

**APPENDIX F**  
**RESPONSES TO COMMENTS ON THE DRAFT EIS**



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Comments on the Draft Environmental Impact Statement Number 01-81, Mendota Pool 10-Year Exchange Agreements, were received from the following:

- United States Environmental Protection Agency, Region IX;
- United States Fish and Wildlife Service;
- California Regional Water Quality Control Board, Central Valley Region (2 letters);
- City of Mendota (Giersch & Associates, Civil Engineers);
- San Joaquin River Exchange Contractors Water Authority (2 letters);
- Madera County Board of Supervisors;
- Madera Irrigation District;
- Aliso Water District;
- Gravelly Ford Water District;
- James Irrigation District;
- Friant Water Users Authority;
- Sacramento Municipal Utility District; and
- Metropolitan Water District of Southern California.

To ensure that all comments and concerns were fully addressed in the Final EIS, Reclamation solicited further input from key agencies. Reclamation provided copies of responses to initial comments and solicited further input from California Regional Water Quality Control Board, Central Valley Region and San Joaquin River Exchange Contractors Water Authority due to the extent and nature of the comments from these agencies. Subsequent to the close of the Public Comment period on the Draft EIS, Reclamation requested that the MPG solicit input on the proposed project from Central Valley Project (CVP) contractors who receive surface water supplies from the Pool. The letter to the CVP contractors, comment letter(s) received, and responses to comments are provided starting on page F-163.

This appendix is organized as follows. Each comment letter is provided in the above order. Each comment in the letter was assigned a unique designation either by the commentator or by the respondent. Immediately following the comment letter, responses are provided for each comment. These responses are cross-referenced to the corresponding paragraph or comment in the letter.

Numerous comments requested incorporation of additional monitoring data that were not available at the time the draft EIS was prepared. These data were evaluated and the results presented in the 2002 Annual Monitoring Report prepared by consultants to the Mendota Pool Group (Luhdorff and Scalmanini Consulting Engineers (LSCE)), San Joaquin River Exchange Contractors (SJREC), and Newhall Land and Farming (NLF) (Kenneth D. Schmidt and Associates (KDSA)). The report was released in December 2003. Data (including pumpage, groundwater levels, groundwater and surface water quality, and sediment quality) from 2002 that were available at the time the draft EIS was prepared are included in the document. Incorporation of additional data would necessitate reanalysis and rewriting of portions of the document, would delay finalization of the EIS, and would not substantively alter the conclusions. Reclamation believes that the data evaluated for the draft EIS sufficiently represent regional conditions and support

the analyses and interpretation presented in the draft EIS. Additional conclusions from the draft 2002 Annual Report have been incorporated into the final EIS, as appropriate.

Several commenters questioned the ability of the analyses presented in the draft EIS to adequately predict long-term effects of the proposed action. The analyses presented in the draft EIS used the available data to forecast potential effects. These analyses focused on estimation of average long-term trends, not on prediction of individual or short-term values. Data were limited for areas that are more distant from the MPG wells. Therefore estimation of effects (such as groundwater levels) in these areas is likely to be less accurate. However, the proposed action will be adaptively managed to respond to new data. The proposed action includes a monitoring program and numerous design constraints intended to identify and avoid significant effects on environmental resources. In addition, the draft EIS identifies actions that would be taken if there were evidence that an adverse effect could occur.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

September 30, 2003

Mr. David Young  
Bureau of Reclamation  
South-Central California Area Office  
1243 N. Street  
Fresno, CA. 93721-1813

Subject: Draft Environmental Impact Statement (DEIS) for the Ten-Year Water Exchange Agreements With Mendota Pool Group, CA [CEQ #030348]

Dear Mr. Young:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act. Our detailed comments are enclosed.

We have rated the preferred alternative in the DEIS as Environmental Concerns - Insufficient Information (EC-2). We commend the inclusion of project features to manage adverse effects to surface water quality, subsidence, and adjacent groundwater pumpers. However, the proposed action would contribute to groundwater and surface water quality degradation, groundwater overdraft, and subsidence (p. 4-42). The DEIS clearly states these environmental conditions are already significantly degraded (Chapter 3).

Furthermore, EPA is concerned with effects on actions to: 1) resolve the westside San Joaquin Valley agricultural drainage problems, and 2) provide a long-term sustainable and reliable irrigation water supply. Adjacent irrigation districts have also expressed concern regarding the potential northern mobilization of selenium-enriched drainage water as a result of water management in the Westlands Water District in which Mendota Pool Group lands are located.

We request the Bureau of Reclamation to provide additional information in the Final EIS (FEIS) that fully discloses effects of the proposed action on adjacent irrigation districts and resolution of agricultural drainage issues in this region. Given the continued degradation of the groundwater quality and limited surface water supplies, the FEIS should describe how the proposed action will contribute to efforts to ensure a long-term sustainable and reliable irrigation

water supply. In light of the existing groundwater overdraft, subsidence, and degraded water quality, EPA urges consideration of limited land fallowing and other measures to improve irrigation water productivity to address the need to increase reliability of irrigation water delivery to prime agricultural lands.

We appreciate the opportunity to review this DEIS and are committed to working with the Bureau of Reclamation to resolve outstanding issues. When the FEIS is released for public review, please send two copies to the address above (mail code: CMD-2). EPA's rating and a summary of our comments will be published in the *Federal Register*. Please see the enclosed Rating Factors for a description of EPA's rating system. Questions regarding this letter should be directed to Laura Fujii, the lead reviewer for this project at (415) 972-3852 or [fujii.laura@epa.gov](mailto:fujii.laura@epa.gov).

Sincerely,



Lisa Hanf, Manager  
Federal Activities Office

Enclosures:

Summary of EPA Rating Definitions  
Detailed Comments

cc: Joy Winkel, US Fish and Wildlife Service  
John Beam, California Department of Fish and Game  
Rudy Schnagl, Regional Water Quality Control Board  
Theresa Presser, U.S. Geological Survey

# SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

## ENVIRONMENTAL IMPACT OF THE ACTION

### *"LO" (Lack of Objections)*

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

### *"EC" (Environmental Concerns)*

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

### *"EO" (Environmental Objections)*

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

### *"EU" (Environmentally Unsatisfactory)*

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

## ADEQUACY OF THE IMPACT STATEMENT

### *Category 1" (Adequate)*

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

### *"Category 2" (Insufficient Information)*

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

### *"Category 3" (Inadequate)*

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

**EPA DETAILED COMMENTS ON THE MENDOTA POOL 10-YR EXCHANGE AGREEMENTS  
DRAFT EIS, SEPTEMBER 30, 2003**

The Bureau of Reclamation (Bureau) and Mendota Pool Group (MPG) propose an exchange of up to 25,000 acre-feet (af) of water per year over a 10-year period. The MPG would pump non-Central Valley Project (CVP) groundwater into the Mendota Pool and exchange it with water from the CVP, delivered to land owned by MPG members elsewhere within the Westlands Water District and San Luis Water District in the CVP service area. Two No Action alternatives are also considered: construction of new wells on MPG properties, and fallowing land.

**Agricultural Drainage Issues**

The project area is within the San Luis Unit that has a history of subsurface drainage problems that adversely affect agriculture, wildlife, and fish, through water contamination (salts, selenium, and toxic metals). Efforts to address the agricultural drainage problem have been ongoing since the construction of the San Luis Unit of the CVP. EPA is an active participant in the work to resolve agricultural drainage and related water contamination issues in the San Joaquin Valley. The proposed project would provide irrigation water for drainage impaired lands (p. 2-3), increase salinity in the Mendota Pool (p. ES-14), and increase the rate of groundwater degradation (p. 4-42). We are concerned that these potential effects could hinder work to resolve the agricultural drainage problems of the region.

**Recommendation:**

We request the FEIS provide information that fully discloses effects of the proposed project on work to address agricultural drainage and related water contamination issues in the westside of the San Joaquin Valley. For instance, describe potential effects on the San Luis Unit Drainage Feature Re-Evaluation Program and Westlands Water District land retirement proposal.

**Increasing Water Supply Reliability**

EPA acknowledges the interest in improving reliability of irrigation water delivery to CVP agricultural users at sustainable levels. There is also the need to balance water supply and demand and to provide flexibility to implement all provisions of the Central Valley Project Improvement Act.

**Recommendation:**

EPA urges consideration of other measures to improve irrigation water productivity and reliability, before implementing water supply options that would continue the degradation of groundwater and surface water quality. Preservation of good quality water is a key condition for maintaining a long-term sustainable

**EPA DETAILED COMMENTS ON THE MENDOTA POOL 10-YR EXCHANGE AGREEMENTS  
DRAFT EIS, SEPTEMBER 30, 2003**

water supply. Options for improving irrigation water productivity include water transfers, conservation, pricing, irrigation efficiencies, cropping changes, operational flexibilities, market-based incentives, water acquisition, conjunctive use, voluntary temporary or permanent land fallowing, and wastewater reclamation and recycling. Further information regarding technical, managerial, institutional, and agronomic measures to improve irrigation water productivity can be found in *Pillar of Sand: Can The Irrigation Miracle Last?*, Sandra Postel, Worldwatch Institute Book, (W.W. Norton & Company, 1999).

