SUBMIT OPTION SUBMITTAL FORM BY:

1. EMAIL TO: COLORADORIVERBASINSTUDY@USBR.GOV
2. U.S. MAIL TO: BUREAU OF RECLAMATION, ATTENTION MS. PAM ADAMS, LC-2721, P.O. BOX 61470, BOULDER CITY, NV 89006-1470
3. FACSIMILE TO: 702-293-8418

Option Submittal Form

Contact Information (optional): ☐ **Keep my contact information private.**

Contact Name: _____ Title: _____

Affiliation: _____

Address: _____

Telephone: E-mail Address:

Date Option Submitted: February 20, 2012

Option Name:

Salton Sea Management through Drainwater Reuse and New River and Alamo River Flows

Description of Option:

Manage future flows to the Salton Sea by providing for three primary functions: (1) air quality management of the exposed playa, (2) provision of suitable shallow water habitat to support avian and aquatic species, and (3) treatment and reuse of excess inflows for agricultural, municipal, or industrial purposes. Flows to the Salton Sea in excess of that needed for Salton Sea air quality management and habitat purposes could be desalted to equivalent salinity of Colorado River at Imperial Dam salinity (from about 2,500 mg/L to less than 800 mg/L TDS). The desalted water could be provided to meet growing demands within Imperial Irrigation District's service area. Water available after meeting these other needs could be put to use within both the Imperial and Coachella Valleys to meet to meet unmet demands and/or reduce California's Colorado River demands.

Location: Describe location(s) where option could be implemented and other areas that the option would affect, if applicable. Attach a map, if applicable.

Salton Sea. Depending on the management of the available water, the Colorado River reach between Parker Dam and Imperial Dam could be affected.

Quantity and Timing: Roughly quantify the range of the potential amount of water that the option could provide over the next 50 years and in what timeframe that amount could be available. If option could be implemented in phases, include quantity estimates associated with each phase. If known, specify any important seasonal (e.g., more water could be available in winter) and/or frequency (e.g., more water could likely be available during above-average hydrologic years) considerations. If known, describe any key assumptions made in order to quantify the potential amount.

Historically, inflow to the Salton Sea has been over 1,200,000 acre-feet per year, primarily from agricultural drainage from the Imperial and Coachella Valleys. Projected Salton Sea inflow considering implementation of the QSA is estimated to be approximately 922,000 acre-feet per year for the period of 2018-2078 (CDWR, 2007). When considering potential future changes in water management in Mexicali, Imperial, and Coachella Valleys and reductions in Colorado River surplus flows, a median estimate of inflows to the Salton Sea is 717,000 acre-feet per year for the period of 2018-2078 as reported in the Salton Sea Restoration Program EIR (California DWR, 2007). Water needs to support approximately 30,000 - 60,000 acres of saline habitat complex would require approximately 200,000 – 400,000 acre-feet per year of inflow. Consumptive water needs for air quality mitigation (in conjunction with non-consumptive water uses) are estimated to be less than 50,000 acre-feet per year depending on extent of exposed playa. Depending on the magnitude, type, and water management of the shallow water habitat and air quality mitigation measures, up to 300,000 - 500,000 acre-feet per year of Salton Sea inflow could be available for reuse.

Additional Information

Technical Feasibility: Describe the maturity and feasibility of the concept/technology being proposed, and what research and/or technological development might first be needed.

All of the technology needed to implement this concept have been applied elsewhere or are being tested currently at the Salton Sea. Saline habitat complex elements are currently being evaluated in pilot programs at the Salton Sea and creation of habitat cells has been implemented in many areas. Air quality management will require testing as is currently being performed. The successful management of the Owens Lake bed with vegetation management is a model. Desalination technology, particularly for brackish water such as envisioned here is proven. The primary issues with inland desalination – brine disposal – is not anticipated to be an issue in this concept as the Salton Sea is already approaching hypersaline conditions and has served as a salt sink for agricultural return water for over a century.

