement program under AB 3030 to minimize the project's contribution to cumulative groundwater overdraft and other significant impacts of the project.	
Potential increases in seepage from Mendota Pool resulting from project pumping	LTS	No mitigation is required.	--

Impact	Level of Significance before Mitigation	Mitigation	Level of Significance after Mitigation
Potential degradation of groundwater quality in the upper aquifer system because of altered groundwater flow patterns	S	<b>Mitigation Measure 4-2:</b> Decrease average annual project pumpage to no more than 50 TAF/yr.  <b>Mitigation Measure 4-4:</b> Assist City of Mendota with efforts to locate alternative or improved water supply.  <b>Mitigation Measure 8-1:</b> Implement program under AB 3030 to minimize cumulative groundwater overdraft and other significant impacts of the project.	SU <sup>c</sup>
Potential increases in shallow groundwater, salinity levels, and drainage problems within WWD from project water supplies	LTS	No mitigation is required.	--
<b>Surface Water</b>			
Potential impacts on Reclamation's ability to meet contractual water quality requirements of water deliveries to the Exchange Contractors	LTS	No mitigation is required.	--
Potential incremental increases in salinity of water diversions for the Exchange Contractors	LTS	No mitigation is required.	--
Potential surface water quality degradation of the Mendota Pool and San Joaquin River from project discharges			
Total dissolved solids (TDS)	LTS	No mitigation is required.	--
Chlorides	LTS	No mitigation is required.	--

34

C-038565

C-038565

Impact	Level of Significance before Mitigation	Mitigation	Level of Significance after Mitigation
Sulfates	LTS	No mitigation is required.	--
Potential surface water quality degradation of the California Aqueduct from Lateral 7 discharges containing blended waters			
<b>54-TAF Subalternative</b>			
Predicted TDS levels	LTS	No mitigation is required.	--
Predicted chloride levels	LTS	No mitigation is required.	--
Predicted sulfate levels	LTS	No mitigation is required.	--
<b>78-TAF Subalternative</b>			
Predicted TDS levels	S	<b>Mitigation Measure 5-1:</b> Reduce project discharges to avoid exceedance of TDS drinking water quality standards.	LTS
Predicted chloride levels	LTS	No mitigation is required.	--
Predicted sulfate levels	LTS	No mitigation is required.	--
Potential water quality impacts on municipal water suppliers downstream of project discharges			
Effects on local water suppliers	LTS	No mitigation is required.	--
Effects on drinking water quality	B	No mitigation is required.	--
Revised and future SDWA MCLs	LTS	No mitigation is required.	--
Effects on SWP facilities	LTS	No mitigation is required.	--
Potential reduction in flood-carrying capacity of the San Joaquin River below Mendota Dam	LTS	No mitigation is required.	--

3-5

Table 3-1. Continued

Impact	Level of Significance before Mitigation	Mitigation	Level of Significance after Mitigation	
Potential incremental increases in subsidence in the upper aquifer system that may affect local flooding patterns	LTS	No mitigation is required.	--	
Potential changes in water levels in Mendota Pool and streamflows in the San Joaquin River from groundwater pumping	LTS	No mitigation is required.	--	
Potential effects on beneficial uses of aqueduct water and wastewater reclamation projects in southern California from increases in raw water salinity	LTS	No mitigation is required.	--	
3-6	<b>Biological Resources</b>			
	Reduced diversity and production of waterfowl food plants at Mendota WMA from increased salinity levels in Mendota Pool	LTS	No mitigation is required.	--
	Reduced diversity and production of waterfowl and other water birds from increased salinity in Mendota Pool	LTS	No mitigation is required.	--
	Potential mortality of special-status species from land subsidence caused by groundwater pumping	LTS	No mitigation is required.	--
	Potential mortality of special-status species following recolonization and subsequent plowing of idle agricultural land	LTS	No mitigation is required.	--
	Potential impacts on fish and freshwater aquatic life in the Mendota Pool from project discharges	LTS	No mitigation is required.	--

Impact	Level of Significance before Mitigation	Mitigation	Level of Significance after Mitigation
--------	---	------------	--

**CUMULATIVE IMPACTS**

**Future No-Project Alternative and Mendota Pool Project**

Contribution of groundwater pumping to regional groundwater overdraft and depletion of groundwater resources	S	<b>Mitigation Measure 8-1:</b> Implement program under AB 3030 to minimize cumulative groundwater overdraft and other significant impacts of the project	SU*
Contribution of groundwater pumping to lowering regional groundwater levels	S	<b>Mitigation Measure:</b> Implement Mitigation Measure 8-1.	SU
Potential operational problems in nearby wells caused by cumulative water-level declines	S	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU
Loss of canal freeboard and water from canals as a result of subsidence	SU	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU
Acceleration of salinity increases in wells due to changes in regional groundwater gradient in the upper aquifer	SU	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1, 4-4, and 8-1.	SU