**Third Party Effects**

EPA works with adjacent irrigation districts to address subsurface drainage problems and associated water contamination (salts, selenium, and toxic metals). These irrigation districts have expressed concern to EPA that water management in the Westlands Irrigation District, in which MPG lands are located, may be mobilizing selenium-enriched drainage water to flow in a northerly direction, especially during wet weather events.

**Recommendation:**

The Bureau and MPG should work with adjacent irrigation districts to ensure their concerns are addressed. We also recommend consultation with the US Geological Service (USGS) to determine whether proposed project monitoring could be integrated with current USGS monitoring to provide more comprehensive data on the hydrologic model of the region. Given groundwater and surface water quality concerns, more frequent monitoring periods (e.g., monthly or at least quarterly) may be required to ensure inadvertent exceedences of water quality criteria do not occur during active pumping and exchange months. The FEIS should describe actions being taken to address and resolve concerns of adjacent irrigation districts.

**General Comments**

1: The DEIS states that the Settlement Agreement, projected water supply allocations, and other factors will be considered in the classification of the water-year-type for a given project year. Determination of the water-year-type is key because it sets the maximum allowable quantity of water to be pumped that year (p. 2-2).

**Recommendation:**

The FEIS should state which factors have precedence in determining the water-year-type. For instance, the Settlement Agreement states that two years out of 10 must be classified as wet, no more than two years can be classified as dry, and two

EPA DETAILED COMMENTS ON THE MENDOTA POOL 10-YR EXCHANGE AGREEMENTS  
DRAFT EIS, SEPTEMBER 30, 2003

consecutive years cannot be classified as dry (p. 2-2). While we recognize these classification conditions may be implemented to minimize excessive pumping and associated impacts, it is not clear how classification of the water-year-type will be linked to actual hydrological conditions. The FEIS should state whether the Settlement Agreement would prevail and how the selection of water-year-type will be correlated to actual hydrological conditions.

2. The amount of fallowed land varies annually between 16,340 acres (1984) to 125,082 acres (1991) in the Westlands Water District in which some MPG lands are located (p. ES-9). The proposed Land Fallowing alternative would result in approximately 10,000 acres of land temporarily taken out of production (p. ES-4).

Recommendation:

The FEIS should: 1) Provide additional information on current levels of fallowing (e.g., 2003) and its economic effects; 2) Describe whether currently fallowed lands would remain out of production or whether additional lands would be fallowed under the Land Fallowing alternative or if the proposed project included fallowing; and, 3) Provide a comparison of existing fallowed land and costs, the amount of fallowed land and costs under the Land Fallowing Alternative, and the amount of fallowed land and costs if the proposed project included pumping and fallowing.

## **Response to Comments from United States Environmental Protection Agency, Region IX**

The United States Environmental Protection Agency (USEPA) reviewed the draft EIS and classified the document as EC-2. USEPA requested further information on issues identified in their detailed comments. Responses to these comments are provided below.

### **Agricultural Drainage Issues**

**Response:** The proposed action is not likely to affect WWD's proposal for Land Retirement or Reclamation's Drainage Feature Re-evaluation Project. Less than 25 percent (approximately 11,000 acres) of the MPG lands are in drainage impacted areas in Westlands Water District (WWD) and San Luis Water District (SLWD) (Section 2.1.1.2). The WWD land retirement proposal is fully voluntary. The members of the MPG intend to continue farming their lands in WWD for the foreseeable future.

The action considered in this EIS is not likely to affect any of the alternatives being considered as part of Reclamation's Drainage Feature Re-evaluation Program. The MPG lands comprise only a small proportion of the drainage impacted lands (11,000 of the 200,000 acres). Should Reclamation provide a mechanism to provide drainage to these lands, the Drainage Feature Re-evaluation Program would provide a benefit to the proposed action by improving the conditions of the soils.

A discussion of the WWD Land Retirement proposal and Reclamation's Drainage Feature Re-evaluation Project has been added to Section 2.2. A discussion of the effects of the proposed action on these projects is included in Section 4.3.

The proposed action would not increase the salts or selenium applied to agricultural lands in WWD or SLWD, nor would it increase groundwater concentrations in these areas by recycling groundwater. The proposed action would provide enough good quality water from the San Luis Canal to irrigate approximately 8,000 acres per year. This water would be used in preference to poorer quality groundwater underlying WWD and SLWD. On average, approximately 114,000 acre-feet of groundwater are pumped per year within WWD (WWD 1999). The proposed action would result in a reduction of groundwater pumpage in WWD of approximately 15 percent. Current salt loading to WWD lands is approximately 705,000 tons per year from all sources (WWD 1999). As the salt concentration in applied groundwater is higher than that in the CVP water that would be delivered (WWD 1999), the proposed action would result in a reduction of the total mass of salts applied to lands in WWD of approximately 30,000 tons per year. In contrast, the proposed action including adjacent use pumpage, would result in an increase of the salt load to Mendota Pool of

approximately 5,670 tons per year. Therefore, throughout the project area, cumulative load of salt applied to agricultural lands would be reduced by approximately 24,000 tons per year.

### **Increasing Water Supply Reliability**

**Response:** The majority of the lands to be irrigated with the exchanged water are located in WWD) (Figure 1-2). WWD has already implemented the procedures recommended by USEPA (see Section 3.3.1.6). WWD achieves an irrigation efficiency of over 83 percent, which is highly efficient compared to other irrigation districts in the San Joaquin Valley. However, even with efficient irrigation practices and other water conservation actions, the amount of water is still not sufficient to meet the needs of farmers within the district. Supplemental sources of water need to be obtained. The proposed action is one method for obtaining the supplemental sources of water. The discussion of WWD's effort to obtain supplemental water is summarized in Section 1.1.

### **Third Party Effects**

**Response:** The design constraints identified in Section 2.1.1.3 are the results of negotiations with other entities around the Pool to prevent or mitigate impacts to water quality and quantity. The MPG has previously entered into an agreement (i.e., the Settlement Agreement) with SJREC and NLF to mitigate any effects on these entities. The MPG has also agreed to conduct monitoring and manage its pumping program to meet the water quality requirements of the Mendota Wildlife Area (MWA), located to the south of the MPG well field. The design constraints are intended to prevent impacts by preemptively modifying the pumping program. Groundwater quality and surface water mixing models are used to evaluate potential effects of the pumping program during the design phase (see Section 4.3.1, and Figure 4-3). Data collected for the monitoring program will be used to verify the effectiveness of the design constraints and to identify any potential impacts. The MPG is responsible for funding the majority of the sampling and data analysis from the monitoring program. The monitoring data collected by the MPG would be limited in the absence of the proposed action.

The monitoring program outlined in Appendix B provides sufficient data to assess groundwater, surface water, and sediment quality effects of the proposed action in the vicinity of Mendota Pool. Surface water monitoring includes continuous EC recorders at seven locations around the Pool. In addition, monthly surface water grab samples are collected at eight locations for multiple water quality constituents; five additional locations are sampled semi-annually. This surface water monitoring program is considered sufficient to identify any impacts to surface water. Groundwater levels are monitored in a total of 116 wells, 73 of which are

monitored on a bi-monthly basis. Groundwater quality is monitored on an annual basis in a total of 170 MPG and other wells throughout the program area. Monitoring data provided in Appendix C of the EIS do not indicate rapid changes in groundwater quality. An annual monitoring frequency is considered sufficiently frequent to detect the gradual changes in groundwater quality surrounding the Pool. Sediment sampling is conducted annually at eight locations throughout the Pool.

**General Comment 1**

**Response:** The text on page 2-2 (Section 2.1.1) has been clarified. The primary factor determining the water year classification will be Reclamation's April 15 estimate of agricultural water allocations for that year. Reclamation's estimate is based on the hydrologic conditions of the water year to that point and the amount of water in storage and available for distribution to its contractors. The constraints of the Settlement Agreement will be superimposed upon these determinations. In addition, the MPG will further limit pumpage for exchange if groundwater conditions so indicate.

**General Comment 2**

**Response:** The MPG members are not fallowing land currently. Any land fallowed under the "Land Fallowing" alternative would be in addition to those lands that WWD would retire. The economic impacts of the proposed action and alternatives are estimated and discussed in Section 4.7.

As of 2002, approximately 95,000 acres of land in WWD were fallowed due to lack of adequate water supplies (Economic Insights et al. 2003). In addition, 15,421 irrigable acres were permanently removed from irrigated production as of 2002. The majority of these lands were acquired by WWD to improve water supply to the remaining irrigated lands (Economic Insights et al. 2003). Current land retirement activities (WWD and Federal) have centered primarily on land that has been fallowed by farmers, and therefore economic impacts have been less than anticipated. Short-term economic benefits to the community may occur as a result of income from the sale of land to WWD or the Federal government. However, future land retirements may have significant economic impacts to agricultural production, income, and county tax revenues (Economic Insights et al. 2003).



**Response to Comments from  
United States Fish and Wildlife Service**

The United States Fish and Wildlife Service (USFWS) reviewed the draft EIS and provided comments via e-mail. The full text of the USFWS comments is provided below. **Responses to comments are inserted directly into the comment letter and are indicated by bold font, indented from both margins.**

**Description of Project:**

Reclamation's purpose in authorizing this action is to facilitate the efficient delivery and re-allocation of water to achieve environmental and economic benefits as authorized by 34 U.S.C. section 3408(d) CVPIA. MPG Pump-in Comments

Propose to pump up to 269,600 ac-ft/10 years

Maximum allowable quantity to pump/year

- 0 ac-ft (wet year)
- up to 31,600 ac-ft (normal year)
- up to 40,000 ac-ft (dry year)

Transfer pumping would be conducted over 9 months (maximum) from both shallow (less than 130 feet deep) and deep (greater than 130 feet deep and above the Corcoran Clay) wells.

