Chapter 7

New Combination Alternatives

Salt Pond / Shipping Channel / Canals / Desalting Facility

This proposal was prepared by Metcalf and Eddy, San Diego, California, dated September 8, 1997, and sent to Los Alamos National Laboratory at the request of Mr. Patrick Quinlan of Congressman George Brown's office. This alternative is to construct a navigable canal between the Gulf of California and the Salton Sea.

This proposal is essentially a pump-out/pump-in scheme using ocean water (alternatives 2 and 12 on table 2 and in chapter 8) with costly facilities added that provide enhancements not related to desalting the Salton Sea. The alternative appears possible at this low level of design. This should not be taken to mean that all facilities have been noted and that the stated operation is complete.

One difference between this alternative and the other alternatives of this study is that it uses canals. The current pre-appraisal design did not. This report discusses using canals (see chapter 5, Pump-Out/Pump-In), which have a high probability of reducing costs.

With time, the assumptions that any study uses to estimate the future Sea salinity would change. The assumptions the Metcalf and Eddy proposal used would yield better results than the assumptions that the remainder of this report used.

While the current low level of design pays little attention to detail, the high point on the profile is usually important. The Metcalf and Eddy proposal indicates the high point of this particular route would be at an elevation of 82 feet m.s.l. Topographic maps indicate this elevation to be closer to 140 feet m.s.l. This would increase the required excavation over what the proposal uses. Other pump-out/pump-in alternatives use a different route that does have a maximum elevation of 82 feet m.s.l.

The diking and desalinization plant that the proposal uses would be similar to dikes and plants discussed elsewhere in this report and would also have

similar problems and costs. The proposal also contradicts itself, as it states that a desalting plant would be built to provide drinking water to MWD and others, and then later states that the desalinated water would flow into the Salton Sea to maintain its level. If the desalted water is not put into the Sea, the desalting plant portion of the proposal does nothing to improve the salinity of the Sea.

The pump-out canal will discharge into the large canal section during low tides only. The timing and operation of the canal between the Salton Sea and the point of discharge is critical and should be investigated completely. The volumes of water transfer in the locks and the timing of this transfer are also critical.

Gulf of California Pump-In / Pump-Out / Diking / Treating Inflows

This proposal was faxed, dated August 10, 1998, to the Salton Sea Authority by U.S. Filter. It includes a combination of diking to control salinity concentration, pumping to and from the Gulf of California to stabilize elevation and treating the agricultural inflows. No quantities were provided for evaluation, and specific information was not provided. However, this proposal is very similar to alternatives discussed in Chapter 5, Pump-Out/ Pump-In and alternative 33 in the September 1997 report, proposed earlier by U.S. Filter.

As discussed in chapter 2, page 14, large quantities of water, requiring large infrastructure, are needed to reduce the salinity of the Sea. Information provided indicates that a desalting plant or nanofiltration plant would be built on the Alamo River to provide recycled water for agriculture and other purposes. This would reduce the inflow of relatively fresh water to the Salton Sea, making the salinity problem worse.

This proposal meets the criteria of salinity control, elevation stabilization, and proven technology, but it would be one of the most expensive alternatives.

Phased Approach—Phase One: Salt Stabilized, Phase Two: Pump-In Later

This proposal was submitted by Mr. Don Cox of Imperial Irrigation District at the public scoping meeting held in July 1998.

The goal of phase one is to stabilize the salinity of the Sea without dikes or brine ponds that might cause environmental concern. This would be economical and environmentally benign. It would take a 66-inch pipe, a pump, and a place to take the water. If needed, the 60-tons of salt per acre-foot of water could be concentrated to 200 tons of salt per acre-foot of water to reduce transportation costs. It appears that pumping 75,000 acre-feet per year out of the Sea would equal the salt load flowing into the Sea, which is included in the 1.346 million acre-feet per year. The 75,000 acre-feet of water pumped out of the Sea would not be a large enough quantity to cause secondary problems. This plan would be the quickest and simplest to implement, and time is certainly important. It would keep the Sea from deteriorating and allow the time to do the scientific studies for the final phase. In addition, the work would not be wasted as it would provide the outlet needed for any long-term solution. The outlet water going to Yuma is just one example of where the water might go.

Phase one is similar to Design Nos. 21 and 22 discussed on page 56. See these designs to understand the effect of this alternative. Phase two at a later date would receive water from one of the various sources discussed in "Pump-In Sources" on page 49.