UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

September 1, 2005

Ms. Claire Jacquemin
US Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way MP-700
Sacramento, CA 95825

Subject: Draft Environmental Impact Statement (DEIS) for the San Luis Unit Drainage Feature Re-evaluation Project, Central Valley Project, California (CEQ# 20050216)

Dear Ms. Jacquemin:

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.

Based on our review, we have rated the In-Valley Disposal Alternatives as Environmental Concerns - Insufficient Information (EC-2) and the Delta and Ocean Disposal Alternatives as Environmental Objections - Insufficient Information (EO-2). EPA supports the Bureau of Reclamation's (Reclamation) expected selection of a drainage management system that is self-contained within the San Joaquin Valley and one that is environmentally protective. Please see the enclosed Detailed Comments for a description of our objections, concerns, and recommendations. A *Summary of EPA Rating Definitions* is enclosed.

We commend Reclamation for the expanded analyses of selenium bioaccumulation and ecological risk, studies of innovative selenium and agricultural drainage treatment technologies, and for the clearly written DEIS. We also commend Reclamation for developing a drainage system, the Delta-Mendota Canal Drainage Collection/Reuse feature, which will eliminate drain water discharged to the Mendota Pool and the Delta Mendota Canal that contributes to elevated selenium concentrations in the San Joaquin River and nearby wetlands.

EPA provided scoping comments in response to the October 2, 2001 Notice of Intent (NOI) to prepare an Environmental Impact Statement. These scoping comments incorporated by reference EPA's comments on Reclamation's 1992 DEIS for the San Luis Unit Drainage Program. EPA rated the 1992 DEIS EO-2 because the proposed project would discharge drain water to the San Joaquin River (River) and San Francisco Bay Delta (Delta), perpetuating discharge of high total loads of selenium into these important water systems and undermining incentives to reduce both the overall volume of agricultural drainage and the need for drainage

service. EPA has attended numerous interagency meetings and workshops since 2001 to share these concerns and recommendations.

The Ocean and Delta disposal alternatives proposed in the current DEIS contain inadequate safeguards against selenium and other toxic contamination of the exposed ecosystems. Water quality in the Delta and San Francisco Bay (Bay) is already impaired by San Joaquin River selenium and industrial discharges. The DEIS acknowledges that, by increasing salinity and adding contaminants near water supply intakes, Delta disposal would further impair the quality of waters which are a source of drinking water for two-thirds of California. Ocean disposal would discharge untreated effluent from Point Estero into Estero Bay, which encompasses Morro Bay, which, along with the Bay and Delta, are designated sites in U.S. EPA's National Estuary Program. Additional nutrient loading and contamination could impair the water quality, habitat, wildlife and recreational values of Morro Bay, which EPA and others have enhanced through the National Estuary Program.

Although we support an In-Valley disposal solution, we remain concerned with certain aspects of the In-Valley Disposal alternatives because of uncertainties regarding effective and safe treatments to remove selenium from drainage water. As proposed, the evaporation ponds can pose a significant hazard to wildlife. Appropriate protocols to mitigate impacts of these ponds have not been established. In addition, the DEIS has insufficient information regarding the contaminant profile and disposal options for the selenium biotreatment biosolids and reverse osmosis brine, contaminant profile of the drainage effluent, as well as the potential impacts to water and air quality. Despite these concerns, we recommend incremental implementation of an In-Valley disposal and land retirement strategy that avoids and minimizes environmental effects, includes a commitment to further pilot testing and technological development, and incorporates rigorous water quality monitoring.

EPA appreciates the opportunity to review this DEIS. We look forward to working with Reclamation, other agencies, and stakeholders in identifying a preferred alternative in the Final EIS (FEIS) that meets environmental objectives and achieves a water and salt balance in the San Joaquin Valley. When the FEIS is released for public review, please send two copies to the address above (mailcode: CED-2). If you have questions, please contact me or Laura Fujii, the lead reviewer for this project. Laura can be reached at 415-972-3852 or fujii.laura@epa.gov.

Sincerely,

/s/

Enrique Manzanilla, Director
Communities and Ecosystems Division

Enclosures:
Summary of EPA Rating Definitions

EPA's Detailed Comments

cc: Michael Nepsstad, Bureau of Reclamation, Mid-Pacific Region
Michael Delamore, Bureau of Reclamation, South-Central California Area Office
Steve Deweiler, US Fish and Wildlife Service
Joy Winkel, US Fish and Wildlife Service
Theresa Presser, U.S. Geological Survey
Lester Snow, California Department of Water Resources
John Beam, California Department of Fish and Game
Jim Branham, California Environmental Protection Agency
Celeste Cantu, State Water Resources Control Board
Steve Moore, Regional Water Quality Control Board 2
Gerhardt Hubner, Regional Water Quality Control Board 3
Rudy Schnagl, Regional Water Quality Control Board 5
Joe Grindstaff, California Bay-Delta Authority
Marcia Brockbank, San Francisco National Estuary Program
Daniel Berman, Morro Bay National Estuary Program

EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR SAN LUIS UNIT DRAINAGE FEATURE RE-EVALUATION PROJECT, CENTRAL VALLEY PROJECT, SAN JOAQUIN VALLEY, CA, SEPTEMBER 1, 2005

Project Description

In response to a court order (*Summer Peck Ranch, Inc. et. al. v. Bureau of Reclamation et. al.*), the Bureau of Reclamation (Reclamation) has re-evaluated options for providing drainage service to the San Luis Unit of the Central Valley Project (CVP) in the San Joaquin Valley, California. This region has a 100+ year history of subsurface drainage problems that adversely affect agriculture, wildlife, and fish from water contamination from salts, selenium, and toxic metals. The project area includes five Water Districts in the San Luis Unit, including the Westlands Water District, which have CVP water supply contracts for approximately 1.4 million acre feet/year (af/yr) of water, and the Grasslands drainage area within the Northerly Area of the proposed project. In this Draft Environmental Impact Statement (DEIS) Reclamation evaluates seven action alternatives: one Ocean Disposal, two San Francisco Bay Delta (Delta) Disposal, and four In-Valley Disposal alternatives. Three of the In-Valley Disposal Alternatives include various degrees of land retirement, which would end irrigation of drainage-impaired agricultural land. The action alternatives assume voluntary on-farm and within water district actions to install drainage tiles and manage shallow groundwater that feeds into the Federal drainage service facilities.

Proposed Alternatives

Out-of-Basin Disposal Alternatives

The Ocean Disposal and Delta Disposal alternatives are considered "out-of-basin" alternatives. The Ocean Disposal Alternative would discharge untreated drainage effluent into the ocean and the Delta Disposal Alternative would discharge drainwater that has been treated to reduce selenium levels. Appendix C indicates that drain water could contain toxic pollutants, in addition to selenium, at levels exceeding applicable water quality standards. However, the DEIS does not fully profile contaminants that could be present in discharge water and does not address the question of meeting applicable water quality standards at proposed discharge points. EPA discourages reliance on disposal of drainage water Out-of-Basin into the Pacific Ocean, San Joaquin River, or Delta. We have the following comments and recommendations for the Ocean and Delta Disposal alternatives:

Ocean Disposal Alternative

The DEIS states that effluent discharged into the ocean would reach levels of 220 parts per billion (ppb) selenium (p. 2-52). It is probable that the effluent could also contain high levels of nutrients and pesticides associated with agricultural use. As proposed, the Ocean Disposal Alternative would transfer adverse effects from one location to another. Although not noted in the DEIS, Estero Bay includes the Morro Bay National Estuary Program, which focuses on the protection of estuarine resources by implementing a Comprehensive Conservation and Management Plan (CCMP). This alternative would directly impact Estero Bay. Additional nutrient loading and contamination could impair the water quality, habitat, wildlife and

recreational values of Morro Bay, which EPA and others have enhanced through the National Estuary Program.

Recommendations:
The FEIS should describe the Morro Bay National Estuary Program and evaluate how a discharge to Estero Bay would affect implementation of the CCMP developed under the Morro Bay National Estuary Program. The FEIS should specifically identify impacts to the ocean and estuarine resources in Estero Bay from the Ocean Disposal Alternative.

Disposal into the Pacific Ocean requires an evaluation of permit requirements, including identification of contaminants in the discharge water and explanation of how applicable water quality standards will be met. The FEIS should include this analysis.

The risk of bioaccumulation of the diluted toxic constituents by marine organisms in Estero Bay should be analyzed. The Ocean Disposal alternative relies on use of a diffuser to meet existing water quality standards for selenium. However, dilution of a toxic which bioaccumulates does not resolve issues of potential food chain impacts. Information gaps regarding biological resources in the affected coastal area and food chain processes should be identified in the FEIS.

If the Ocean Disposal Alternative continues to be included as a reasonable alternative in the Final EIS (FEIS), Reclamation should consult with the U.S. Fish and Wildlife Service (FWS) and National Oceanic & Atmospheric Administration - Fisheries Service (NOAA - Fisheries) for Endangered Species Act compliance (e.g., protection of sea otters and other threatened marine mammals and fisheries). Consultation should include discussion of, and commitment to, measures to mitigate adverse impacts.

Delta Disposal Alternatives

The disposal of agricultural drainage water into the San Francisco-San Joaquin Delta (Delta) will potentially increase the selenium, salinity, heavy metals and pesticide loads to this water body. The San Francisco Bay and Delta have been part of EPA's National Estuary Program for over a decade and, through CALFED and other efforts, are the focus of extensive recovery projects. Areas of the Delta and Bay that would receive additional loads of selenium from this project are already listed as impaired, as defined by the Clean Water Act (CWA), for this contaminant. State and Federal water quality standards and implementation requirements are under review and may become more stringent. The US Geological Service Luoma-Presser model[1] indicates that there would be adverse effects to the Delta from additional disposal of agricultural drainage water.