Will be reviewed on an annual basis, and adjustments will be made if monitoring indicates that actions need to be taken to maintain water quality in Mendota Pool.

**Comments:**

Is there a CEQA document for this project as well since up to 40,000 acre-feet per year could be pumped into the Mendota Pool per year?

**Response: A CEQA document is not required for this project as any pumpage in excess of 25,000 acre-feet per year would be exchanged/traded with other users (not state entities) around the Pool. These exchanges do not require a permit from any state or local agency.**

Correction to 1-11: Reclamation informally consulted with USFWS under section 7 ESA on the effects of the 2002 pumping program, not the Fish and Wildlife Coordination Act. To date, no consultation under Fish and Wildlife Coordination Act has been initiated for the MPG Exchange Agreements.

**Response: Page 1-11 has been corrected to read that Reclamation informally consulted with USFWS under Section 7 of the ESA. A similar statement to this effect is provided on page 1-10 under the discussion of the Endangered Species Act.**

On Page ES-8 uses 50 ug/L selenium in discussion of surface water quality (the drinking water criterion). A more relevant number is the 2 ppb (monthly mean) criterion established by the State to protect wetland water supplies in the Grasslands. The EIS should refer to the 303(d) listing of Mendota Pool as impaired for selenium at 2 ppb (monthly mean) by the SWRCB and approved by EPA (see attachment from SWRCB). This would suggest that at a minimum, the quality of groundwater pumped into Mendota pool does not exceed 2 ppb and this should be an environmental commitment included in the EIS of this project.

**Response: The EIS uses the criterion of 2 µg/L as the criterion for selenium. The referenced paragraph in the Executive Summary has been edited to read:**

**“Selenium was either non-detect or present at low concentrations in Mendota Pool surface water samples collected in 2001 and 2002. The highest selenium levels were detected during the spring in samples from the northern portion of the Fresno Slough. The highest concentrations were reported for samples collected at the DMC terminus (3.32 ug/L in 2001 and 2.3 ug/L in 2002). The lowest selenium levels were reported in samples from the southern portion of the Fresno Slough. Selenium concentrations ranged from <0.4 ug/L to 1.16 ug/L at the Mendota Wildlife Area (MWA), from <0.4 ug/L to 0.9 ug/L at the Lateral 6 & 7 intake, and from <0.4 ug/L to 0.95 ug/L at James ID. The criterion for protection of aquatic life and the CDFG recommended target level for the MWA are both 2 ug/L. Few samples from the northern portion of the Fresno Slough and no samples from the southern Fresno Slough had selenium concentrations exceeding this target level in 2001 or 2002.”**

**Section 3.4.5.4 discusses selenium concentrations in groundwater in the vicinity of the Mendota Pool. Selenium was present in only four shallow MPG wells in 2001 and 2002 at concentrations ranging from 0.4 ug/L to 0.9 ug/L. Selenium was not detected in any deep MPG wells.**

Section 3405 A(1)(J) of the Central Valley Project Improvement Act states that, “The Secretary shall not approve a transfer authorized by this subsection unless the Secretary determines, consistent with paragraph 3405(a) (2) of this title, that such transfer will have no significant long-term adverse impact on groundwater conditions in the transferor's service area.” The MPG EIS states on page ES-16 under Summary that, “The primary

adverse effect of the proposed action is to increase the cumulative rate of groundwater degradation in wells west of the Pool. These wells are primarily MPG wells.” It is unclear how the summarized effects of the project on groundwater are consistent with the language of Section 3405 A(1)(J). The authors/responsible parties need to address this issue in the EIS.

**Response: The proposed action is an exchange of water, not a transfer of water. Water pumped into the Pool by the project proponents will be used by Reclamation to meet Reclamation’s contracts at the Pool. The water pumped by the project proponents will be exchanged for CVP water delivered via the San Luis Canal.**

**Existing groundwater conditions are described in Sections 3.4.2 and 3.4.5. Both of these sections have been extensively revised and expanded in response to other comments. Section 3.4.2 discusses the current and pre-development groundwater flow conditions. Section 3.4.5 discusses the existing groundwater quality, and identifies the existence of a front of saline groundwater west of the Fresno Slough. The general direction of groundwater flow in this area is to the northwest, towards the slough. The saline front is a result of natural soil conditions and historical irrigation activities, which have caused shallow groundwater quality degradation west of the Mendota area. Groundwater pumping by the MPG near the Slough has not contributed to the formation of the saline front, and the saline front will continue to move toward the Fresno Slough regardless of MPG pumping activities.**

**Section 4.3 describes the modeling efforts and predicted effects of the proposed action on groundwater quality in the region. The effect of groundwater extraction by the MPG is to increase the groundwater gradient between the saline front and the MPG wells. This results in accelerated movement of the saline front towards the Pool. In the deep zone, which is the primary aquifer tapped by wells in the Mendota area, this effect is predicted to be greater because the regional gradient is steeper and there is less recharge from the Pool. Total degradation in deep production wells during the 10-year proposed project is predicted to average 390 mg/L, of which 28 mg/L is due to MPG transfer pumping (see Table 4-3). Although the total degradation rate is relatively large, MPG pumping would only be responsible for a small fraction of the total (about seven percent). This is not considered to be a significant impact on groundwater conditions in the area.**

**The model results presented in Section 4.3 indicate that degradation in the shallow zone caused by MPG transfer pumping during the 10-year proposed project will be less than in the deep zone, but MPG**

**transfer pumping will be responsible for most of the degradation. The average predicted degradation for all shallow MPG wells is 240 mg/L over 10 years. It is assumed that the long-term effect on groundwater quality will be much smaller, because recharge from the Pool will result in significant groundwater quality improvements after the transfer pumping project is complete. To test this assumption, the groundwater quality model was run for an additional 10-year period (post-project) with no transfer pumping. The results showed water quality improvements at all shallow MPG wells. The average predicted water quality improvement during the 10-year post-project simulation was about 180 mg/L. Approximately 70 percent of this improvement would occur during the first five years. The total predicted degradation during the combined project and post-project periods averages about 60 mg/L. This is not considered to represent a significant long-term adverse impact in an area where groundwater quality is already poor. The impact would be further reduced over time, because water quality improvements would be expected to continue beyond the simulated 10-year post-project period.**

Monitoring (Appendix B):

Every year a complete analysis will be conducted on samples from 21 of the MPG wells. Samples from the remaining 50 wells will be analyzed for EC and TDS on an annual basis and a complete analysis will be conducted every other year. It is unclear how monitoring every other year will ensure that water quality of groundwater pumped into the Mendota Pool is adequate to protect biological resources particularly in light of the acknowledgment that the cumulative rate of groundwater degradation in wells west of the Pool will increase. The project proponents should include annual sampling of all the wells used by this project to ensure compliance with water quality objectives and protection of sensitive biological resources.

**Response: Degradation due to increased salinity (EC or TDS) is the primary concern relative to potential surface water quality impacts. In terms of water quality, salinity is the limiting factor affecting the amount of water that can be pumped as part of the proposed action. All MPG production wells will be sampled for EC and TDS on an annual basis.**

**Arsenic, boron, and molybdenum are generally present at low concentrations in MPG production wells and are unlikely to increase rapidly to concentrations that could pose a threat to surface water quality. Selenium concentrations in MPG production wells are typically below the detection limit of 0.4 µg/L. Any well that approaches a selenium concentration of 2 µg/L will be removed from the pumping program.**

**21 MPG production wells be sampled on an annual basis for the full suite of analytes: trace elements (arsenic, molybdenum, and selenium), general minerals (sulfate, chloride, bicarbonate, alkalinity, nitrate, fluoride, calcium, magnesium, sodium, potassium, boron, copper, iron, manganese, and zinc), and pH. These wells are the most likely to show water quality effects. The remaining 50 wells will be sampled for EC and TDS one year and for EC, TDS, trace elements, general minerals, and pH the following year.**

**In addition, the MPG collects water quality data from an additional seven non-MPG monitoring wells. The MPG also obtains and analyzes water quality data collected by others in 92 wells throughout the study area. This sampling plan is considered adequate to identify and assess groundwater quality and to identify potential surface water quality effects of the pumping program.**





# California Regional Water Quality Control Board

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## Central Valley Region

Robert Schneider, Chair



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Environmental  
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ENTRIX

26 September 2003

Mr. David Young  
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### COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE MENDOTA POOL 10-YEAR EXCHANGE AGREEMENT, EIS NUMBER 01-81

