

SALTON SEA WATER IMPORTATION SUBMITTAL REVIEW

November 2021

Technical Memorandum (TM) #10.2

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Subject Area: Salton Sea Site Visit

Topic: Site Visit Summary

This Technical Memorandum (TM) was prepared as part of the Salton Sea Water Importation Proposal Review to provide information to support and reflect the Independent Review Panel's evaluation of submitted ideas to restore the Salton Sea by water importation and provide the Salton Sea Management Program (SSMP) with approaches that are feasible. Parts of this TM may be used in the Panel's Screening Report, Fatal Flaw Report, Feasibility Report, and/or Summary Report (Reports). In the event that any discrepancies are found between the Reports and this TM, the Reports shall take precedence.

The Independent Review Panel (Panel) and Support Team members visited the Salton Sea and surrounding project areas from November 6 to November 10. This memo summarizes the activities and findings from the trip.

1.0 Trip Itinerary

The attendees on the site visit included:

Panel	Support Team
Philip Burgi	Azucena Beltrán (UCSC)
Robert Glennon	Charlie Chesney (UCSC)
Sharon Kenny	Brent Haddad (UCSC)
Julie Lockwood	Darío León (UCSC)
Adina Paytan	Jean Debroux (KJ)
Bob Raucher	Stephen Timko (KJ)
Rominder Suri	

The Panel and Support Team members visited locations identified in RFI responses from the Salton Sea to San Felipe, Mexico, including:

- Source water intakes
- Conveyance alignments
- Habitat restoration areas
- Geothermal areas

The Panel also participated in two public “Meet and Greets,” one in Coachella and one in Brawley. The Meet and Greets were advertised on the project website and on local radio stations. Additional advertisement was planned via the SSMP newsletter, but the newsletter was not disseminated on schedule. The Meet and Greets had limited attendance, potentially due to the lack of the newsletter circulation, which targets the most engaged citizens.

2.0 Panelist Notes

The following list represents abbreviated notes from Panel members during the site visit. This list is not intended to be exhaustive, but rather to document key points that may contribute to the screening and/or feasibility analyses.

2.1 SOURCE WATER/INTAKES

Intakes of seawater from the Pacific Ocean will likely face permitting challenges with the California Coastal Commission. Key considerations will include entrainment and impingement of marine organisms. At the Carlsbad facility, legal challenges led to a 20-year implementation schedule. Additional problems included entrainment of sand through the subsurface intake, resulting in fouling of membranes and increased production of backwash waste water, which has to be disposed of in a landfill instead of the ocean outfall.

Projects that utilize the Sea of Cortez must limit impacts to the Biosphere Reserve. Construction impacts of a pipeline may be acceptable, but dredging of a canal and significantly changing the hydraulics of the region are likely not acceptable.

Intakes at the Sea of Cortez that are in deeper water may be preferable due to reduced near-shore impacts. Subterranean intakes including well fields may limit entrainment/impingement of species, but more information is needed on the potential for sand/silt entrainment, impacts on the local water tables, and if these methods are feasible at the scales required.

2.2 CONVEYANCE

Construction of a pipeline from the Pacific to the Salton Sea via highway 78 presents multiple challenges. In addition to the total distance, the highway passes through steep river canyons with limited room to construct a pipeline adjacent to the highway.

The maximum elevation of Highway 8 is over 4,000 feet above sea level. Tunneling from offshore below sea level to the Salton Trough would therefore result in a very deep tunnel, posing potential access issues. More information is needed on the feasibility of digging/operating such a tunnel, and examples of similar tunnels that have been constructed.

The use of natural washes/channels/canals to convey water could present multiple challenges. The flows proposed in the RFI responses are likely to cause significant erosion in unlined systems. Lining and/or concrete channelization may be required for some concepts. Concepts using incised channels will need to consider water loss due to reconnection of the surface water to the water table. Seawater should not be conveyed in unlined channels to limit impacts to the soils and underlying aquifers.

Proposed conveyance alignments from the Sea of Cortez to the Salton Sea pass through multiple terrains and geomorphological regions including tidal flats, desert scrub, and irrigated agricultural lands. Survey and geotechnical studies to support conveyance design and construction could require significant time and budget.

Highway 5 to San Felipe passes through tidal flats with visible signs of flooding on both sides of the highway in places. The highway is elevated to prevent flooding of the road. Pipelines going through this area would either need to be elevated to avoid “pipe floating” and/or corrosion issues or be designed to the standards of underwater pipes exposed to salt water.

2.3 DISCHARGE

Discharge of imported water into the Salton Sea will require a detailed evaluation of mixing within the Sea. Discharge infrastructure must be designed to limit erosion, promote mixing and limit stratification.

Similarly, discharge of any brine into the Sea of Cortez will need to be designed to limit impacts to the local ecosystem.

2.4 RESTORATION

Wetland restoration has the greatest chance of success in areas of historical fresh water discharges and/or wetlands. The New and Alamo Rivers present such opportunities to restore and expand wetland habitat. Building off of existing systems rather than creating new ones allows for utilization of existing populations of invertebrates and other critical components of the food web to promote the success of fish and bird species. Washes such as near Bombay Beach may be alternate locations for wetland restoration sites.

Air quality improvement projects are currently underway. More information is needed about the effectiveness of these projects in the Salton Sea area and in other locations where it has been utilized. Mitigation of exposed playa will likely be needed in the interim while a larger import project is being permitted, designed, constructed, and operated to target lake levels.

2.5 INFRASTRUCTURE

Rail traffic was heavy on the tracks on the east side of the Salton Sea.

Some concepts involve the construction of new geothermal facilities. More information is needed on the potential for new facilities, and the maximum capacity of the region for geothermal energy production without depleting the resource. Water loss during geothermal energy production is also of concern, as this may require more imported water to meet the demand.

2.6 PROJECT SCHEDULE

Given the scale of the project, a schedule on the scale of decades is expected for permitting, design, construction, and operation. Interim projects will be needed to provide protection for public health and wildlife habitat.