[1]Sam Luoma and Theresa Presser, *Forecasting Selenium Discharges to the San Francisco Bay-Delta Estuary: Ecological Effects of a Proposed San Luis Drain Extension*,

According to the DEIS, the selenium concentration in the treated effluent would be approximately 10 parts per billion (ppb) (e.g., p. 2-59), which is double the current California Toxics Rule (CTR) standard. We note that while selenium biotreatment reduces the concentration of selenium, it also converts selenium to a more bioavailable organic form. The projected level of selenium loading proposed in these alternatives may not be practicable for the following reasons:

- EPA is currently working with the Fish and Wildlife Service, NOAA-Fisheries, and the U.S. Geological Service to develop selenium criteria for the Bay Delta and for the State of California. These new criteria are based on the Luoma-Presser model and would be protective of wildlife, in addition to aquatic life. The projected selenium loads for the proposed project may not be compatible with these new criteria.

- The use of a mixing zone for a bioaccumulative contaminant to meet water quality standards may not be feasible. The State Implementation Plan for point source permitting states that where bioaccumulative compounds are on the CWA 303(d) list, a Regional Water Quality Control Board (Region Board) should consider limiting mass-loadings to current levels.

Disposal of agricultural drainage water within the Delta could degrade drinking water quality for two-thirds of California by increasing salinity and adding contaminants near drinking water supply intakes. This impact would run counter to State and CALFED objectives to reduce the loads and/or impacts of bromide, total organic carbon, pathogens, nutrients, salinity, and turbidity in the Delta (p. 5-28). Reducing and controlling salinity levels is a priority for the agricultural community, State, CALFED, and many municipal water districts.

Recommendation:
The FEIS should provide information on the potential regulatory and policy limitations of the proposed selenium discharge levels and how these changes may affect the alternatives. The FEIS should also explain how the proposed Delta discharge affects the goals of "continuous improvement in Delta water quality" adopted by State and Federal agencies in the CALFED process.

Department of Interior, U.S. Geological Service, Open-File Report 00-416, 2000.

In-Valley Disposal Alternatives

The DEIS states that Reclamation expects to select an In-Valley/Land Retirement Disposal alternative (p. ES-9). EPA supports the selection of an environmentally preferred In-Valley alternative that includes:

Watershed management:

- Reduce downslope impacts of runoff during storm events (such as on the Panoche Fan)
- Reduce bare soil exposure to minimize adverse effect to air and water quality

Integrated groundwater management:

- Reduce or minimize degradation of aquifer quality
- Arrest and reduce occurrence of drainage problem areas
- Use groundwater pumping to manage the shallow groundwater

Land retirement:

- Phased implementation
- Consideration of land retirement on a scale to minimize the need for evaporation ponds and concentrated reuse
- Consideration of a full range of alternative uses for lands removed from irrigation

Development of technology:

- Include a commitment to further pilot testing

Protection of wildlife habitat:

- Avoidance of toxics exposure in waters
- Mitigation for habitat losses or other adverse impacts to biota

Protection of water quality:

- Incorporation of rigorous water quality monitoring.

EPA further supports the In-Valley disposal approach, provided that adverse impacts can be avoided, minimized, or mitigated, and that necessary water management actions, such as irrigation water reuse, by the Water Districts (Districts) and water users are pursued. We have the following comments on key elements of the In-Valley Disposal alternatives as described in the DEIS:

Watershed Management

The DEIS does not analyze the irrigation of upslope lands as sources of selenium mobilization into drainage water. In fact, proposed land retirement would allow a redirection of irrigation water to upslope areas, which could contribute to continued drainage problems (p. 13-15). Information cited in the DEIS (p. I-6) and other recent studies of San Joaquin Valley Drainage Implementation Program (SJVDIP) suggests that limitations placed on upslope irrigation and coordinated management of groundwater are important to a successful drainage program.

Recommendation:

The FEIS should identify areas that significantly contribute to downslope drainage problems and selenium hot spots. The FEIS should include a specific management strategy for minimizing selenium loading from these areas, including measures to assure that continued or new irrigation would be managed to avoid creating or exacerbating drainage problems. Information from the 1990 Management Plan for Agricultural Subsurface Drainage and subsequent studies could be used to develop this management strategy. The FEIS should estimate the environmental benefits of adopted management strategies to minimize impacts from upslope sources of selenium and selenium hot spots.

Integrated Groundwater Management

The DEIS states that groundwater recharge has increased dramatically in the past 40 years as a result of imported irrigation water. Irrigated agriculture has altered both groundwater flow and quality (p. 6-11). The cumulative effect has been a rise in the water table and salinization of soil and groundwater in this region (p. 6-35). While the DEIS provides information on shallow groundwater and considers operation of reuse facilities as underground regulating reservoirs (p. 2-8), the DEIS does not fully analyze groundwater management as a possible component of a drainage service project.

Recommendation:

The FEIS should evaluate the use of coordinated groundwater management to address the high shallow groundwater table in crop root zones and the need, at times, for water to supplement surface water deliveries. We urge Reclamation and stakeholders to consider creation of a regional ground water management district to develop and implement a shallow groundwater management plan. The FEIS should estimate the environmental benefits of an adopted groundwater management plan.