- ① Staff has reviewed the *Draft Environmental Impact Statement (EIS) for the Mendota Pool 10-Year Exchange Agreement, EIS Number 01-81*. On February 28, 2002 we commented on the *Draft Environmental Assessment for the Mendota Pool 2002 Exchange Agreement, EA Number 01-83* and on January 31, 2002 we commented on the public scoping meeting that was held for the Environmental Impact Statement being prepared for U.S. Bureau of Reclamation exchange agreements with the Mendota Pool Group (2003-2013). We previously commented on the *Environmental Assessment for the 2001 Exchange Agreement* (comments dated 13 July 2001) and on the draft and final Environmental Impact Reports prepared by Westlands Water District (comments dated 15 November 1995 and 18 December 1998). Although mitigation has been incorporated to the proposed project to help alleviate some of our previously stated concerns, we are still concerned that the proposed groundwater pumping has the potential to adversely affect water quality in the San Joaquin River Basin.
- ② The EIS indicates (page 4-21) that "[t]he State Water Resources Control Board has recently (February 4, 2003) approved the '2002 CWA Section 303(d) List of Water Quality Limited Segment'. This list, although not yet accepted by the USEPA, identifies the Mendota Pool as impaired due to selenium." USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments on July 25, 2003. The final 303(d) list approved by the USEPA includes the Mendota Pool selenium listing, necessitating development of a Total Maximum Daily Load (TMDL). Wells operated as part of the proposed project will therefore be subject to allocations of selenium under this TMDL. The proposed project includes design constraints intended to reduce the potential for selenium discharge to adversely affect water quality in the Mendota Pool. The EIS indicates that wells discharging to the Mendota Pool will be shut off when well selenium concentrations are equal to or greater than 2µg/L. The monitoring plan, however, indicates that water quality of the production wells will be analyzed only once a year and selenium will be tested in less than a third of the wells. The frequency of monitoring should be increased so that the pumping can be adaptively managed. We recommend a minimum of quarterly monitoring of selenium (every 3 months) for each well pumped during the quarter.

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- ③ The EIS incorporates design constraints intended to minimize potential adverse effects on water quality in the Mendota Pool by limiting the Total Dissolved Solids (TDS) of pumped ground water to 1,200 mg/L during the fall pumping season and 2,000 mg/L during the rest of the year. Table 3-4 in the EIS, however, indicates that a TDS concentration of 800 mg/L is considered a "severe or unacceptable value (Reclamation Water Contract # 14-OC-200-7859A For Refuge Water Supplies to the Mendota WA)." The proposed maximum allowable TDS concentration of pumped groundwater was 1,800 mg/L in the *Draft Environmental Assessment for the Mendota Pool 2002 Exchange Agreement*. Why was the maximum allowable TDS of pumped groundwater increased to 2,000 mg/L for this 10-year agreement? Rationale for the 2,000 and 1,200 mg/L salinity cutoffs should be provided.
- ④ If TDS is monitored only once a year, as proposed, insufficient information will be available to characterize seasonal trends or to determine when high TDS wells should be turned off. The frequency of TDS monitoring should be increased. Alternately, Electrical Conductivity (EC) could be monitored instead of TDS if a valid relationship between TDS and EC can be established, thereby reducing analytical costs. Additionally, it is not clear who will be responsible for implementing the proposed mitigation measures. A mitigation management/monitoring plan should be developed that clearly identifies who is responsible to ensure that wells are turned off if water quality targets are exceeded.

Thank you for the opportunity to comment. If you have any questions regarding this matter, please email or phone Eric Oppenheimer at [oppenhe@rb5s.swrcb.ca.gov](mailto:oppenhe@rb5s.swrcb.ca.gov) or (916) 255-3234 or email or phone Anthony Toto at [totoa@rb5f.swrcb.ca.gov](mailto:totoa@rb5f.swrcb.ca.gov) or (559) 445-6278.



LESLIE F. GROBER, CHIEF  
San Joaquin River TMDL Unit

cc: Mr. Lonnie Wass, Regional Water Quality Control Board, Fresno  
Ms. Paula Landis, Department of Water Resources, Fresno  
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Mr. Theodore Donn, Entrix, Inc., Walnut Creek  
Mr. Marc Carpenter, Mendota Pool Group, Fresno

**Response to Comments from  
the California Regional Water Quality Control Board,  
Central Valley Region**

The California Regional Water Quality Control Board, Central Valley Region, (CRWQCB) reviewed the document and provided several comments relating to surface water and groundwater quality. Responses to these comments are provided below.

**Paragraph 1**

**Response:**

Groundwater Quality Degradation

Groundwater degradation is a widespread phenomenon throughout the western San Joaquin Valley and has been for several decades. There are multiple factors affecting this degradation including, but not limited to, the chemistry of the soils in this region (elevated salt and selenium concentrations), application of irrigation water which leaches these constituents, the quality of the irrigation water, and the quantity of groundwater pumping by all entities in this region. Saline groundwater is presently moving in a northeasterly direction from WWD towards Mendota Pool and the San Joaquin River. The northeasterly movement of the saline front is the primary cause of groundwater quality degradation in the Mendota area. This movement is caused by a combination of regional flow conditions and local pumping downgradient (northeast) of the front, and would occur in the absence of MPG transfer pumping.

The primary effect of the proposed action would be to increase the rate at which the saline groundwater front flows towards Mendota Pool. The draft EIS evaluates the contribution of the proposed action to the rate of movement of the saline front and associated groundwater quality degradation at the wells. The modeling efforts, performed in support of the EIS analyses, suggest that the movement of saline groundwater would impact the MPG well field along the Fresno Slough to the extent that several wells (in the southern half of the well field) would no longer be usable as part of the proposed action. However, the proposed action would only contribute slightly (less than 5 percent of total degradation) to degradation in non-MPG wells (e.g., old City of Mendota wells and CCID wells) located west of the Fresno Slough and San Joaquin River.

Improvement of groundwater quality in upgradient areas of WWD is expected to occur should implementation of WWD's land retirement proposal and Reclamation's San Luis Drainage Feature Re-Evaluation Program occur. These programs would serve to reduce drainage problems in the source areas and thereby improve groundwater quality in the San Joaquin River Basin.

### Surface Water Flow Direction

Impacts to surface water resources are expected to be localized to the Fresno Slough arm of the Pool, because flow in the Pool is typically to the south during the period when the MPG would be pumping. Data evaluated by the MPG since 1997 show that a south flow in the Fresno Slough normally occurs throughout the year except when flood flows from the Kings River enter the southern portion of the Pool via the James Bypass (see Figure 3-5). Flow in the James Bypass has not occurred since 1998 and typically occurs only during winter months when the MPG is not pumping. In the Settlement Agreement with the SJREC and NLF, the MPG agreed to not pump into the Fresno Slough when the direction of flow is to the north. During periods when MPG pumping would occur, the water would flow south to the MWA, James and Tranquillity Irrigation Districts, WWD, and others who divert water from the southern portion of the Pool. Consultants to the MPG use a surface-water mixing model for the Fresno Slough branch of the Pool to ensure that the quality of water delivered to these entities conforms to Reclamation's contract requirements.

### Water Quality in Northern Mendota Pool

The SJREC operates five canals that divert water from the northern portion of the Mendota Pool and the San Joaquin River north of Mendota Dam. Almost all of the water supplied to these canals is delivered to the Pool by Reclamation via the DMC. As discussed in Section 4.4.1 in the EIS, water pumped into the San Joaquin River branch of the Pool by MPG wells in Farmers Water District (FWD) also reaches SJREC's canal intakes. During periods when the FWD wells are pumping, the amount of DMC inflow is reduced so that inflows to and outflows from the Pool remain in balance.

In the EIS, the impacts of MPG pumping on water quality in the northern Mendota Pool were calculated using a mixing model. The model was used to calculate changes in salt and boron concentrations in the Pool due to water pumped in by the FWD wells. The results are summarized in Section 4.4.1.5, and Tables 4-6 and 4-7. These results show that there would be no water quality impact because the MPG wells in FWD have similar or lower TDS and boron concentrations than the average quality of the DMC inflow.

To evaluate the effect of the proposed project on the TMDL for salt and boron, the mixing model for the northern portion of Mendota Pool was adapted to calculate salt loads produced by MPG wells and to compare them to salt loads from the DMC both with and without MPG pumping. The results are presented on Tables F-1 through F-3 (attached). The flows and TDS concentrations used for these calculations are provided in Tables 4-6 and 4-7, and are based on the following data:

- San Joaquin River – Based on the February 1999 grab sample from the Columbia Canal intake collected when the SJR was flowing. The TDS concentration of this sample (140 mg/L) was the lowest of any sample collected from the Pool in 1999 or 2000.
- DMC – Based on the daily average electrical conductivity recorded by Reclamation at the DMC terminus between January 1993 and October 2002.
- MPG – Based on the flow-weighted average of the MPG wells in FWD included in the proposed pumping program.

Table F-1 shows TDS concentrations and loads to the northern Mendota Pool for the No-Project condition. The average TDS concentration of the DMC inflow is 332 and 340 mg/L under moderate and low flow conditions, respectively. The calculated annual salt load from the DMC would be 73,161 tons based on moderate flow conditions in the San Joaquin River, and 106,717 tons based on low flow conditions in the River.

Table F-2 shows TDS concentrations and loads to the northern Mendota Pool with the proposed Project. The average TDS concentration of the DMC inflow is the same as for the No-Project condition, and the flow-weighted average TDS concentration of the MPG wells is 310 mg/L. MPG pumping would have a negligible effect on TDS concentrations during the months when the MPG wells would be pumping (a decrease of 2 mg/L under both moderate and low flow conditions). With the proposed Project, the annual salt load from the DMC would vary from 69,117 tons to 102,673 tons during moderate and low flow conditions, respectively.

