

Plan Formulation Approach

4.1 Introduction

Formulation of a drainage service plan for the SLU will occur in two phases. Phase 1 identifies and describes all alternatives as set forth in this Report, in accordance with the Plan of Action submitted to the Court. The preliminary alternatives are structured around three conceptual disposal alternatives.

Phase 2 will begin in January 2002 and will provide more detailed development and analysis of alternatives. It will include detailed descriptions and screening of drainage service options, analysis and screening of alternatives, and assessment of environmental impacts. Phase 2 also will be completed as promptly as possible but must provide sufficient analysis for National Environmental Policy Act (NEPA) compliance, Endangered Species Act (ESA) compliance, and other environmental, permitting, and planning requirements.

4.2 Plan Development to Date

Reclamation has completed several steps toward implementing a drainage service plan. In April 2001, Reclamation submitted a Plan of Action for providing drainage service to the SLU, including its proposed schedule for plan formulation, impact analysis, and implementation. Reclamation subsequently organized a Planning and Coordination Action Team (PCAT), whose task was to re-evaluate previous drainage service options and studies and to identify which of those options were applicable to the current effort. In August 2001, Reclamation held a Function Analysis workshop in Fresno to develop and discuss the following three conceptual alternatives for providing drainage service:

- **In-Valley Disposal:** disposal of drain water and salts in or near the drainage-affected area, possibly with prior treatment to remove selenium or other constituents.
- **Out-of-Valley Disposal:** transport of drain water to the Pacific Ocean, Delta, or San Joaquin River, possibly with treatment to remove selenium or other constituents.
- **Beneficial and/or Commercial Use:** use of treated drain water for irrigation, municipal, or other uses and potential commercial use of removed salts.

In addition, the Function Analysis team defined drainage and drainage service for purposes of the current study, identified areas of concern from previous studies, identified source control (drainage reduction) options that should be considered, and agreed upon a drainage plan formulation approach. The PCAT published a report summarizing the Function Analysis Study (Reclamation, August 2001).

In October 2001, Reclamation issued a Notice of Intent to prepare an EIS. Also in October, Reclamation held an interagency scoping workshop, with the intent to inform other federal and state agencies about Reclamation's plans and to solicit their ideas and potential

involvement in the planning process. In November 2001, two public scoping meetings were held, one in Fresno and one in Concord, to inform the public about the Drainage Re-Evaluation Program and to solicit public participation in the process.

4.2.1 Re-Evaluation of Drainage Service Options

Drainage treatment and disposal options identified for the SLU Special Study (Interior, 1984) and San Luis Unit Drainage Program (SLUDP) (Reclamation, 1991) have been re-evaluated and updated to provide building blocks for the three conceptual alternatives. Options were identified using two criteria: they must provide drainage service, and Reclamation must be able to implement them promptly (i.e., the provision of drainage service cannot rely on speculative or unproven technology).

For this Report, specific on-farm or district-level drainage management options (source control options) are not associated with any of the preliminary alternatives, so are not re-evaluated. Rather, the treatment and disposal options for each alternative are developed to cover a range of disposal needs. The range would be assumed to encompass the possible implementation of source control and treatment measures and to account for uncertainty in future water supply conditions. A “No Action Alternative” will be required for NEPA compliance and will be defined in the next phase of analysis. The No Action Alternative does not include any new drainage disposal facilities and could be viewed as a “source-control” alternative.

Section 5 describes the selection and re-evaluation of drainage service options, while Appendix B contains more complete descriptions of the options.

4.3 Drainage Service Focus

Section 2 described the study area and the problems that have resulted from inadequate drainage of irrigation water. Each of the preliminary alternatives was designed to satisfy the purpose of the re-evaluation, provision of drainage service to the SLU to achieve long-term, sustainable salt and water balance in the root zone of irrigated lands. The Function Analysis Team developed the following definitions to guide drainage service planning:

- **Drainage:** Provision of an aerated root zone and a favorable salt balance for crop production
- **Drainage Management:** Set of actions to control the quantity and quality of water requiring drainage service
- **Drainage Service:** Action, or set of actions, to provide drainage for a selected area

Each of the preliminary alternatives features a combination of drainage management and reuse measures with new, demonstrated technologies and traditional drainage disposal methods to provide a long-term drainage solution for the SLU.

4.3.1 Demonstrated Technology

Options considered for the preliminary alternatives are limited to those that can be implemented promptly, in accordance with the District Court’s direction. These options can

include traditional drainage service techniques, such as conveyance and discharge to evaporation ponds but also can include relatively new techniques if they have been adequately demonstrated through pilot projects. New, demonstrated technologies can include various selenium treatment options.

4.3.2 Formulation of Preliminary Alternatives

Each of three conceptual alternatives could take on a number of configurations of drainage service options and target capacities. No new quantitative analysis or screening has been done that would allow the number of configurations to be reduced. As a result, each preliminary alternative will include a set of sub-alternatives that have a relatively small number of configurations and drainage service capacities. The sub-alternatives have been developed using the following principles:

- They conform to the disposal emphasis of the alternative (e.g., in-valley, out-of-valley, or beneficial use).
- They use options that Reclamation has judged to be demonstrated and technically feasible.
- They use options that are potentially cost-effective, based on previous studies and the options re-evaluations. (In other words, options that are clearly and substantially more costly but no more effective or acceptable are not used to create a sub-alternative).
- They cover the range of disposal capacities and qualities estimated for this Report.

Section 5 describes the various treatment and disposal options in detail, and Section 6 describes the preliminary alternatives and the sub-alternatives.