Land Retirement

Land retirement can reduce the quantity of drainage water by fallowing farmland that is marginal, or overlies difficult-to-drain soils, or shallow groundwater containing high levels of selenium or other toxic contaminants. Land retirement would also benefit severe air quality conditions in San Joaquin Valley by reducing agricultural fugitive dust emissions (p. 11-20) and could significantly further the goals of the *Recovery Plan for Upland Species of the San Joaquin Valley, CA* (USFWS 1998), if appropriate retired land is managed for upland species habitat. Retired lands may also provide the opportunity to reallocate limited surface water supplies to those lands and uses that maximize beneficial uses of this limited water source. EPA endorses land retirement as a means of addressing contaminant hot spots and the quantity and quality of drainage water.

Northerly Area

The proposed action alternatives do not include land retirement in the Northerly Area. However, this area has significant shallow, contaminated groundwater problems. For instance, the Panoche Water District is known to have high selenium levels and is working aggressively to reduce drainage volume and selenium loads. Retiring lands in the Northerly Area could provide significant benefits to the environment and regionally sustainable agriculture.

Recommendation:

The FEIS should specifically evaluate the environmental benefits and costs of a land retirement option in the Northerly Area, focusing on areas with significant drainage and contaminated groundwater problems.

Productive Uses of Retired Lands

Lands removed from irrigation have the potential for a number of alternative, productive uses. The DEIS identifies wildlife habitat (p. 7-75), dry land farming, controlled irrigation for grain or feed production (p. I-9), recreation, hunting, cultivation of native plants or non-irrigated agriculture as potential uses of retired lands. Westlands Water District (Westlands) has sponsored an economic study of land retirement[2] that considers more intensive commercial uses. It is not clear whether the DEIS considered a full range of potential uses of retired lands in its calculation of benefits and costs of retiring lands from irrigation. Since there are substantial advantages to reducing drainage production and the need for treatment and disposal by converting drainage impaired irrigated lands to other uses, a more complete evaluation of alternative uses of the retired land is appropriate.

Recommendations:

The FEIS should expand the evaluation of retired lands to include a more complete analysis of potential uses of these lands and the subsequent benefits and costs. For example, EPA recommends the FEIS describe how the *Recovery Plan for Upland Species of the San Joaquin Valley, CA.* may be integrated into the development of management plans for retired lands. The FEIS should consider a) retirement of drainage problem farmlands and subsequent restoration of natural habitat, and b) implementation of a voluntary "safe harbor" program to establish wildlife friendly habitat areas on active farmlands. A project goal should be the creation of a contiguous mosaic of existing natural lands, retired and restored farmland, and active farmlands integrated with wildlife habitat areas (ES-10,

[2]"Analysis of Economic Impacts of Proposed Land Retirement in Westlands Water District," Westlands Water District, May 2003.

FWS Planning Aid letters). The FEIS should specify the environmental benefits of an adopted land retirement use strategy.

Development of Technology to Treat, Manage, and Dispose of Agricultural Drainage

Selenium Biotreatment and Reverse Osmosis

Treatment technologies to reduce water concentrations of selenium to safe levels, which could be as low as 1 ppb selenium, have only been pilot tested and are not demonstrated at the large-scale proposed in this project. EPA has two concerns regarding the proposed technology: 1) it may not be reliable and, as such, may still expose water birds to selenium, and 2) through the biotreatment and reverse osmosis process, selenium may be converted to the more bioavailable organic form, raising concerns about safe sludge disposal. The DEIS is not explicit about the expected concentration or form of selenium in the biomass sludge but states that there would be appropriate disposal (p. 2-21). Based on information in Appendix C, we are concerned that the selenium concentration could exceed the 100 ppb threshold classified a hazardous waste.

Recommendations:

The FEIS should include an analysis of the long-term effectiveness and reliability of the proposed treatment methods. EPA recommends a peer review of results of the pilot projects prior to a commitment to large-scale investment and implementation of the proposed treatment technology. At a minimum, the FEIS should state whether or not Reclamation will conduct a peer review and commit to providing this peer review, if there is one, to the public when it is available.

The FEIS should provide detailed information on the expected contaminants and quantities of selenium biotreatment and reverse osmosis biosolids, brines, and process wastes. The FEIS should also describe waste disposal requirements and options, and evaluate the potential effects on landfills or hazardous waste repositories. The evaluation should include information on storage, monitoring measures, and potential transportation and disposal costs. The costs of treatment and waste disposal should be included in the cost analyses for the alternatives.

Evaporation Ponds

Groundwater. The DEIS notes that evaporation ponds and reuse areas would lead to increased concentration of salts, selenium, boron and other constituents in the groundwater beneath and downgradiant of these facilities (p. 6-28). Although the extent of contamination could be limited by interceptor drains and vertical cut-off walls (p. 6-29), the State Water Resources Control Board generally prohibits activities which would degrade groundwater quality (Resolution 68-16). Furthermore, progressive degradation of groundwater quality, such as increasing salinity, reduces the long-term viability of agriculture in the region. Because the north portion of the project area contains extensive wetlands that rely on surface and groundwater supplies, all possible steps should be taken to preserve groundwater quality.