The results of this analysis are summarized in Table F-3. Implementation of the proposed project would result in a reduction of salt loading from the DMC by 4,044 tons, and a corresponding increase in salt loading from the MPG wells in FWD of 3,886 tons. Therefore, the proposed project would result in a small net decrease in the total salt load (158 tons), and a small decrease in the average TDS concentration (1 mg/L). These model results show that MPG pumping will have a negligible or slightly positive impact on water quality in the northern portion of Mendota Pool. There will be no increase in the salt loads to the portion of the San Joaquin River that will be regulated by the TMDLs.

#### Water Levels

The EIS discusses the potential long-term effects of MPG pumpage on water levels in areas north of the San Joaquin River in Section 4.1.1.2. The EIS states that overdraft occurring east and north of the NLF lands has been spreading to the eastern and northern portions of NLF. Since much of NLF is within the boundaries of Columbia Canal Company (CCC), this statement also applies to the CCC service area. Overdraft in

these areas is caused primarily by pumping within CCC and NLF, pumping in the historically overdrafted areas of Madera County downgradient of NLF, and lack of recharge from the San Joaquin River, which has not had significant flow downstream of Gravelly Ford since January 2001. The EIS acknowledges some contribution of MPG pumpage to residual drawdowns in deep NLF wells near the San Joaquin River. If MPG transfer pumping is determined to be significantly contributing to overdraft in these areas in the future, that pumping will be reduced as specified in the Settlement Agreement and EIS, as to mitigate the contribution to the overdraft.

### **Paragraph 2**

**Response:** Section 4.4 has been updated to indicate that USEPA has approved the 2002 Section 303(d) list, which designates the Mendota Pool as impaired due to selenium. The listing due to selenium is also identified in the discussion of existing water quality conditions in Section 3.3.2.4. As discussed in Section 3.6, Reclamation has instituted a monitoring program to assess selenium and salt concentrations in the Delta-Mendota Canal (DMC). Reclamation is using the data developed from the monitoring program to determine the source of elevated selenium in the DMC and to develop an approach to reducing selenium concentrations. Therefore, selenium and salt loads to the Mendota Pool are expected to decrease over time.

Selenium concentrations in MPG wells have been at or below the method detection limit of 0.4 µg/l throughout the 2000 to 2002 period (Tables 3-7 and 3-8). Selenium concentrations measured in 2003, which were not available at the time the draft EIS was prepared, also show no detectable levels of selenium in MPG wells. Groundwater quality is expected to change slowly over time. Therefore, annual monitoring of water quality is appropriate for selenium. Should selenium concentrations in groundwater start to increase, the MPG will increase the frequency of monitoring to ensure the protection of surface water resources. The primary source of water to the Mendota Pool is the DMC. The water pumped into the Pool by the MPG has significantly lower selenium concentrations than the DMC. The proposed action would serve to reduce selenium concentrations in the Pool by (1) reducing the quantity of water discharged from the DMC, and (2) diluting the selenium concentrations present in the Pool.

### **Paragraph 3**

**Response:** Reclamation and the MPG consider the point of compliance for water quality evaluations to be the Pool itself, not the well discharges. This proposed action utilizes dilution in the Pool to achieve the required surface water quality targets.

The limit of 1,200 mg/l TDS was developed by the MPG based on predicted well discharges and mixing calculations to ensure that Refuge water quality targets are achieved in the fall season when the Refuge is drawing its water. The criterion of 2,000 mg/l for TDS was developed by the MPG as the upper limit for all wells in the MPG transfer pumping program. This limit is designed to allow all MPG members to pump a minimum quantity of water during periods of high flows in the Pool without causing significant surface water quality impacts. During much of the year, the MPG will need to shift more pumping to the wells with the best water quality in order to achieve the water quality targets in the Pool. The surface water mixing model discussed in Section 4.4 and Appendix D will be used to determine which MPG wells are able to pump at any given time.

#### **Paragraph 4**

**Response:** An annual monitoring frequency is considered sufficiently frequent to detect the gradual changes in groundwater quality surrounding the Pool and to allow appropriate management actions to be undertaken. Salinity (TDS or EC) of the groundwater does not vary significantly over the short-term, and monitoring EC weekly or monthly in each pumping well would be time-consuming and costly. Groundwater quality is monitored on an annual basis in a total of 170 MPG and other wells throughout the project area. Monitoring data provided in Appendix C of the EIS do not indicate rapid changes in groundwater quality. Furthermore, wells located upgradient (i.e. southwest) from the Mendota Pool have not shown increases in salinity (EC or TDS) during the period for which data have been collected.

The available monitoring results provide data with which to calculate an empirical relationship between EC and TDS for groundwater and surface water near Mendota Pool (Section 7). EC data are not conducive for use in a mass balance model such as the surface water mixing model used to estimate salt concentrations at MWA and in the northern Pool. Therefore, EC measurements are converted to TDS for use in the model.

It is the responsibility of the monitoring entity (see Table 2-4) to notify the MPG that a violation of a mitigation measure has occurred. The MPG is responsible for monitoring the water quality in its production wells. In the case of monitoring performed by the MPG, the consultant performing the monitoring would inform the MPG that use of a particular well must be discontinued if the water quality for that well exceeds the criteria for the transfer pumping program. As part of the terms of the exchange contracts, Reclamation will require that the MPG report the results of environmental sampling to Reclamation, and incorporate those results in the annual monitoring report to ensure that water quality criteria in the

Mendota Pool are met. Reclamation will require submittal of the annual monitoring report prior to issuing subsequent exchange contracts.

**Table F-1**  
**Predicted TDS Concentrations and Loads in the San Joaquin River**  
**at Mendota Dam**  
**(No-Project Conditions)**

**Moderate Flow Conditions in the San Joaquin River (based on 1999-2000):**

Month	Flow Contribution (af) <sup>1</sup>			TDS Concentration (mg/L)			TDS Load (tons)			Change in TDS Concentration Due to MPG Pumping (mg/L)	Calculated TDS Concentration at Mendota Dam (mg/L)
	SJR	DMC <sup>2</sup>	MPG	SJR <sup>3</sup>	DMC <sup>4</sup>	MPG <sup>5</sup>	SJR	DMC	MPG		
January	8,731	3,120	0	140	439	-	1,508	1,688	0	0	219
February	14,937	2,406	0	140	401	-	2,579	1,191	0	0	176
March	32,185	0	0	140	-	-	5,558	0	0	0	140
April	5,292	15,700	0	140	360	-	914	6,975	0	0	305
May	222	25,253	0	140	352	-	38	10,959	0	0	350
June	7,460	34,856	0	140	302	-	1,288	12,971	0	0	273
July	7,385	39,282	0	140	243	-	1,275	11,754	0	0	226
August	3,345	34,831	0	140	255	-	578	10,947	0	0	245
September	1,998	16,677	0	140	286	-	345	5,889	0	0	271
October	934	11,209	0	140	293	-	161	4,056	0	0	282
November	819	7,621	0	140	331	-	141	3,114	0	0	313
December	1,279	7,500	0	140	391	-	221	3,617	0	0	354
<b>Total Mean<sup>6</sup></b>	<b>84,587</b>	<b>198,454</b>	<b>0</b>	<b>140</b>	<b>332</b>	<b>-</b>	<b>14,607</b>	<b>73,161</b>	<b>0</b>	<b>0</b>	<b>263</b>

**Low Flow Conditions in the San Joaquin River (based on 2001-2002):**

January	1,091	10,760	0	140	439	-	188	5,821	0	0	411
February	141	17,202	0	140	401	-	24	8,515	0	0	399
March	84	22,180	0	140	426	-	15	11,647	0	0	425
April	0	20,992	0	-	360	-	0	9,326	0	0	360
May	0	25,475	0	-	352	-	0	11,055	0	0	352
June	0	42,316	0	-	302	-	0	15,748	0	0	302
July	0	46,667	0	-	243	-	0	13,964	0	0	243
August	0	38,175	0	-	255	-	0	11,998	0	0	255
September	79	18,596	0	140	286	-	14	6,567	0	0	286
October	0	12,143	0	-	293	-	0	4,394	0	0	293
November	0	8,440	0	-	331	-	0	3,449	0	0	331
December	0	8,779	0	-	391	-	0	4,234	0	0	391
<b>Total Mean<sup>6</sup></b>	<b>1,395</b>	<b>271,726</b>	<b>0</b>	<b>140</b>	<b>340</b>	<b>-</b>	<b>241</b>	<b>106,717</b>	<b>0</b>	<b>0</b>	<b>337</b>

1. Mean San Joaquin River flow contribution (1999-00 moderate; 2001-02 low) to the Mendota Pool (from daily SJDMWA data). January and December 1999/00 and 2001/02 were excluded because the Pool was drained for maintenance.

2. The amount of DMC inflow into the model area (northeast of the Main Canal) was calculated as the difference between the sum of the outflows to Columbia Canal Co., NLF, and Mendota Dam and the sum of inflows from the SJR and the MPG wells in FWD.
3. Based on a February 1999 grab-sample result taken at the Columbia Canal, when the San Joaquin River was flowing (lowest TDS measured in a grab sample from the Pool during 1999-2000).
4. Monthly average based on daily average EC measurements at the DMC terminus (Check 21) between January 1993 and October 2002. EC measurements were converted to TDS using the regression equation  $TDS = -14.46 + 0.6426 * EC$  (based on statistical analysis of 2000-2001 surface water quality data, n=108).
5. Flow weighted average of MPG wells in FWD included in the proposed project 2004.
6. Mean based on non-zero values, only.

