



# United States Department of the Interior

U.S. GEOLOGICAL SURVEY

Office of the Director

Reston, Virginia 20192

In Reply Refer To:  
Mail Stop 150  
#2008428-DO

Honorable Diane Feinstein  
United States Senate  
Washington, D.C. 20510-0504

Dear Senator Feinstein:

Thank you for your letter of May 7, 2008, requesting U.S. Geological Survey (USGS) comments on the proposal to resolve the drainage problem on the west side of the San Joaquin Valley. To facilitate a more in-depth discussion, the USGS has prepared and enclosed a technical analysis and executive summary of the drainage problem.

Reclamation prepared an Environmental Impact Statement (EIS) to develop alternatives for drainage management. In March 2007, as part of the Record of Decision, Reclamation selected an in-valley alternative that would retire 194,000 acres of land, build 1,900 acres of evaporation ponds, and develop a four-step treatment system to remove salt and selenium from drainwater with surface disposal of most of the salts. Under consideration is an option the San Luis Unit (SLU) contractors have proposed to relieve Reclamation of its obligation to provide drainage services and provide these services themselves in a manner "generally consistent" with the EIS. The USGS received a 6-page conceptual plan (labeled handout #4) from Reclamation that describes the SLU contractors' plan. This proposed plan differs from the in-valley alternative in at least two respects: (1) The amount of land proposed for retirement is 100,000 acres, and (2) the final step of waste disposal will be sprinkler evaporators rather than evaporation ponds.

The Record of Decision was based on the consideration of various alternatives within the EIS that examined differing amounts of land retirement together with treatment. Land retirement is a key part of all strategies to reduce drainage because it can effectively reduce drainage to zero from retired lands if ground-water pumping is maintained, and surface water deliveries are reduced so as not to increase or transfer drainage problems. Our review of the SLU conceptual plan found that this plan, which retires only 100,000 acres, claims the same drainage benefits in terms of volume of drainage produced as the Reclamation Record of Decision that retires nearly 194,000 acres. In contrast, the Reclamation alternative for retirement of 100,000 acres produced a much higher amount of drainage water for treatment. The USGS finds that the benefit claimed for drainage reduction in the SLU contractors' conceptual plan is not consistent with the Reclamation EIS as presented.

Given the amount of analysis and documentation available from the San Joaquin Valley Drainage Program and recent re-evaluations of drainage management, the USGS identifies not a lack of information, but rather a lack of decision analysis tools to enable meeting the combined need of sustaining agriculture, providing drainage service, and minimizing impacts to the environment. A more formal decision-making process may better address uncertainties (e.g., the

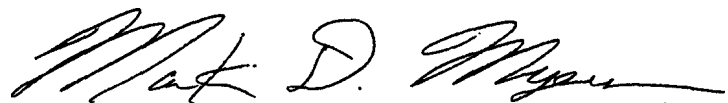
scaling up of re-use areas and enhanced solar evaporators; the feasibility of bio-treatment of drainwater containing 32,500 mg/L salt); help optimize combinations of specific drainage management strategies; and document underlying data analysis for future use. The benefits of such a process of decision analysis (as found in the enclosed report) are that it provides the flexibility to move forward in the face of uncertainty. It does, however, require long-term collaboration among stakeholders and a commitment to formalized adaptive management.

Perhaps the greatest uncertainties in the proposed plans are the technical feasibility of biotreatment of selenium at the scale and salinities to be encountered. (The feasibility report for treatment has still not been released and could not be reviewed for this letter.) Land retirement was the only alternative presented as an option to drainage treatment within the Reclamation EIS. Substitution of deep ground-water pumping that offsets a fraction of the surface water delivery is another alternative that has merit. This approach is further described on page 12 of the enclosed technical report.

Your letter requested potential guidelines or benchmarks that the USGS could point to for implementation of a drainage management plan. The USGS suggests outcome-based benchmarks be jointly developed through a decision analyses process involving all agencies and stakeholders. The USGS is willing to contribute to the work of such a group. Benchmarks could be developed to: (1) optimize, measure and quantify the drainage benefits of any proposed land retirement; (2) specify targets for reducing the volume of drainage produced per acre irrigated to theoretical minimums; (3) minimize selenium risk with appropriate performance criteria on biotreatment effluent with regard to both the concentration and form of selenium; (4) minimize the amount of selenium sent to surface disposal in salt evaporators; (5) specify acceptable selenium concentrations in aquatic habitats and food chains, and mitigation requirements when these are exceeded; (6) minimize the risk of mobilizing salts and toxic trace elements during evaporation and storage of effluent brines; and (7) slow and minimize the expansion of the impairment of agricultural lands. The enclosed USGS technical analysis could provide much of the framework for the development of these guidelines.

Thank you for the opportunity to provide you with this analysis. Your continued support of the U.S. Geological Survey is appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark D. Myers". The signature is fluid and cursive, with the first name "Mark" being the most prominent.

Mark D. Myers  
Director

Enclosure