Recommendations:

The FEIS should identify all feasible mitigation measures to minimize groundwater contamination effects in the evaporation ponds and reuse areas. The FEIS should describe the implementation of design features that intercept movement of degraded groundwater away from pond and reuse sites and incorporate these features as part of the In-Valley Disposal alternatives. The location and scale of evaporation ponds should be designed to reduce adverse impacts to biota and ground water quality. The FEIS should estimate the environmental benefits of adopted measures to minimize groundwater contamination effects in the evaporation ponds and reuse areas.

Potential Impacts to Biota. The proposed In-Valley Disposal alternatives rely upon evaporation ponds for salts disposal. EPA has significant concerns regarding the feasibility and environmental safety of evaporation ponds because of 1) the hazards they pose to wildlife through increases in selenium exposure and 2) management challenges. The predicted mean selenium concentrations in dietary tissue exceed the effects threshold of 4mg/kg for all four evaporation basins during the water bird breeding season (p. 8-51). Thus, the DEIS anticipates adverse effects to water birds during operation of evaporation basins (p. J-3, Appendix J Implementation of In-Valley Disposal Alternatives). The DEIS also states that avoidance and mitigation measures for upland species would reduce, but may not entirely eliminate, the potential for selenium bioaccumulation (p. 8-51).

Mitigation and Management. Evaporation ponds present a number of significant management challenges, including permitting, concentration of contaminants, and high maintenance and monitoring costs. Adequate mitigation related to evaporation ponds has been problematic as noted in Reclamation's "Draft White Paper: Mitigation Requirements Related to Evaporation Ponds in the San Joaquin Valley of California, July 2002," and Appendix M of this DEIS.

Recommendations:
The FEIS should fully evaluate the feasibility of evaporation ponds as a long-term solution to the agricultural drainage problem, especially in light of current knowledge regarding characteristics of the influent and potential impacts to biota. The FEIS should evaluate the presence of contaminants in the evaporation pond and reuse areas and, if contaminants are present, evaluate possible disposal options such as disposal in landfills, hazardous waste sites, or in-place. The evaluation should include additional information on the potential effects and disposal of brines and evaporates, especially those high in selenium and metals; implementation and enforcement protocols (e.g., for wildlife protection measures); and the permitting process.

The FEIS should also provide a detailed description of long-term requirements for monitoring and assessment to evaluate actual ecological risk of the evaporation ponds and to refine mitigation measures. The description should include evaluation of the mitigation measures' effectiveness with data demonstrating the ability of the mitigation in reducing exposure of birds and terrestrial species.

The FEIS should include a discussion of FWS's "Alternative Habitat Protocol and Compensation Habitat Protocol" (1995) and the status of efforts to expand and update mitigation protocols. The FEIS should also discuss options for providing reliable water supplies for substitute habitat.

Safe closure of the evaporation ponds, or other In-Valley locations where concentrated materials may be disposed, should be described and evaluated. Closure often requires in-situ burial, capping, and monitoring of the underlying groundwater. Given that shallow groundwater management is an issue in the project area, the FEIS should address management and monitoring requirements to ensure "containment" of the buried deposits.

Reuse areas

Conveyance of Drainage Water. The In-Valley Disposal alternatives provide for up to 16 drain water reuse areas, covering up to 19,000 acres (p. 2-10). Design features that minimize spills and wildlife exposure to waters with concentrated contaminants are critical. On several occasions in the Grasslands Bypass Project area, wet weather periods have led to spikes of selenium discharges into Mud slough, Salt slough, nearby wetlands, and the San Joaquin River. While the exact causes of these events are not certain, they are clearly associated with upland storm flows entering and discharging from the project site. In some areas, ponding of reuse water has also posed a hazard to biota.

Recommendation:

If an In-Valley Disposal alternative is pursued, it will be necessary to design, manage, and monitor reuse areas to ensure drainage is conveyed, applied and held to avoid the uncontrolled ponding and discharge of contaminated water. The FEIS should describe design measures, management commitments, and environmental benefits of adopted measures to address unintentional and uncontrolled ponding and discharge events.

Contamination of the Terrestrial Environment. The proposed In-Valley Disposal Alternatives would reuse drainage water on salt tolerant crops, such as eucalyptus trees and salt grass. While EPA supports the concept of recycling and reuse of drainage water, we are concerned that contaminants may be transferred from the aquatic environment to the terrestrial environment.

Recommendation:

The FEIS should describe the status of research regarding potential environmental hazards and management challenges of agroforestry and salt tolerant crops. For instance, the FEIS should describe issues regarding management and disposal of concentrated drainage water, transfer of contaminants into plant foliage, and marketability of agroforestry products.

Delta-Mendota Canal Drainage Collection/Reuse

Agricultural drain water discharged to the Mendota Pool and the Delta Mendota Canal contributes to elevated selenium concentrations in water supplied to nearby wetlands and the San Joaquin River. Reclamation has developed the Delta-Mendota Canal Drainage Collection/Reuse common feature for all action alternatives which will address disposal of agricultural drain water discharged to the Mendota Pool and the Delta Mendota Canal (pps. 2-8, 2-26).