**Table F-2**  
**Predicted TDS Concentrations and Loads in the San Joaquin River**  
**at Mendota Dam With Proposed MPG Transfer Pumping**  
**(First Year of Project)**

**Moderate Flow Conditions in the San Joaquin River (based on 1999-2000):**

Month	Flow Contribution (af) <sup>1</sup>			TDS Concentration (mg/L)			TDS Load (tons)			Change in TDS Concentration Due to MPG Pumping (mg/L)	Calculated TDS Concentration at Mendota Dam (mg/L)
	SJR	DMC <sup>2</sup>	MPG	SJR <sup>3</sup>	DMC <sup>4</sup>	MPG <sup>5</sup>	SJR	DMC	MPG		
January	8,731	3,120	0	140	439	-	1,508	1,688	0	0	219
February	14,937	2,406	0	140	401	-	2,579	1,191	0	0	176
March	32,185	0	0	140	-	-	5,558	0	0	0	140
April	5,292	13,694	2,007	140	360	319	914	6,084	791	-4	301
May	222	22,330	2,923	140	352	326	38	9,690	1,177	-3	347
June	7,460	34,856	0	140	302	-	1,288	12,971	0	0	273
July	7,385	39,282	0	140	243	-	1,275	11,754	0	0	226
August	3,345	34,831	0	140	255	-	578	10,947	0	0	245
September	1,998	15,415	1,262	140	286	317	345	5,443	493	2	273
October	934	8,607	2,602	140	293	316	161	3,115	1,016	5	287
November	819	6,403	1,218	140	331	273	141	2,616	410	-8	304
December	1,279	7,500	0	140	391	-	221	3,617	0	0	354
<b>Total Mean<sup>6</sup></b>	<b>84,587</b>	<b>188,444</b>	<b>10,010</b>	<b>140</b>	<b>332</b>	<b>310</b>	<b>14,607</b>	<b>69,117</b>	<b>3,886</b>	<b>-2</b>	<b>262</b>

**Low Flow Conditions in the San Joaquin River (based on 2001-2002):**

January	1,091	10,760	0	140	439	-	188	5,821	0	0	411
February	141	17,202	0	140	401	-	24	8,515	0	0	399
March	84	22,180	0	140	426	-	15	11,647	0	0	425
April	0	18,986	2,007	-	360	319	0	8,435	791	-4	356
May	0	22,552	2,923	-	352	326	0	9,787	1,177	-3	349
June	0	42,316	0	-	302	-	0	15,748	0	0	302
July	0	46,667	0	-	243	-	0	13,964	0	0	243
August	0	38,175	0	-	255	-	0	11,998	0	0	255
September	79	17,334	1,262	140	286	317	14	6,121	493	2	288
October	0	9,542	2,602	-	293	316	0	3,453	1,016	5	298
November	0	7,223	1,218	-	331	273	0	2,951	410	-8	323
December	0	8,779	0	-	391	-	0	4,234	0	0	391
<b>Total Mean<sup>6</sup></b>	<b>1,395</b>	<b>261,715</b>	<b>10,010</b>	<b>140</b>	<b>340</b>	<b>310</b>	<b>241</b>	<b>102,673</b>	<b>3,886</b>	<b>-2</b>	<b>337</b>

1. Mean San Joaquin River flow contribution (1999-00 moderate; 2001-02 low) to the Mendota Pool (from daily SJDMWA data). January and December 1999/00 and 2001/02 were excluded because the Pool was drained for maintenance.

2. The amount of DMC inflow into the model area (northeast of the Main Canal) was calculated as the difference between the sum of the outflows to Columbia Canal Co., NLF, and Mendota Dam and the sum of inflows from the SJR and the MPG wells in FWD.
3. Based on a February 1999 grab-sample result taken at the Columbia Canal, when the San Joaquin River was flowing (lowest TDS measured in a grab sample from the Pool during 1999-2000).
4. Monthly average based on daily average EC measurements at the DMC terminus (Check 21) between January 1993 and October 2002. EC measurements were converted to TDS using the regression equation  $TDS = -14.46 + 0.6426 * EC$  (based on statistical analysis of 2000-2001 surface water quality data, n=108).
5. Flow weighted average of MPG wells in FWD included in the proposed project 2004.
6. Mean based on non-zero values, only.

**Table F-3**  
**Summary of Predicted TDS Concentrations and Loads**  
**in the San Joaquin River at Mendota Dam**

**Moderate Flow Conditions in the San Joaquin River (based on 1999-2000):**

		Flow Contribution (af) <sup>1</sup>			TDS Concentration (mg/L)			TDS Load (tons)				Calculated TDS Concentration at Mendota Dam (mg/L)
		SJR	DMC <sup>2</sup>	MPG	SJR <sup>3</sup>	DMC <sup>4</sup>	MPG <sup>5</sup>	SJR	DMC	MPG	Total	
		<b>No Project</b>	<b>Total Mean<sup>6</sup></b>	84,587	198,454	0	140	332	-	14,607	73,161	
<b>Project</b>	<b>Total Mean<sup>6</sup></b>	84,587	188,444	10,010	140	332	310	14,607	69,117	3,886	87,610	262
<b>Impact of Project</b>	<b>Total Mean<sup>6</sup></b>	<b>0</b>	<b>-10,010</b>	<b>10,010</b>				<b>0</b>	<b>-4,044</b>	<b>3,886</b>	<b>-158</b>	<b>-1</b>

**Low Flow Conditions in the San Joaquin River (based on 2001-2002):**

<b>No Project</b>	<b>Total Mean<sup>6</sup></b>	1,395	271,726	0	140	340	-	241	106,717	0	106,958	337
<b>Project</b>	<b>Total Mean<sup>6</sup></b>	1,395	261,715	10,010	140	340	310	241	102,673	3,886	106,800	337
<b>Impact of Project</b>	<b>Total Mean<sup>6</sup></b>	<b>0</b>	<b>-10,010</b>	<b>10,010</b>				<b>0</b>	<b>-4,044</b>	<b>3,886</b>	<b>-158</b>	<b>-1</b>

1. Mean San Joaquin River flow contribution (1999-00 moderate; 2001-02 low) to the Mendota Pool (from daily SJDMWA data). January and December 1999/00 and 2001/02 were excluded because the Pool was drained for maintenance.
2. The amount of DMC inflow into the model area (northeast of the Main Canal) was calculated as the difference between the sum of the outflows to Columbia Canal Co., NLF, and Mendota Dam and the sum of inflows from the SJR and the MPG wells in FWD.
3. Based on a February 1999 grab-sample result taken at the Columbia Canal, when the San Joaquin River was flowing (lowest TDS measured in a grab sample from the Pool during 1999-2000).
4. Monthly average based on daily average EC measurements at the DMC terminus (Check 21) between January 1993 and October 2002. EC measurements were converted to TDS using the regression equation  $TDS = -14.46 + 0.6426 * EC$  (based on statistical analysis of 2000-2001 surface water quality data, n=108).
5. Flow weighted average of MPG wells in FWD included in the proposed project 2004.
6. Mean based on non-zero values, only.





# California Regional Water Quality Control Board

## Central Valley Region

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Fresno, CA 93721-1813

### ENVIRONMENTAL IMPACT STATEMENT FOR THE MENDOTA POOL GROUP-IMPACTS ON SAN JOAQUIN RIVER SALT AND BORON TMDL

Thank you for considering comments we submitted in our 26 September 2003 letter regarding the *Draft Environmental Impact Statement (EIS) for the Mendota Pool 10-Year Exchange Agreement, EIS Number 01-81*. Per your 20 April 2004 correspondence, it appears that you have sufficiently addressed a number of staff concerns with the project.

The EIS responses enclosed with your letter appear to adequately address the questions raised regarding the 303(d) listing of selenium and the selection of TDS limits for water pumped into the Mendota Pool. The expanded narrative also appears to address our comments regarding salt and boron water quality impacts in the SJR downstream of Mendota Pool. So long as the final EIS describes the daily monitoring to be conducted in the Mendota Pool for flow direction, EC, and boron water quality, as well as how this information will be used to discontinue groundwater pumping into the pool in the event that there is northward flow into the SJR downstream of Mendota Pool, Regional Board staff concerns regarding SJR water quality impacts will have been sufficiently addressed.

Our comments, with regard to frequency of monitoring, may still need to be addressed further. With regard to our suggestion to increase the frequency of selenium and EC monitoring for groundwater wells, it is suggested that increased monitoring be conducted for any wells that have concentrations approaching a specified threshold during annual monitoring. For example the frequency of groundwater well monitoring should be increased to quarterly or monthly for any well in which a selenium concentration over 1 ug/L or TDS over 1500 mg/L EC is observed.