**Future No-Project Alternative, Mendota Pool Project, and Canalside Project**

Contribution of groundwater pumping to regional groundwater overdraft and depletion of groundwater resources	S	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU*
Potential operational problems in nearby wells caused by cumulative water-level declines	S	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU
Loss of canal freeboard and water from canals as a result of subsidence	SU	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU

3-7

C-038568

C-038568

Table 3-1. Continued

Impact	Level of Significance before Mitigation	Mitigation	Level of Significance after Mitigation
Acceleration of salinity increases in wells due to changes in regional groundwater gradient in the upper aquifer	SU	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU
Potential surface water quality degradation of the California Aqueduct from Lateral 7 discharges containing blended waters	S	<b>Mitigation Measure 5-1:</b> Reduce project discharges to avoid exceedance of TDS drinking water quality standards.	LTS
<b>Future No-Project Alternative, Mendota Pool Project, Canalside Project, and Groundwater Conveyance Projects in Other Districts</b>			
Groundwater impacts		Expected to be the same as under the Future No-Project Alternative, Mendota Pool Project, and Canalside Project.	
Water quality impacts	S	<b>Mitigation Measure:</b> Implement Mitigation Measure 5-1.	LTS
Biological impacts	LTS	No mitigation is required.	--
<b>Future No-Project Alternative and Reduced Pumping Alternatives for Canalside Project and Mendota Pool Project</b>			
Contribution of groundwater pumping to regional groundwater overdraft and depletion of groundwater resources	S	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU <sup>c</sup>
Contribution of groundwater pumping to lowering regional groundwater levels	S	<b>Mitigation Measure:</b> Implement Mitigation Measure 8-1.	SU
Loss of canal freeboard and water from canals as a result of subsidence	SU	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1 and 8-1.	SU <sup>c</sup>
Acceleration of salinity increases in wells due to changes in regional groundwater gradient in the upper aquifer	SU	<b>Mitigation Measures:</b> Implement Mitigation Measures 4-1, 4-4, and 8-1.	SU <sup>c</sup>

Impact	Level of Significance before Mitigation	Mitigation	Level of Significance after Mitigation
Potential surface water quality degradation of the California Aqueduct from Lateral 7 discharges containing blended waters	S	<b>Mitigation Measure:</b> Implement Mitigation Measure 5-1.	LTS

Notes:

- B = beneficial.
- LTS = less than significant.
- S = significant.
- SU = significant but unavoidable.

- \* The level of significance after mitigation is shown as significant, but, depending on the extent to which the average pumping rate is decreased, it could be less than significant.
- \* Mitigation measures 4-2, 4-3, and 4-4 together would reduce this impact to a less-than-significant level.
- \* Even with the recommended mitigation measures, this impact would not be reduced to a less-than-significant level; therefore, it is significant and unavoidable.

3-9

C-038570

- potential mortality of special-status species following recolonization and subsequent plowing of idle agricultural land; and
- potential impacts on fish and freshwater aquatic life in the Mendota Pool from project discharges.

### Significant Impacts

The following significant impacts would occur under the proposed project:

- contribution of groundwater pumping to regional groundwater overdraft and depletion of groundwater resources;
- potential operational problems in nearby wells caused by water-level drawdowns from groundwater pumping at project wells;
- potential degradation of groundwater quality in the upper aquifer system because of altered groundwater flow patterns;
- potential surface water quality degradation of the California Aqueduct from Lateral 7 discharges containing blended waters (78-TAF Subalternative: predicted TDS levels); and
- potential operational problems in nearby wells caused by cumulative water-level declines.

### Significant and Unavoidable Impacts

The following impacts may be significant and unavoidable under the proposed project:

- potential damage to structures caused by subsidence in the upper aquifer system above the Corcoran Clay;
- loss of canal freeboard and water from canals as a result of subsidence; and
- acceleration of salinity increases in wells due to changes in regional groundwater gradient in the upper aquifer.

### Alternatives to the Project

The EIR preparers conducted a general alternatives screening and feasibility analysis using environmental and economic criteria to define the range of potential water conveyance alternatives. Five potential alternatives were subjected to screening criteria:

- Land Retirement,
- Interconnection of WWD Laterals with New Storage Capacity,
- Construction of New Wells within WWD,
- Improved Irrigation Efficiency (Conversion from Furrow to Drip or Sprinklers), and
- Reduced Pumping.

Three of the five potential alternatives were dismissed for environmental and economic reasons. The Reduced Pumping Alternative and Interconnection of WWD Laterals with New Storage Capacity Alternative were carried forward for further environmental evaluation in the EIR along with the No-Project Alternative, consideration of which is required by CEQA.

