

NORTH SEA COMBINED CONFIGURATION

December 6, 2005

PURPOSE OF CONFIGURATION

The purpose of this configuration is to provide a deep, marine sea habitat in the northern portion of the Salton Sea. A shallower marine habitat along the western shoreline, a smaller marine sea along the southern shoreline, and a Saline Habitat Complex in the southern and southeastern portions of the Salton Sea would also be provided. The created habitats and stabilized northern Sea will offset the eventual loss of open water and shoreline habitats due to decreased inflows and increasing salinity. Air quality management would also be included for exposed playa that may be emissive.

DESCRIPTION OF CONFIGURATION

The North Sea Combined Configuration includes the following major features:

- ❖ **Marine Sea:** The Marine Sea would be located predominately in the northern portion of the Salton Sea and would extend to approximately the State Recreation Area on the east side, along the entire western shore, and to the confluence of the Alamo River on the south side of the Sea. A stable shoreline would be maintained at a target elevation of -230 feet mean sea level (msl) with a target salinity between 30,000 to 40,000 milligrams per liter (mg/L). The Marine Sea would preserve much of the Sea's existing shallow water and shoreline habitat.

A barrier would be constructed in the northern portion of the Marine Sea and perimeter dikes would form the western portion. Canals would be constructed to enhance circulation and salinity management within the Marine Sea. A pump station would be required to convey higher salinity water from the northern portion of the Marine Sea to the southern portion to maintain the target salinity levels.

- ❖ **Saline Habitat Complex:** Up to 25,000 acres of habitat would be constructed within the existing seabed. Berms and related facilities would be used to create numerous cells (approximately 1,000 acres each) that contain saline habitat of varying depths, salinities, and structural features, simulating historical conditions. (*See Habitat Summary Sheet for additional information.*) Water control facilities would be used to convey water in/out and within the Saline Habitat Complex.
- ❖ **Brine Sink:** The Brine Sink would provide the "outlet" necessary to manage the elevation and salinity of the Marine Sea. The Brine Sink would expand and contract seasonally depending on seasonal inflows.
- ❖ **Air Quality Management Area:** Excavated canals would be constructed along the eastern and western edges of the Salton Sea to provide desilted, brackish water for managed vegetation in the Air Quality Management areas. (*See Air Quality Management Summary Sheet for more information.*)

- ❖ **Water Quality Management:** Water treatment plants may be needed to remove nutrients and selenium from inflows for water supplied to the Marine Sea and Saline Habitat Complex.

HOW THE CONFIGURATION WORKS

- ❖ Water from the New and Alamo Rivers is divided with the majority of flow discharged into the southern portion of the Marine Sea. This water flows to the northern deep, Marine Sea.
- ❖ Water from the Whitewater River flows into the Marine Sea.
- ❖ Water from the northern portion of the Marine Sea is recirculated into the southern portion to maintain water circulation and salinity.
- ❖ Water from the Marine Sea and the Alamo River are blended and conveyed to the Saline Habitat Complex. Water flows through this complex to the Brine Sink.
- ❖ Water is discharged from the Marine Sea to the Brine Sink to maintain the target salinity in the Sea.
- ❖ Water from the New and Alamo Rivers is blended with water from the Marine Sea to irrigate vegetation on exposed playa that is emissive.
- ❖ New and Alamo River flows in excess of those needed to support the elevation and salinity targets in the Marine Sea and the Saline Habitat Complex are routed to the Brine Sink.
- ❖ Canals and other conveyance facilities are designed to carry water to the air quality management areas and the created habitats.

Main Characteristics After 75 Years:

Based on inflows of 650,000 acre-feet and elevation target of -230 feet msl

Marine Sea:

- ❖ Salinity: About 30,000 to 40,000 mg/L
- ❖ Surface area: 40,000 acres

Barrier and Perimeter Dikes:

- ❖ Barrier located 14 miles north of the middle of the existing Salton Sea
- ❖ Length: 50 miles (total)
- ❖ Volume: 100.5 million cubic yards

Saline Habitat Complex:

- ❖ Salinity: 20,000 to 60,000 mg/L
- ❖ Surface area: 25,000 acres

Brine Sink:

- ❖ Salinity: much greater than 200,000 mg/L
- ❖ Elevation: -265 to -275 feet msl
- ❖ Surface area: 22,000 acres

Air Quality Management:

- ❖ Total area of exposed playa 152,000 acres
- ❖ Area with irrigated vegetation 76,000 acres (50 percent of total area)

Estimated Capital Cost: \$10 billion

WHAT HAPPENS IF AVERAGE ANNUAL INFLOWS ARE GREATER THAN 650,000 ACRE-FEET?

The additional inflow water can be used for more Saline Habitat Complex or be conveyed to the Brine Sink. If the additional inflows are conveyed to the Brine Sink, the size of the Brine Sink would increase. The larger Brine Sink or larger Saline Habitat Complex area will reduce the exposed playa and the amount of air quality management area.

CAN THE NUMBER OR COMPLEXITY OF FACILITIES BE REDUCED?

This configuration could be simplified by lowering the Marine Sea water surface elevation to at least -235 msl. This would reduce barrier and perimeter dike heights and material quantities.

The additional canals and infrastructure to support the air quality management may be simplified in the future as well. If the exposed playa is not emissive, the need for irrigated vegetation or other dust controls would be reduced.

This configuration could be simplified by eliminating water treatment plants. Upstream controls of nutrients and selenium may reduce the need for water treatment.

This configuration could also be simplified by reducing the quantity of Saline Habitat Complex and minimizing non-contiguous areas.