Thank you for the opportunity to comment. If you have any questions regarding this matter, please email or phone me at [groberl@rb5s.swrcb.ca.gov](mailto:groberl@rb5s.swrcb.ca.gov) or (916)464-4851 or Eric Oppenheimer at [oppenhe@rb5s.swrcb.ca.gov](mailto:oppenhe@rb5s.swrcb.ca.gov) or (916) 464-4844

For LESLIE F. GROBER, CHIEF  
San Joaquin River TMDL Unit

cc: Mr. Lonnie Wass, Regional Water Quality Control Board, Fresno

**California Environmental Protection Agency**





**Response to Comments from  
the California Regional Water Quality Control Board,  
Central Valley Region**

**Paragraph 1**

**Response:** No response required.

**Paragraph 2**

**Response:** Appendix B, Monitoring Program, describes the monitoring program in detail. In addition, the monitoring program and design constraints are discussed in Section 2.1.2 of the EIS. These sections also describe the roles of the various entities participating in the monitoring program, or from whom data are acquired.

The SLDMWA is responsible for monitoring the flow direction and water budget in the Pool on a daily basis. The SLDMWA has previously agreed to notify the MPG when flow to the south in the Fresno Slough branch of the Pool dropped below a level of 50 cfs. Reclamation will require the MPG to request future notification of low flow periods from the SLDMWA. The MPG will be required to notify the Contracts branch of the Reclamation local office in Fresno, California of the status of this request to SLDMWA. The MPG will notify Reclamation's contracting officer whenever the MPG has been notified by SLDMWA that southerly flows in the Fresno Slough are expected to drop below 50 cfs. The MPG may be required to decrease, or discontinue, pumping during that period to prevent flow to the north.

Continuous EC recorders are maintained by Reclamation at the DMC terminus and by the SJREC at their canal intakes. The SJREC are responsible for informing the MPG whenever EC at the intakes exceeds DMC water quality by 90  $\mu\text{mhos/cm}$  or more because such an exceedance is an indication of a possible north flow event. If the exceedance continues for a period of three days or more, the MPG is required to discontinue pumping until EC levels decline (see Section 2.1.2.3). This requirement was included in the Settlement Agreement to protect the water quality at SJREC intakes, and it will also ensure that MPG pumping does not impact water quality delivered to the Grasslands watershed or the San Joaquin River.

**Paragraph 3**

**Response:** The review of the groundwater quality data presented in Section 3.4.5 of the EIS indicates that groundwater quality at MPG production wells changes slowly, although subject to some seasonal variation. Groundwater quality is typically best during the winter and spring and poorest during the summer and fall. There are no documented cases of rapid changes in groundwater quality since the MPG monitoring program began in 1999. The monitoring schedule calls for wells to be sampled at the same time each year, typically in June or October, to evaluate changes in groundwater quality from year to year. The data from these sampling events will be used to ensure that surface water quality will be met.

Reclamation will require that the MPG sample, prior to the start of the annual pumping program, any MPG production well included in the pumping program that exceeded either 1,800 mg/L TDS or 1.5 µg/L selenium during the previous year. The results will be reported to Reclamation's contracting officer prior to issuance of the exchange contracts for that year, and will be used as input to the surface water quality modeling effort conducted during the design of the annual pumping program. Wells that exceed either 2,000 mg/L TDS or 2.0 µg/L selenium are not eligible to participate in the transfer pumping program.

**Paragraph 4**

**Response:** No response required.



**GIERSCH & ASSOCIATES, INC.**

**CIVIL ENGINEERS**

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<i>491</i>		

DATE ACTION TAKEN  
*9/20/03 - Ted Donny*  
*ERTKIX*

September 26, 2003

Mr. David Young  
U.S. Bureau of Reclamation  
South-Central Area Office  
1243 "N" Street  
Fresno, CA 93721-1813

Re: Response to Mendota Pool 10-Year Exchange Pumping Draft EIS on behalf of the City of Mendota

Dear Mr. Young:

Our office provides services as City Engineer for the City of Mendota. We have reviewed the Draft Environmental Impact Study, and have the following comments:

1. With regards to the description of the City of Mendota's pumping actions in relation to "cumulative effects," found on page 2-9:
  - a. The City has entered into a lease agreement with BB Limited for the provision of the City's municipal water needs. As a result of this agreement, the City relocated their primary municipal well field from the aquifer on west side of the Fresno Slough to the aquifer underlying BB Limited's property east of the Fresno Slough. Furthermore, this agreement:
    - i. Grants the City the right to extract up to 2,000 acre-feet per year, with an option to extract up to 2,400 acre-feet per year.
    - ii. Grants the City exclusive right to extract groundwater from BB Limited's property, and states that BB Limited may not use the existing agricultural wells on their property for irrigation water unless the irrigation systems provided by the City fail.
    - iii. Obligates the City to deliver at least 2,000 acre-feet per year of irrigation water to BB Limited.
      1. If the City's municipal consumption is less than or equal to 2,000 acre-feet per year, the City is obligated to provide 2,000 acre-feet of irrigation water to BB Limited from off-site sources.
      2. If the City's extraction exceeds 2,000 acre feet, then the City is obligated to deliver a volume of irrigation water equal to that extracted by the City.
    - iv. The agreement also obligates the City to perform intentional groundwater recharge of the aquifer underlying BB Limited if a monitoring program indicates a decline in the groundwater level resulting from the City's extraction.
  - b. The groundwater aquifer under BB Limited's property will be the City's primary source of municipal water. This water will be extracted through the new municipal wells identified as Wells 7, 8 and 9.
  - c. Two of the existing municipal wells west of the Fresno Slough, Wells 3 and 5, have been placed in "standby" status for use if the BB Limited water becomes unavailable. All other municipal wells west of the Fresno Slough have been abandoned. Wells 3 and 5 together with the new Wells 7, 8, and 9 fully compose the municipal water source for the City of Mendota.
  - d. The City is using the Mendota Pool as a means to convey irrigation water to BB Limited. This irrigation water is extracted from wells on the west side of the Fresno Slough and

delivered into the Slough and thus into Mendota Pool. The same quantity of water, less a 5% allowance for losses, is extracted by a pumping station on the San Joaquin River fork of the Pool, located on the east side of their (BB Limited's) property.

- e. The City's current designated source for irrigation water are wells currently operated by Fordel, Inc. and identified elsewhere in the DEIS as M-1 through M-6.
  - f. The agreement will not result in a significant increase in overall groundwater extraction. There will be a minor increase in pumping due to the "5% conveyance loss" for using the Mendota Pool to transfer water to BB Limited.
  - g. The City currently delivers approximately 1,600 acre-ft/year through its municipal water treatment plant. If the City follows its historic growth trend, then we anticipate that the City would process 2,000 acre-ft/year in 2013 and 2,400 acre-ft/year in 2025. Consequently, the characterization of pumping by the City in the DEIS as 2,400 acre-ft/year from its municipal wells (Nos. 3, 5, 7, 8, and 9) during the 10-year timeframe of the MPG proposal overstates the City's pumping from these wells.
  - h. Because this lease agreement requires the City to supply more irrigation water to BB Limited than it extracts (when extraction is less than 2000 acre-ft/yr), the volume of groundwater extraction on the BB Limited Ranch will decrease. Compared to the City's extraction of approximately 1,600 ac-ft/yr, BB Limited extracted 3,700 ac-ft/yr in 2001 (Table 3-5, Mendota Pool Group Pumping and Monitoring Program: 2001 Annual Report).
  - i. As to the statement, "the agreement between the City of Mendota and BB Limited may affect water quality within the Mendota Pool," it should be noted that the agreement obligates the City to provide irrigation water through the Mendota Pool "of a quality suitable to the San Joaquin River Exchange Contractors collective membership." The intent is to preserve the water quality within the Pool.
2. With regards to the membership of Fordel Incorporated in the Mendota Pool Group and City of Mendota pumping operations:
- a. Fordel's pumps M-1 through M-6 are located on City of Mendota property and operated under a lease agreement between the City and Fordel.
  - b. Fordel's portion of the MPG exchange pumping and the City's pumping of irrigation water for BB Limited both involve the same wells.
  - c. The City has initiated action to terminate pumping by Fordel from these wells, although Fordel has contested this action. The City and Fordel are currently litigating the disposition of their lease agreement.
3. Section 2.1.2 discusses alternatives to the proposed exchange of groundwater pumped into the Mendota Pool, including new well construction discussed at Section 2.1.2.1. These proposed wells are described as "likely tap(ing) water from below the Corcoran Clay where water quality is generally better than in the aquifer above the Clay."
- a. This discussion should stress that this condition is localized and highly variable, as described in Section 3.4.3.2 for the Westlands Water District. This situation stands in distinct contrast to the poor quality water in the lower aquifer system in the Mendota Pool area, as described in Section 3.4.2.2.
  - b. This section should also discuss the impacts such wells may have on existing groundwater conditions where they to be constructed, and compare the impact such new wells would have to the impacts caused to groundwater conditions in the vicinity of the Mendota Pool by existing wells. If this impact is less, constructing new wells would be the better environment choice.
4. It would be beneficial to supplement the report with additional or revised diagrams:
- a. The property location map (Figure 1-2) is not legible. Provide legible copy in report.