### General Discussion of Impacts of Proposed Project

In general, the proposed project would contribute to existing regional groundwater overdraft, subsidence, and water-level problems in the northern portion of WWD and the Mendota Pool area. In general, groundwater has a higher mineral content than surface water most of the time; conveyance of nonproject groundwater would increase salt loading to the California Aqueduct when this occurs, although minor reductions in chloride levels and total organic carbon (considered beneficial effects) also are expected. Salt loading and its impact would vary depending on aqueduct conditions. The water quality impact analysis for this project has shown, however, that conveyance of groundwater from the Mendota Pool Group wells should not cause aqueduct water to exceed water quality standards.

Water quality conditions in the aqueduct vary, and the relative salt loading and effects on downstream users will also vary depending on the level of water use. When flows in the aqueduct are reduced, daily management and operational controls would be needed to ensure that water quality is not degraded significantly. WWD has devel

oped and will refine an operations model of its segment of the aqueduct for use in assessing conveyance effects and is proposing several operational controls and procedures to ensure that aqueduct water quality is not impaired.

### Comparative Merits of Project Alternatives

This section provides a brief discussion of the merits of the Reduced Pumping Alternative and the No-Project Alternative compared to those of the proposed project. A more detailed discussion of alternatives is provided in Chapter 7, "Alternatives to the Proposed Project".

The Reduced Pumping Alternative would reduce groundwater pumping to 45 TAF in any given year. It also would reduce adverse environmental impacts when compared to the proposed project. The project's contribution to regional groundwater overdraft and subsidence would be at lower levels and salt loading to the aqueduct would be lower under this alternative than under the proposed project. The biological impacts would be the same as those under the proposed project and would be less than significant. For these reasons, the Reduced Pumping Alternative is considered the environmentally superior alternative. The Mendota Pool Group representative has stated that as a result of this environmental evaluation, the Reduced Pumping Alternative will be the project recommended for approval to the WWD Board of Directors instead of the originally proposed project (Bryner pers. comm.).

The No-Project Alternative would avoid the predicted environmental impacts of the proposed project but would not achieve the project's water conveyance objectives.

### Cumulative Effects

Chapter 8 of the EIR analyzes the cumulative impacts of the Mendota Pool Conveyance Project with other similar water projects, including the Canalside Conveyance Project. The Canalside Conveyance Project is a similar project with a series of wells that generally tap the subcorcoran aquifer and discharge groundwater directly into the California Aqueduct for conveyance to farmers in WWD. For the groundwater analysis, a quantitative method was used to estimate the relative cumulative effects of the two projects.

The cumulative impact analysis first evaluates the water supply effects of recent environmental regulations that affect Delta water exports and CVP deliveries to WWD, including the CVPIA, ESA, and the recent Delta water quality control plan and the CALFED principles. It was generally assumed that surface water supply cut-backs would result in increased regional groundwater pumping in WWD. The project's incremental contribution to regional groundwater levels, subsidence, groundwater quality, and surface water quality in the aqueduct were evaluated in relation to the predicted environmental effects of water supply changes and groundwater pumping caused by these regulations.

The Mendota Pool project, by itself and combined with the effects of future no-project water supply conditions, is predicted to contribute to substantial reductions in groundwater level in the shallow aquifer over many years of pumping. Cumulative subsidence effects on the California Aqueduct and other local water-supply canals are considered significant and unavoidable because subsidence has been a regional problem in the past. The Mendota Pool project's contribution to cumulative water quality impacts in the shallow aquifer are also considered significant because the project would increase the regional groundwater gradient and accelerate the movement of saline water in the northwestern portion of WWD area toward the Mendota Pool. Mitigation measures for both project-specific and cumulative impacts are recommended to reduce, minimize, or avoid the project's contribution to these existing regional groundwater issues.

The cumulative analysis of aqueduct water quality indicates that the Mendota Pool project, the Canalside project, and other similar projects that use the aqueduct for conveyance purposes would contribute salt loading to export waters and could cause water quality objectives to be exceeded. Operational mitigation measures are recommended to reduce salt loading and water quality effects from these two projects administered through WWD.

### Growth-Inducing Effects

Section 15126(g) of the State CEQA Guidelines provides the following guidance in determining the growth-inducing impacts of a proposed action:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this discussion would be projects that remove obstacles to growth.

Increases in population may further tax existing community service facilities so consideration must be given to this impact. Also discuss the characteristics of some project which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

1. Would the project foster economic or population growth or foster the construction of additional housing?

No. The water conveyance project would not foster population growth or the construction of housing. Instead, it would provide water to grow crops and foster the regional economy.

2. Would the project remove obstacles to population growth?

No. The water conveyance project would allow continued farming operations within WWD. It would not remove obstacles to growth.

3. Would the project tax existing community service facilities?

No. Groundwater wells in the program are operated independently by individual farmers, and the program does not rely on community service facilities.