Central Valley Salinity Alternatives for Long-Term Sustainability
Development of a BPA for Salt and Boron in LSJR

MODELING APPROACH FOR PLANNED PLUS TREATMENT FOCUS BUNDLE

Below is a description of the implementation action (IA) included in the proposed Planned Plus Treatment Focus Bundle (Treatment Focus Bundle) that was identified during the 12 January 2015 LSJRC in-person meeting at Larry Walker Associates held to discuss options for modeling approaches for the remaining two salinity management bundles to be modeled by the LWA Team. The Treatment Focus Bundle includes the same IAs as the Planned Bundle plus the addition of IA 5a: Water Treatment – Regional Treatment Facility. The Treatment Focus Bundle is designed to meet an EC target of 1,010 µmhos/cm at Crows Landing. This document reflects the communications to date with the LSJRC regarding the modeling of the Treatment Focus Bundle plus additional information developed by Carollo Engineers.

IA 5a. Water Treatment – Regional Treatment Facility

Assumptions: The LWA Team has developed a Preliminary Conceptual Desalination Project located in the Grassland Drainage Area (outside of the 100-year floodplain) that is designed to control salinity inputs to the LSJR to a level that will support the achievement of a 1,010 µmhos/cm EC target at Crows Landing. The Project is designed to pump raw water from three sources, Mud Slough, Salt Slough, and the Gustine Area from two diversion points (Mud Slough and Salt Slough), desalinate the flows in a reverse osmosis (RO) process, and pump the low TDS finished water to back to Mud Slough and Salt Slough. Concentrated brine produced by the RO process would be pumped to the proposed Central Valley Brine Line for ultimate disposal outside of the basin. Preliminary calculations show that a RO facility sized to treat 80 million gallons per day (mgd) would remove the TDS required to meet the EC target of 1,010 µmhos/cm. An 80 mgd facility was selected as the basis for the preliminary conceptual project.

Modeling Approach: The LWA Team will model the estimated changes in LSJR ambient salinity concentrations brought about by the proposed desalination facility by adding points of diversion from Mud Slough (also includes Gustine Area flows) and Salt Slough to the WARMF model just upstream of where each joins the LSJR. Additionally, point sources will be added to the model to account for the return of RO treated water to Mud Slough and Salt Slough. Each of these new treated water discharge points will be characterized in terms of the projected flow and TDS concentration of the treated effluent. It is assumed that 80 percent of the flows diverted from the three target water bodies will be returned to Mud Slough and Salt Slough.