Recommendation:

EPA strongly supports the proposed collection/reuse system and recommends the FEIS commit to implementation of the Delta-Mendota Canal Drainage Collection/Reuse component, regardless of the selected preferred alternative.

On-Farm and In-District Voluntary Measures

Tile drain systems are a physical prerequisite of utilizing the Federal drainage service. Currently, on-farm tile drain systems and irrigation measures to minimize drainage are not universally used throughout the project area. The DEIS assumes both voluntary on-farm installation of tile drain systems and implementation of irrigation measures to minimize drainage quantities. EPA is concerned with these assumptions because they rely on independent actions that may or may not actually occur.

Recommendation:
Reclamation should continue to work with the Districts and water users to develop incentives to modify current irrigation and drainage practices to support environmentally sound solutions to agricultural drainage. The FEIS should identify specific, multi-party strategies, at the farm and district levels, to reduce the quantity of drainage needing disposal and to promote beneficial reuse of drainage water. Further, the FEIS should identify the environmental benefits of reducing the quantity of drainage water and improving its quality.

Environmental Measurement, Monitoring, and Mitigation

Complete Contaminant Profile

For all alternatives, there are significant concerns regarding the potential impacts of contaminants that may be in the agricultural drainwater, selenium biotreatment biosolids, and reverse osmosis brine, but are not analyzed in the DEIS. Potential sources of pollutants are the native geology, which may include mercury from the new Idrea mine, and agricultural practices that introduce nutrients, trace metals, and chemicals such as pesticides. These contaminants have the potential to pollute groundwater and concentrate in agricultural drainwater.

Recommendations:
The FEIS should provide a complete analysis of contaminants in the agricultural drainage water before and after reuse, selenium biotreatment, reverse osmosis, and evaporation ponds. The FEIS should state whether information and technology are available to profile contaminants in drainage water, such as trace metals introduced from fertilizers or soils, pesticides, and nutrients. If information or detection technology are not available, describe steps which would be taken to obtain this information. The FEIS should describe the types of process materials and waste products generated by reuse, reverse osmosis, and selenium biotreatment. To the extent information is available, identify expected concentrations of contaminants in these process materials and waste products, particularly selenium and other bioaccumulative toxics such as mercury, nutrients, and pesticides.

Monitoring

Long-term, systematic monitoring of the drainage problem and corrective systems are essential. Detailed monitoring strategies need to be developed for the following: drainage water quality, water quality in reuse areas, evaporation ponds, treatment process residues, and process water. Monitoring is appropriate for groundwater levels, soil conditions, water quality, quality and quantity of drainage, effectiveness of source control measures, conditions of evaporation ponds, affects on biota, and public health risks. Information on a broader array of potential contaminants, including organics and metals in fertilizers and other agricultural-use chemicals, is

important, especially in light of recorded toxicity events in the Grasslands drainage project area. Given the long time frame for implementation of any drainage program (i.e., 50- year project period), a sustained commitment to implementation and funding of monitoring, research, and development of drainage management, drainage treatment, and beneficial reuses of agricultural drainage is necessary.

Recommendation:
The FEIS should describe implementation, monitoring, and funding commitments. If phased implementation is proposed, we recommend the FEIS, at a minimum, describe the framework and schedule for providing detailed information on implementation, monitoring, treatment technologies, mitigation protocols, and funding. We urge Reclamation to continue to work with other entities in developing and implementing a comprehensive research and monitoring program which would address short- and long-term monitoring, research and funding needs.

Mitigation

The DEIS states that specific mitigation measures, such as a Biological Survey Plan, Monitoring and Adaptive Management Plan, and Compensation and Mitigation Habitat, will be developed for the preferred alternative (Section 20 Environmental Mitigation). Since a preferred alternative has not been selected, the DEIS does not include specific mitigation plans or the costs for mitigation of environmental effects (p. 2-79, and Tables e.g. p. 2-26).

Recommendation:
These specific mitigation plans and other mitigation measures and commitments should be included in FEIS in either the Environmental Mitigation Section or as appendices. The FEIS should estimate the costs and environmental benefits of these mitigation measures. At a minimum, the FEIS should include reasonably foreseeable mitigation measures and an estimate of their costs.

Air Quality

Conformity Determination

General Conformity. The San Joaquin Valley is nonattainment for particulate matter less than ten microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and ozone, and the preferred alternative must conform to the federally approved State Implementation Plan (SIP). The DEIS does not describe requirements of Section 176 of the Clean Air Act regarding general conformity, nor does it state *de minimus* levels that trigger the need for a general conformity determination.

8-Hour Ozone. The ozone National Ambient Air Quality Standards (NAAQS) was revised on July 18, 1997 (62 FR 38856) by promulgating an ozone standard of 0.08 ppm as measured over an 8-hour period. EPA's final rule designating nonattainment areas under the 8-hour NAAQS for ozone was published in the Federal Register on April 30, 2004 (effective June 15, 2004). In accordance with Clean Air Act Section 176(c)(6), the conformity requirements for projects located within the newly designated ozone nonattainment areas do not apply until one year from the effective date of the area's designation.[3] Now that the grace period has passed, conformity for ozone now applies for the new federal 8-hour ozone standard in the San Joaquin Valley.

