

Peer Review Plan

SVSim v1.0_8: Refined Sacramento Valley Groundwater-Surface Water Simulation Model for Use in the North-to-South Water Transfers Environmental Impact Statement (EIS)

Date: January 12, 2026

Originating office: Bureau of Reclamation, California Great Basin, CGB-400 Program Management Branch

Reclamation roles:

Director or delegated manager: Scott Springer, Acting Resources Manager, California Great Basin Region, Bureau of Reclamation

Peer Review Lead: Deanne Weber, Natural Resources Specialist, California Great Basin Region, Bureau of Reclamation

Purpose: Provide a Peer Review of the Refined and Recalibrated SVSim v1.0_8 model

Subject and Purpose:

Hydrologic conditions, climatic variability, consumptive use within watersheds, and regulatory requirements for operation of water projects commonly affect water supply availability in California. This variability strains water supplies, making advanced planning for water shortages necessary and routine. In the past decades, water contractors and water agencies have implemented water transfers to supplement water supplies to serve existing demands.

Reclamation is completing an EIS for the North-to-South Water Transfers project to facilitate and approve the voluntary one-year transfers of water from willing sellers, located primarily upstream of the Sacramento-San Joaquin Delta (Delta), to willing buyers, located primarily south of the Delta, and in the San Francisco Bay Area. The EIS will evaluate the environmental effects of transferring water by a variety of methods – including groundwater substitution – from north-of-Delta Central Valley Project (CVP) contractors to south of the Delta and San Francisco Bay Area CVP contractors. Groundwater substitution is a method by which Sellers make surface water available for transfer by pumping groundwater in lieu of diverting surface water supplies, thereby making the surface water available to downstream Buyers.

During a groundwater substitution transfer, demands for surface water are reduced because a like amount of groundwater is used to meet the demand normally met by surface water. While surface water demands are reduced by the volume of substituted groundwater, not all of the water pumped can be transferred. The net amount of surface water considered transferable must account for: (1) the amount of increased pumping that occurs in support of the transfer, (2) the extent to which transfer-related groundwater pumping decreases streamflow during and after the transfer, and (3) the timing of the decreased streamflow and the effect on CVP and State Water Project (SWP) water supplies. Increased groundwater pumping can diminish streamflow during periods when streamflow is being maintained by CVP and SWP (Project) operations. These depletions can reduce the volumes of water available for delivery to Project contractors and impact the ability of the Projects to maintain downstream environmental conditions in the Delta.

A stream depletion factor (SDF) is a percentage of the water pumped during a groundwater substitution transfer that is not transferable. The SDF is intended to account for the effects on Project water supplies due to the future reduction in streamflow that occurs because of the transfer pumping. The SDF would be informed by the refined SVSim v1.0_8 model, which is the subject of this peer review.

SVSim v1.0 Background

The SVSim v1.0 model was developed by the California Department of Water Resources (DWR) to evaluate project-specific impacts of groundwater substitution transfers on streamflow depletion in the Sacramento Valley; and to support the Sustainable Groundwater Management Act (SGMA) Program as a tool for evaluating water budgets, surface water-groundwater interactions, and sustainable groundwater management scenarios in the Sacramento Valley. SVSim v1.0 is an application of the Integrated Water Flow Model (IWFM-2015) numerical code and is based on DWR's 2013 C2VSim model.

SVSim v1.0 Refinements

The SVSim v1.0 model was refined (SVSim v1.0_8) to support technical analysis of the environmental impacts of groundwater substitution transfers considered in the North-to-South Water Transfers Project EIS. Refinements to SVSim v1.0 focused on improving the physical representation of surface water features. Calibration of the refined model (SVSim v1.0_8) showed improved performance compared to SVSim v1.0. A preliminary sensitivity analysis of model input parameters to model calibration was conducted and more detailed analysis is in progress. See the Technical Memorandum provided for details.

Impact of Dissemination:

Water transfers, particularly groundwater substitution transfers, are controversial, and have been the subject of past public debate and litigation. As such, the refined SVSim model (SVSim v1.0_8) is considered a Highly Influential Scientific Assessment (HISA) as defined by Office of Management and Budget Final Information Quality Bulletin for Peer Review (70 FR 2664-2677) and the Reclamation Manual Policy CMP P14 Peer Review of Scientific Information and Assessments.

Peer Review Scope:

Reviewers will be external to Reclamation and asked to review and verify whether or not the means and methodology that were used to make model refinements are reasonable and clearly described in the model documentation (See the provided SVSim Sensitivity Analysis Technical Memorandum, SVSim Transfer Analysis Documentation, and SVSim model files). Reviewers are asked to focus their review on and provide responses to the questions below, not on any agency decision or policy. Using the attached Peer Review Comment Matrix, please provide comments and respond to the below questions.

1. Is the rationale for and approach to modeling refinements clearly explained and reasonable?
2. Was the calibration of the refined model adequate for the intended purpose of the model and clearly described in the documentation?
3. Is the refined model an appropriate tool to evaluate surface water-groundwater interactions in response to transfer groundwater pumping?

Timing of Review:

The review will begin as soon as possible upon the submission of this Peer Review Plan. The review period is expected to be January 19 – April 1, 2026, with estimated reviewing time of up to 20 hours. The final Peer Review Report is expected to be available on the U.S. Bureau of Reclamation Peer Review public website by September 31, 2026.

Methodology of Review:

Review will be conducted by up to four individuals. Peer reviewers will provide a Curriculum Vitae to Reclamation that reflects their professional experience on the topic. The identities of the reviewers will be disclosed in the final Peer Review Report including a brief description of the peer reviewer's organizational affiliation, credentials, and relevant experience. Review findings/comments will not be attributed to the individual reviewer. There will not be an opportunity for public participation in this peer review.

Number of Peer Reviewers:

It is anticipated that up to four peer reviewers will be utilized.

Reviewer Selection Process:

Reclamation Project leads will solicit individuals who have proficiency in the topic area to serve as independent peer reviewers. These individuals will have expertise in hydrology, engineering, water management, and DWR's C2VSim model. Peer reviewers will have education, professional experience, and peer recognition in the field of groundwater modeling, and will have contributed to their field of practice. The public will not be asked to nominate potential peer reviewers.

Delivery of Findings:

The Peer Reviewers will each submit their findings in an electronic format of their choice (e.g., Word, Excel) to the Peer Review Lead by the end of the review period. The findings will include answers to the questions posed in this Peer Review Plan and a brief description of the reviewer's observations or recommendations. Reclamation will provide responses to comments, as appropriate, in the Peer Review Report.

Response to Peer Review:

After receiving peer review comments, the Peer Review Lead will develop and submit a final Peer Review Report to Reclamation's public peer review website (<http://www.usbr.gov/main/qoi/peeragenda.html>), which will summarize the findings of the peer review and list the comments provided by the reviewers, as well as Reclamation's response to the comments, actions the agency will undertake regarding the comments, and reasons the agency believes those actions will satisfy any key concerns or recommendations.

Federal Register Notice:

Federal Register notices will not be provided announcing the formation of a peer review team and completion of the final report.

Applicability of the Federal Advisory Committee Act (FACA):

This peer review is not subject to the Federal Advisory Committee Act (FACA) because the review does not involve open meetings or committee chartering and reviewers are being asked to provide individual reviews on the subject matter. Reclamation is not seeking consensus advice from the reviewers as a group.

Agency Contact:

Deanne Weber, Natural Resources Specialist, U.S. Bureau of Reclamation, dweber@usbr.gov