Costs: Provide cost and funding information, if available, including capital, operations, maintenance, repair, replacement, and any other costs and sources of funds (e.g., public, private, or both public and private). Identify what is and is not included in the provided cost numbers and provide references used for cost justification. Methodologies for calculating unit costs (e.g., $/acre-foot or $/million gallons) vary widely; therefore, do not provide unit costs without also providing the assumed capital and annual costs for the option, and the methodology used to calculate unit costs.

Total estimated cost for two similar alternatives in the Salton Sea Restoration Program was in the range of $2.3 to $4 billion dollars with about $100 million per year in operation and maintenance costs. These costs, however, did not include the desalting and re-distribution of water to California water users. It is anticipated that these costs would add $XX million dollars and $XX million in operation and maintenance costs.

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Total annual cost is expected to be less than $XXX per acre-foot.

Permitting: List the permits and/or approvals required and status of any permits and/or approvals received.

Environmental review by the implementing public agencies would be required under CEQA, NEPA, and several other entities in California. Mitigation of some of the impacts of reduced Salton Sea inflows is part of the QSA. Consistency with the QSA would need to be evaluated.

Legal / Public Policy Considerations: Describe legal/public policy considerations associated with the option. Describe any agreements necessary for implementation and any potential water rights issues, if known.

Primary legal issues would be associated with establishing consistency between the QSA mitigation measures and Salton Sea management. Other legal issues may be related to water right applications to water available in the New River, Alamo River, and Whitewater River.

Primary public policy concerns will be to assurances for air quality mitigation for Imperial and Coachella Valley population and establishment of recreational opportunities.

Implementation Risk / Uncertainty: Describe any aspects of the option that involves risk or uncertainty related to implementing the option.

Primary risks are related to identifying permanent financing for construction and ongoing operation of air quality and shallow water habitat. Implementation consistent with the QSA and legal assurances related to the provision of desalted water generated from drainwater in the New, Alamo, and Whitewater Rivers could pose additional risks.

Reliability: Describe the anticipated reliability of the option and any known risks to supply or demand, such as: drought risk, water contamination risk, risk of infrastructure failure, etc.

Reliability of supply is high as the available water is primarily the result of irrigation return flows in the Coachella and Imperial Valleys. Desalination of this water would create a reliable year-to-year supply.

Water Quality: Identify key water quality implications (salinity and other constituents) associated with the option in all of the locations the option may affect.

Desalination and reuse of a portion of the inflows to the Salton Sea will accelerate the salinity increase in the Salton Sea. The Sea is expected to exceed 60,000 mg/L salinity by 2020 under virtually all alternatives. This concept would accelerate the rise.

The option would create water at equivalent salinity as that of the Colorado River at Imperial Dam.

Energy Needs: Describe, and quantify if known, the energy needs associated with the option. Include any energy required to obtain, treat, and deliver the water to the defined location at the defined quality.

Energy Required	Source(s) of Energy
Energy will be required for desalting and pumping	Likely to be geothermal and/or solar from the

water to water users; and for air quality and saline habitat complex management.	Imperial Valley.

Hydroelectric Energy Generation: Describe, and quantify if known, any anticipated increases or decreases in hydroelectric energy generation as a result of the option.

Location of Generation	Impact to Generation
To be determined	Parker to Imperial.

Recreation: Describe any anticipated positive or negative effects on recreation.

Location(s)	Anticipate Benefits or Impacts
Salton Sea	Reduced open water recreation opportunities; increased birding opportunities.

Environment: Describe any anticipated positive or negative effects on ecosystems within or outside of the Colorado River Basin.

Location(s)	Anticipated Benefits or Impacts
Salton Sea	Significantly restore the shallow water habitat which supports the primary ecosystems at the Salton Sea. Loss of deep marine sea habitat, but value of habitat is substantially less and future is uncertain. Depending on how Salton Sea inflow water is managed, Colorado River flows may be reduced between Parker and Imperial.

Socioeconomics: Describe anticipated positive or negative socioeconomic (social and economic factors) effects.

To be determined.

Other Information: Provide other information as appropriate, including potential secondary benefits or considerations. Attach supporting documentation or references, if applicable.