Recommendation:
The FEIS should describe the general conformity requirements of Section 176 of the Clean Air Act, state the *de minimus* levels that trigger a general conformity determination for each applicable NAAQS for which the area is in nonattainment, and whether a general conformity determination is required for the proposed project. The FEIS should include a general conformity determination if it is required. All such analyses should be done in accordance with applicable general conformity regulations.

Particulate Matter

PM_{10}. The DEIS states that emissions associated with the large evaporation basins, reverse osmosis plants, and landfilling requirements of the In-Valley Alternatives would have significant effects on air quality compared to No Action (p. 11-19). Installation of the drainage collection system including pipelines and installation of tile drains, could also generate significant amounts of PM_{10}.

Recommendations:
The FEIS should include a thorough analysis of impacts from the construction and operation of the proposed alternatives. The analysis should include projected monitoring requirements, any anticipated exceedances of NAAQS, and estimates of all criteria pollutant emissions and diesel particulate matter (DPM).

[3] The one-year grace period for conformity determinations only applies with respect to the National Ambient Air Quality Standard for which an area is newly designated non-attainment and does not affect the area's requirements with respect to all other National Ambient Air Quality Standards for which the area is designated non-attainment or has been redesignated from non-attainment to attainment with a maintenance plan pursuant to section 175A of the Clean Air Act (including any pre-existing national ambient air quality standard for a pollutant for which a new or revised standard has been issued).

EPA recommends the following mitigation measures be included, where feasible, in the Construction Emissions Mitigation Plan developed for the selected preferred alternative in order to reduce impacts associated with emissions of PM_{10} and other toxics from construction-related activities:

- Use particle traps and other appropriate controls to reduce emissions of diesel particulate matter (DPM) and other air pollutants. Traps control approximately 80 percent of DPM, and specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions;
- Visible emissions from all heavy duty off road diesel equipment should not exceed 20 percent opacity for more than three minutes in any hour of operation;
- Minimize construction-related trips of workers and equipment, including trucks and heavy equipment and establish an activity schedule designed to minimize traffic congestion around the construction site,
- Lease or buy newer, cleaner equipment (1996 or newer model) and utilize low sulfur fuel (diesel with 15 parts per million or less);
- Employ periodic, unscheduled inspections to ensure that construction equipment is properly maintained at all times, is tuned to manufacturer's specifications, and is not modified to increase horsepower, except in accord with established specifications;
- Coordination with the San Joaquin Valley Air Pollution Control District to: 1) identify a construction schedule to minimize cumulative impacts from multiple development and construction projects in the region, if feasible to minimize cumulative impacts, and 2) adopt appropriate construction dust control procedures;
- Locate construction equipment and staging zones away from sensitive receptors such as children and the elderly, as well as, away from fresh air intakes to buildings and air conditioners.

$PM_{2.5}$. EPA issued revised standards for $PM_{2.5}$ in July 1997. The fine particulates NAAQS was established on July 18, 1997 (62 FR 38652). The standards include an annual standard set at 15 micrograms per cubic meter (based on the 3-year average of annual mean $PM_{2.5}$ concentrations) and a 24-hour standard of 65 micrograms per cubic meter (based on the 3-year average of the 98^{th} percentile of 24-hour concentrations). Possible sources that may contribute to high levels of $PM_{2.5}$ emissions include construction equipment, mobile sources, and high volumes of diesel truck traffic. San Joaquin Valley is designated a $PM_{2.5}$ nonattainment area. The adverse health effects of $PM_{2.5}$ are well known.

Recommendations:
The FEIS should evaluate the potential of the proposed project to release significant amounts of $PM_{2.5}$. The Air Quality section should include a description of the $PM_{2.5}$ standards, their health effects, and disclose what, if any, monitoring has been done in the project area for this pollutant.

The FEIS should identify sensitive receptors. These include children (schools, preschools, parks, playgrounds), elderly (retirement homes), infirm (hospitals), and athletes (gymnasiums, tracks, pools).

We encourage mitigation to the maximum extent possible. Mitigation measures may include air emission credits, implementing seasonal control programs, investigating opportunities to minimize land clearing, and implementation of the contruction emissions mitigation plan discussed above.

Clean Water Act Section 404 Requirements

Proposed action alternatives, especially the Out-of-Basin alternatives, could potentially affect waters of the United States. For instance, for the Ocean Disposal Alternative, the DEIS states that there could be 102 stream crossings in the conveyance alignment (p 7-46). Specific acreages of potential impacts are not provided for the major crossings such as the Salinas River, Paso Robles Creek, Estrella River, and Cholame Creek.

Recommendation:
The FEIS should provide a more detailed evaluation of potential impacts to jurisdictional waters of the United States from all components of the proposed project (e.g., evaporation ponds, reuse areas, conveyance systems, pipelines, treatment facilities). Identify impacts to water, floodplains, and wetlands, including identification of Section 404 Clean Water Act (CWA) requirements, and management and mitigation proposals to ensure compliance with these requirements. Wetlands and wildlife refuges are defined as "special aquatic sites" under the 404(b)(1) Guidelines. As such, they are provided with additional protection under the law.

