

# RECLAMATION

*Managing Water in the West*

## **Central Valley Project Cost Allocation Study Water Supply Modeling Update**

**Public Meeting  
July 18, 2014**



U.S. Department of the Interior  
Bureau of Reclamation

# Water Supply Purpose Modeling – Presentation Outline

- Review of concepts and methodology
- Friant example – draft results
- Use of CalSim2 data and results
  - Assumptions
  - Deliveries
- Next steps

# Cost Allocation Study Terms & Concepts

- The Central Valley Project serves multiple purposes
- Water supply is one of the CVP purposes
- Each project facility serves one or more project purposes
- Conceptually, a facility can be “split” among the purposes that it serves
- Hydrology analysis goal – determine the portion of a facility that serves the water supply purpose

# Facilities with a Water Supply Purpose

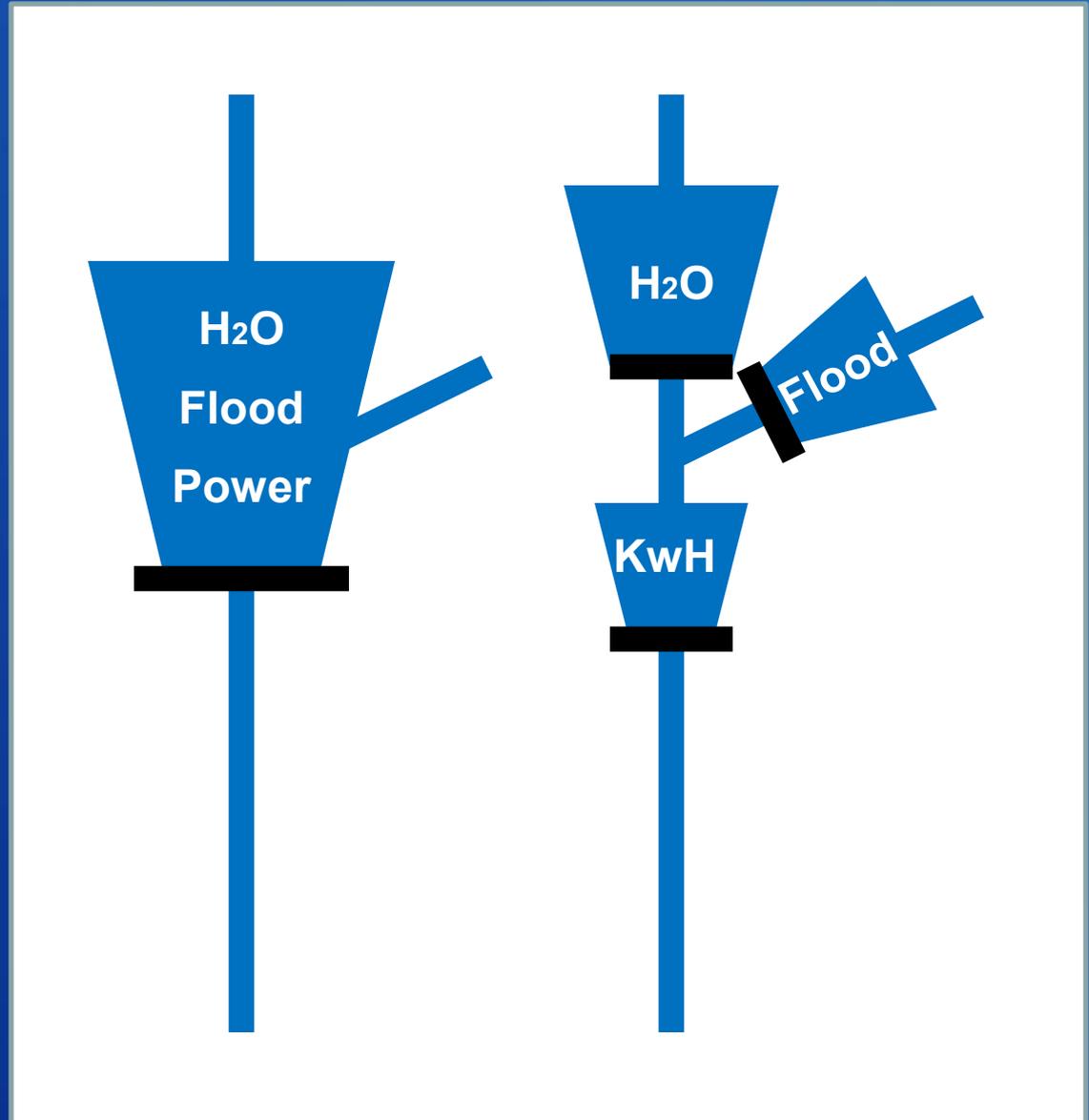
- Conveyance and Pumping Facilities – serve only the water supply purpose
- Storage Facilities – multi-purpose – also serve flood control, power, water quality, ...



