

**Develop facilities to treat sub-surface agricultural drainage in the San Joaquin Valley**

Category: (To be developed)

**Resources Area:** Water Quality, WQ-S-12

Related Options: WQ-S-2, WQ-S-3, WQ-S-4, WQ-O-1

**Resources Issue:** Salt within the Estuary negatively affects agriculture, industrial, and municipal uses of Delta water, and may negatively affect Delta (freshwater dependant) species. In particular, salts, pesticides, selenium, boron, and arsenic from San Joaquin agricultural drainage degrade water quality along the San Joaquin River and within the estuary. In addition, agricultural waste discharges from Delta Islands contain dissolved bromides and organic carbon that contributes to the creation of unwanted byproducts during the process of drinking water treatment when Delta source waters are diverted to municipal water supply users. Of particular importance is the formation of trihalomethanes (suspected carcinogens) upon disinfection of the municipal water by chlorination. The implementation of more stringent regulations on these byproducts requires advanced treatment processes at significant costs to local water agencies. Some recent studies identify Delta island drainage discharges as a source for more than 50% of the dissolved organic carbon measured at the project pumps. The more than 1500 discharge locations within the Delta make it difficult to control dissolved organic carbon at its source. There are related issues that may be partially addressed or impacted to some degree by this option including the possible reduction in organics from island drainage and improved aquatic resources along the San Joaquin River and within the estuary.

**Discussion:** The construction of a facility to intercept drainage from the West side, San Joaquin Valley, for treatment prior to discharge would reduce the levels of contaminants in the San Joaquin River and estuary. Water quality in the Delta could be improved for Delta agriculture, aquatic resources, and project exports. Comprehensive source control programs, which for Delta source waters could include elements such as this option, are often more cost effective and more efficient from a total resource consumption viewpoint.

Objectives addressed: Water Quality General and Specific 2

The collection of San Joaquin Valley drainage for treatment prior to discharge raises the possibility of high levels of contaminants in the waste brine at the treatment facility. It may be necessary to follow special requirements to dispose of the brine and this would require close review by experts in water quality. A collection system is necessary to bring all the agricultural drainage to the treatment facility. The construction of the collection system would require close review by environmental experts.

**Assumptions:**

- Assume the system will collect subsurface drainage but not rainfall.
- Land for the construction of the treatment facility could be acquired.
- Other adequate right-of-way could be acquired.

### Key Feasibility Factors:

- Confirm an environmentally and socially acceptable site could be found for the treatment facility.
- Confirm the treatment facility could remove contaminants from the agricultural drainage to meet acceptable discharge levels.

### Implementation Effects:

- The Water Quality TAC (WQTAC) estimated medium benefits for water uses (matrix WQ-S-3) such as agriculture, municipal, industrial, and environmental uses in the WQTAC report. Low benefits were estimated by the WQTAC for fisheries and recreational uses since they did not have the specific expertise in these areas.

### Most Likely Benefits:

- The quality of the water in the San Joaquin River and the estuary would be improved through reduced concentrations of salts, pesticides, selenium, boron, and arsenic from agricultural drainage water.

### Other Possible Benefits:

- Quality of the export water could be improved through a reduction in contaminants.
- Levels of organics in the discharged water could be reduced if the treatment process was set up to remove organics.

### Most Likely Negative Impacts:

- Extremely high costs could be expected to construct and operate the treatment facility.

### Other Possible Negative Impacts:

- Waste brine containing high levels of contaminants would probably require contract services for waste disposal. Very high costs for disposal could be expected if it became necessary to ship the waste to a remote place.

### Possible Regulatory and Institutional Constraints:

- CEQA
- NEPA
- DFG 1600 Permit
- Encroachment Permit
- Waste Discharge Permit

Other:

References and Published Materials: Use Combined TAC Reference List.