



Topic: **Joint Authority Board and Reservoir Committee Meeting Agenda Item 3.2** **2020 September 17**

Subject: **Key Operations Modeling Refinements**

Requested Action:

Review and comment on the key refinements and new capabilities of the updated Sites Project CalSim model.

Detailed Description/Background:

During Amendment 1B, staff and consultants worked to update and improve the capability of the Sites Project CalSim model that is being used as the basis for the environmental planning, environmental permitting, and feasibility report efforts as part of Amendment 2.

As a result of project changes related to the Sites Project Value Planning Alternatives Appraisal Report as well as the October 2019 Biological Opinions on Long-term Operations of the Central Valley Project and State Water Project (ROC on LTO BiOps) and the March 2020 Incidental Take Permit for Long-term Operations of the State Water Project (SWP ITP), several refinements to the Sites Project Calsim model have been made.

Several components of the model have been refined over the past year to make the model current with regulatory and Sites Project Authority decisions. Refinements include the following:

1. Use of ROC on LTO BiOps as the baseline, with further adjustments forthcoming based on an updated SWP Delivery Capability Report (DCR) 2019 with SWP ITP actions
2. Participation levels to reflect Amendment 2
3. Facilities to reflect Value Planning changes
4. Operational changes related to the Bureau of Reclamation participation from the Federal Feasibility Report

Due to previous model limitations, the team has “tested” a number of components using post-processing methodologies – applying rules and parameters to Calsim modeling results to get an approximation without fully coding the refinements in the Sites Project Calsim model. Over the past year, the team has improved the ability of the Calsim model to refine and test a number of different scenarios in the model itself. Improved abilities in the Sites Project Calsim model include the following:

- Federal participation options have been expanded:
 - Reclamation as an exchange partner with Shasta Lake (which could also apply to Folsom Lake)
 - Reclamation as a financial participant with a storage account in Sites Reservoir (refinements made to previous assumptions)
 - No federal participation
- SWP facility coordination options have been expanded:

- Deliveries made in coordination with Oroville operations (refinements made to previous assumptions)
 - Deliveries through SWP conveyance facilities only
- South of Delta (SOD) Participant demand assumptions revised:
 - Model now explicitly tracks water deliveries to SOD Participants through the export facilities
- Diversion and environmental criteria updated:
 - Sutter Bypass weir spills (Ord Ferry, Moulton Weir, Colusa Weir, Tisdale Weir). The magnitude, duration and timing of inundation were refined and can be adjusted.
 - Fremont Weir Notch and Yolo Bypass. The magnitude, duration and timing of inundation were refined and can be adjusted.
 - Freeport bypass flow criteria options revised to allow for adjustments
 - Pulse flow protections were refined
 - Delta Outflow criteria was added
 - Red Bluff, Hamilton City, and Wilkins Slough bypass or scaled flows was refined to allow for adjustments
 - Diversion and release maintenance windows were revised
- Environmental water management flexibility:
 - Flows into Colusa Basin Drain conveyed to Cache Slough via the Knights Landing Ridge Cut (previous assumption)
 - Incremental Level 4 Refuge water supply (previous assumption)
 - Working with California Department of Fish and Wildlife to confirm and refine environmental water uses and ensure flexibility in the analysis
- Sites Project Facilities refinements to reflect Value Planning:
 - Reservoir capacity adjustments
 - Dunnigan Pipeline facilities were added

The fundamental principles of the modeling have not changed, particularly as it relates to water rights and overall diversion priorities. In general, the model assumes that Sites is a junior water rights holder and therefore can divert after all other water rights are met, including water rights, contractual obligations and Tribal trust responsibilities in the Trinity River system. In addition, diversions can only take place when environmental requirements are met and when "excess" conditions exist in the Delta. The model is being refined to remove the anomalies and correctly indicate there are no effects or impacts on the Trinity River from the Sites Project.

Initial CalSim results are being checked by the operations and fisheries team. Following the initial review, iterative model simulations will be run to assess aquatic resource and water quality effects and further refinements to diversion criteria. Full modeling results will be available for the December Reservoir Committee and Authority Board meetings.

Prior Action:

None.

Fiscal Impact/Funding Source:

None.

Staff Contact:

Ali Forsythe

Attachments:

None.