Cumulative Impacts Analysis

Federal and Non-Federal Actions

Although the DEIS describes elements common to all action alternatives including on-farm, in-District actions, land retirement, and federal drainage service facilities, it does not provide an environmental evaluation of other federal and non-federal actions that would contribute to an overall drainage service solution for the San Joaquin Valley. Under NEPA, the cumulative effects analysis must consider the incremental impacts of an action when added to other past, present, and reasonably foreseeable actions, regardless of who undertakes those actions (40 CFR 1508.7).

Recommendations:
The cumulative impact analysis should include a description and evaluation of relevant past, present, and reasonably foreseeable actions which could affect the ability to address the San Joaquin Valley drainage problem. For example, although on-farm, in-District actions may not be part of the federal action, they are integral to a complete drainage service alternative (pg. ES-3). Thus, the FEIS should evaluate the indirect and cumulative impacts and benefits of these elements.

The FEIS should consider the potential cumulative impact of changes in water quality, quantity, and circulation. The FEIS should further analyze these effects on fish and wildlife and the transport of the selenium discharged into the San Joaquin River and other waterbodies. Actions to consider are elements of the San Joaquin River Water Quality Group's draft proposal, such as the West Side Regional Drainage Plan and managed refuge releases, CVP contract renewals, and conjunctive surface-groundwater management plans.

San Joaquin River

Implementation of drainage service has impacts on the San Joaquin River, improving certain aspects of water quality but reducing flows. The FEIS does not identify and discuss cumulative impacts of other conditions and actions which could affect water quality and flows in the San Joaquin River.

Recommendation:
The FEIS should evaluate and describe the potential cumulative impacts to water quality and flows in the San Joaquin River from: sediment removal from the San Luis Drain, rerouting drain water under the various alternatives, mercury loads coming from sources such as the New Idria Mine located in Panoche watershed, and, to the extent information is available, other actions being considered by water users in the San Joaquin River Basin to address water quality impairments.

General Comments

Full Project Costs

The DEIS provides preliminary estimated present value and annual equivalent costs for the major facilities of the proposed alternatives. To clearly define the alternatives for informed decisionmaking, it is important to provide the complete cost of the project, including management, disposal options, mitigation, and monitoring requirements. EPA has consistently supported using a "beneficiary pays" approach to allocating project costs and benefits, where those who benefit from the Federal project help fund the project.

Recommendation:
The FEIS should provide a full accounting of the costs and benefits of the actions–regardless of the cost allocation–so that choices are clear to decision-makers and the public. For instance, the FEIS should describe and evaluate the costs and benefits of the proposed actions, describe principles for distinguishing between federal and other (e.g., local) costs, and describe mechanisms for paying for these costs. Specifically include costs of mitigation for reuse areas and evaporation ponds, disposal of byproducts and waste, energy for the selenium biotreatment and reverse osmosis, monitoring and adaptive management, and other reasonably foreseeable mitigation measures (e.g., mitigation for wetland impacts of Out-of-Basin disposal alternatives).

The FEIS should address the applicability of its "ability-to-pay" policy and recent Congressional mandates for CVP cost recovery for any chosen alternative.

Section 7 Endangered Species Act Consultation

The DEIS states that Reclamation will complete Endangered Species Act Section 7 consultation with the FWS prior to signing the Record of Decisions (p. 20-15). Reclamation will develop and implement appropriate avoidance measures, conservation protocols, construction Best Management Practices (BMPs), and construction monitoring procedures to avoid or minimize potential adverse effects to listed and protected species (p. 20-15). In addition, the DEIS states that additional studies and monitoring will occur on potential adverse exposure of upland species to selenium bioaccumulation from elevated selenium in preferred dietary items due to reuse areas and increased selenium in soils (p. 8-51).

Recommendation:
The FEIS should include a description of the status of FWS and NOAA Fisheries Section 7 consultations. Provide additional information in the FEIS on next steps and potential reasonable and prudent measures to address potential effects to threatened and endangered species.

San Luis Unit Long-Term Contract Renewals

Reclamation and the San Luis Unit are currently negotiating the long-term renewal of the San Luis Unit water service contracts for CVP water. We understand that Reclamation will reissue a revised DEIS for Renewal of Long Term Contracts for the San Luis Unit Contractors.

Recommendation:
The San Luis Unit CVP contract renewal and drainage feature re-evaluation DEISs should be consistent so that the public can clearly understand the relationships between the two actions in terms of Reclamation policies, water management, and environmental impacts. We recommend the San Luis Unit Drainage Feature Re-Evaluation FEIS describe how it is consistent with the San

Luis Unit CVP Contract Renewal EIS regarding the existing environment, and baselines used for water use, land retirement, land conversion from agriculture to urban, water quality, and water conservation. Long-term contract renewal terms and conditions should be consistent with the need to ensure a long-term sustainable salt and water balance in the San Joaquin Valley in order to support sustainable agriculture in the San Luis Unit.