- b. Depict groundwater recharge areas or zones for the supply aquifers.
  - c. Provide diagram showing geographic variation in water quality characteristics below the Corcoran Clay layer, lateral extent of the Corcoran Clay layer, and vicinity of well locations proposed in Section 2.1.2.1.
5. In section 1.3.2.2 beginning on page 1-6, you describe the Settlement Agreement between MPG, SJREC, and the NLF, which outlined a 10-year pumping program. You note in section 4.1.1.1 on page 4-3 that "as part of the Settlement Agreement, the MPG agreed to pay compensation to well owners in the SJREC and NLF service areas as mitigation for increased power and other costs incurred due to drawdowns caused by MPG transfer pumping." The City of Mendota is also impacted by such drawdown, and in this light we reiterate our comments issued in response to the EIS Scoping Report:
- a. The City has relocated their primary domestic water production well field as a result of the degradation of groundwater quality at a considerable expense in capital investment and ongoing operating expenses.
  - b. The EIS needs to include mitigation measures related to recompense to the City of Mendota for the costs it has incurred, and will incur, as a result of pool pumping.
  - c. The EIS needs to assess and mitigate the effects of continued pool pumping on the City's new well field.
6. The proposed MPG pumping will impact the reserve municipal Wells (Nos. 3 and 5), such that they may further degrade below drinking water quality standards. The City will be using the new Wells, Nos. 7, 8 and 9 as its primary municipal supply, but may have to activate Wells 3 and 5 should the need arise. Wells 3 and 5 are the sole backup source for the City and the City only has storage capacity for two million gallons, which is less than a 2-day reserve. What recompense will be made to the City as a mitigation measure for degradation of Wells 3 and 5 resulting from the Mendota Pool 10-Year Exchange Agreements?
7. Note that "historic" elevated total dissolved solids (TDS) and electrical conductivity (EC) levels from the City's sewage treatment plant have been related to the poor quality of source water from municipal Wells 2 through 6. The higher quality source water for domestic consumption and processing from Wells 7 through 9 will decrease the TDS and EC levels in the effluent stream. To the extent that the groundwater model discussed at Section 4.3.1 incorporates sewage treatment plant effluent characteristics as an input parameter, it needs to be updated to reflect this condition. The City has collected 12 months of data from monitoring wells around the sewage treatment plant.
8. If the City takes over the wells Fordel M-1 through M-6 and uses them for exchange under their agreement with BB Limited, any impact to these wells from "external pumping" would be a further impact to the City.
9. Section 4.3.2.2 'Effects on Non-MPG Wells,' of the EIS states: "Degradation of water quality in these [the City Well Nos. 3 and 4] was observed prior to initiation of MPG pumping." Note that the year 1989 marks the association of agricultural pumpers in the vicinity of the Mendota Pool into that organization known as the Mendota Pool Group, and not necessarily the start of transfer pumping by individual entities who became members of that group. The City contends that the trend of degradation of water quality from these wells began with the commencement of transfer pumping in this area, and not necessarily with the formation of the Mendota Pool Group.
10. Sections 4.11 and 4.12 address Environmental Justice and Socioeconomic Resources.
- a. The City would like to point out that there are impacts in this regard as an effect of pumping and water quality. Mendota has a high unemployment rate (32-38%) and low median household income (\$19,000), so that the residents can ill afford high expenses for water. Degradation of Mendota's municipal water supply since the late 1980s resulted in water that met primary state health standards but was sufficiently unpleasant that

residents chose not to drink it. This led to a majority of the residents purchasing bottled water for cooking and consumption throughout the 1990s up to February of 2003. Mendota's residents were significantly impacted from the costs of purchasing bottled water while still having to pay utility bills. The City's new water wells have improved the aesthetic quality of the water to the point that the purchase of bottled water has significantly decreased, lowering this expense for residents. However, the utility rate increases necessary to pay for the cost of the new wells have created a new financial burden on the residents of Mendota.

- b. While the City has concerns over the water supply and costs for its residents, Mendota also acknowledges the employment opportunities presented by the members of the Mendota Pool Group and their fellow farmers. We are aware that land fallowing would have a direct impact on the City through immediate loss of jobs.

Respectfully Yours,

GIERSCH AND ASSOCIATES, INC.



Todd D. Hepworth, P.E.

cc: Shahid "Sid" Hami, City Manager  
David J. Weiland, City Attorney

**Response to Comments from  
City of Mendota (Giersch & Associates, Civil Engineers)**

**Comment 1**

**Response:** The discussion of the City of Mendota's groundwater pumping program in Section 2.2 has been expanded to include the information provided in the comment.

With respect to Comment 1.i., the City of Mendota has the potential to affect the water quality within the Pool because it is currently pumping water from the Fordel wells that is of generally poorer water quality than water from the DMC. If this pumping occurs during a period of northerly flow in the Fresno Slough (a rare occurrence; see Figure 3-5), water quality at the SJREC canal intakes could be affected. If flow is to the south, as is generally the case, pumping by the city will need to be included in the surface water mixing model developed to predict water quality in the southern portion of the Fresno Slough.

**Comment 2**

**Response:** The pumping programs evaluated in the EIS are based on the assumption that Fordel, Inc. will continue to operate wells M-1 through M-6 as they have in the past. Should Fordel, Inc. no longer be able to use these wells for MPG transfer pumping in the future, the annual pumping programs would not include use of those wells. Pumpage of other MPG wells would be adjusted to optimize pumpage while maintaining water quality in the Pool.

**Comment 3**

**Response:** Water quality below the Corcoran Clay in WWD and SLWD is generally better than that in the upper aquifer, although variation in water quality has been noted. The effects of the New Well Construction alternative are discussed throughout Section 4. Among the other impacts associated with this alternative, additional pumping in WWD and SLWD would be anticipated to exacerbate subsidence in that region.

**Comment 4**

**Response:** Figure 1-2 was replaced in the final EIS.

**Comment 5**

**Response:** The Settlement Agreement arose out of litigation between SJREC and NLF, and the MPG. As outlined in the draft EIS (Section 4.1.1), the MPG will pay compensation to other major pumpers in the area for increased power costs incurred due to drawdowns caused by MPG transfer pumping during the course of the proposed action, provided that the necessary data to calculate the incremental drawdown due to MPG pumping are provided.

The draft EIS recognizes that there are pre-existing conditions in the groundwater basin that are problematic and unrelated to the proposed action. These pre-existing conditions may affect the proposed action. It is not the role of this EIS to apportion responsibility for past or current conditions. Given the available data on current conditions, the EIS evaluates the future influence of the proposed MPG pumping program on these conditions.

**Comment 6**

**Response:** The analyses presented in Section 4.3 describe the potential impact of MPG pumping on the city's water supply wells west of the Fresno Slough as a result of the proposed action. These wells are located cross-gradient to most of the MPG production wells. The predicted annual increase due to MPG transfer pumping in TDS at the city wells No. 3, 4, and 5 is only about 3 mg/l per year. This represents 6 % or less of the total estimated rate of degradation; the remainder is due to causes not related to MPG transfer pumping. MPG pumping is not expected to impact water quality at the city's new wells located east of the Fresno Slough.

**Comment 7**

**Response:** The groundwater quality model addressed seepage from the city's sewage treatment ponds based on the data that were available at the time the draft EIS was prepared. Given improved quality of the city's effluent, water quality below the ponds could improve, lessening the rate of degradation. Therefore, the results presented in the EIS would represent a worst-case scenario.

The groundwater quality degradation model was used to estimate future conditions and the effect of the proposed action. During operation of the proposed action, the groundwater quality model would not be used. Rather, the most recent groundwater quality data would be used to design the pumping programs and to assess impacts due to the programs.

**Comment 8**

**Response:** Water quality degradation at the Fordel wells due to MPG transfer pumping was evaluated in Section 4.3.2 and Appendix D of the draft EIS. However, this analysis also includes transfer pumping from the Fordel wells. If the city's comment about "external" pumping refers to MPG pumping, this analysis can be considered a worst-case scenario. The predicted degradation at the Fordel wells was smaller than other MPG wells along the Fresno Slough.

**Comment 9**

**Response:** As indicated by historical data from CCID wells located north and west of the city's wells, water quality degradation northwest of the City of Mendota area has been occurring since at least the 1960s, due to northeasterly migration of poor quality saline groundwater (the "saline front"). Degradation at CCID well No. 32B and the city's Bass Avenue well field began in the mid-1980s for the same reason. The closest MPG wells to the city wells (the Fordel wells) were not constructed until 1989 (M-1), 1992 (M-2 and M-3), and 1994 (M-4 through M-6). By that time, TDS increases were already being observed in the city's wells.

The City of Mendota's wells west of the Fresno Slough are located cross-gradient to these MPG wells (Section 4.3.2). Therefore pumping by the MPG is considered to have had little influence historically on water quality at the city's wells. The historical degradation was caused by easterly movement of the saline front due to a combination of regional groundwater flow conditions and pumping downgradient (northeast) of the city wells.

The analysis presented in the EIS uses an understanding of the historical and current conditions to evaluate the effects of the proposed pumping program on the future groundwater quality. The purpose is to assess the potential contribution of future MPG pumping to additional groundwater degradation. The amount of transfer pumping that may have occurred prior to the formation of the MPG in 1989 is believed to be small, but no data are available to evaluate this. The estimated contribution to MPG transfer pumping was 6 % of the cumulative degradation anticipated to occur as a result of, not only MPG transfer pumping, but also other more significant factors.

**Comment 10**

**Response:** The information provided on socioeconomic impacts is appreciated. Based on the analyses presented in Section 4.3, the proposed action will not have a significant effect on water quality in the City's new water supply wells (see response to City of Mendota Comment 6, page F-42).