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# Single Purpose Concept

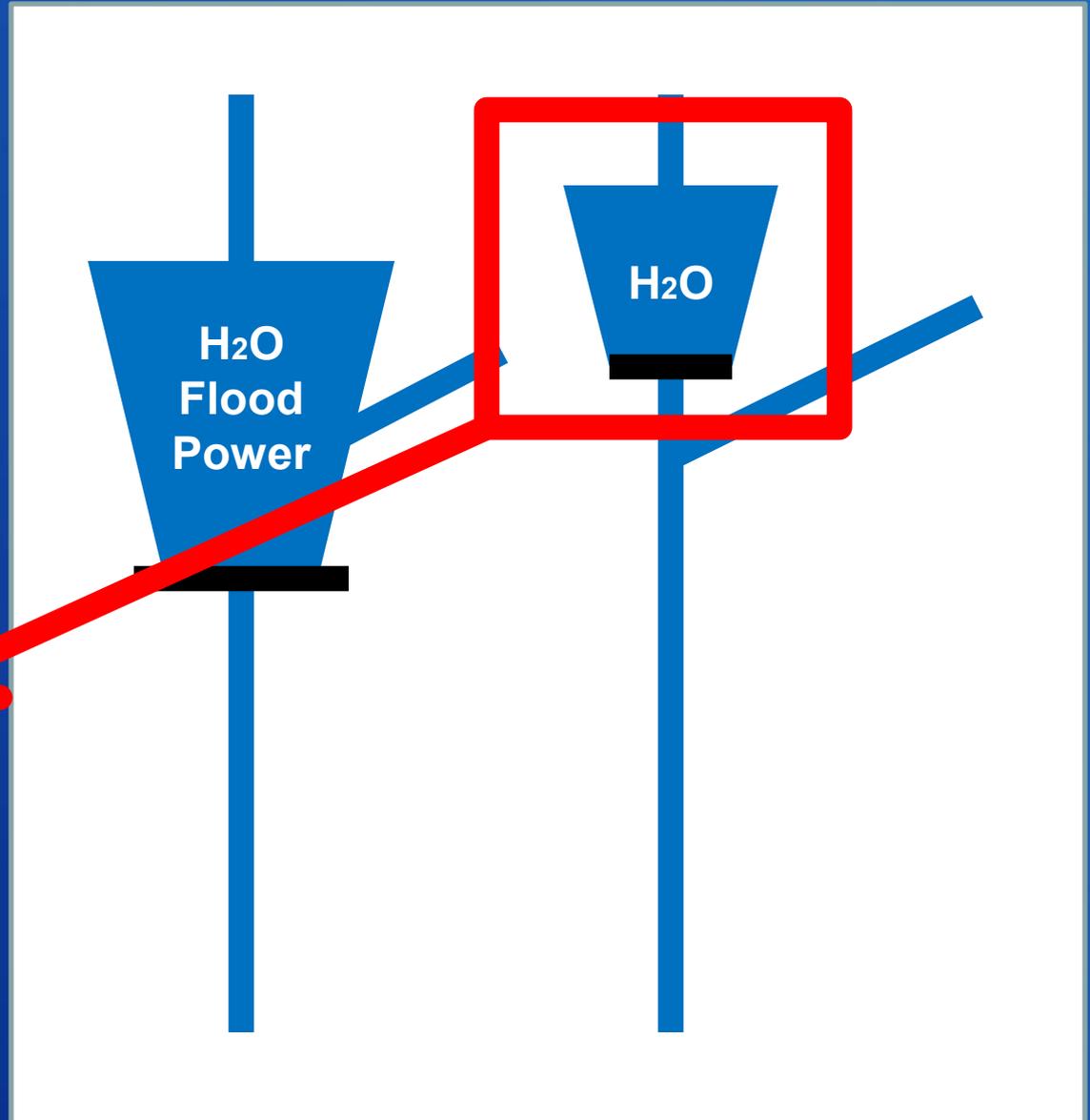
A single purpose facility must provide the same level of benefits that the multi-purpose facility provides.



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# Single Purpose Concept

“What reservoir size is required to satisfy **only** the water supply purpose?”



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# Modeling Water Supply

- Water Supply Purpose = Water Delivery
- **Historical** water deliveries define CVP water supply purpose abilities of the **past**
- **Current and projected** water delivery capability is depicted by modeling (**CalSim**)
- Water delivery is affected by regulations

# Modeling Rules

- CalSim2 logic depicts regulations and operating criteria
  - D1485, D1641, CVPIA 3406(b)(2), Current BO-RPAs
- PL 99-546 – October 27, 1986 “The costs associated with providing Central Valley project water supplies for the purpose of salinity control and for complying with State water quality standards identified in exhibit A of the [May 20, 1985 COA] shall be allocated among the project purposes and shall be reimbursed in accordance with existing Reclamation law and policy”
- Cost allocation analysis will distribute the costs of reimbursable regulatory actions.

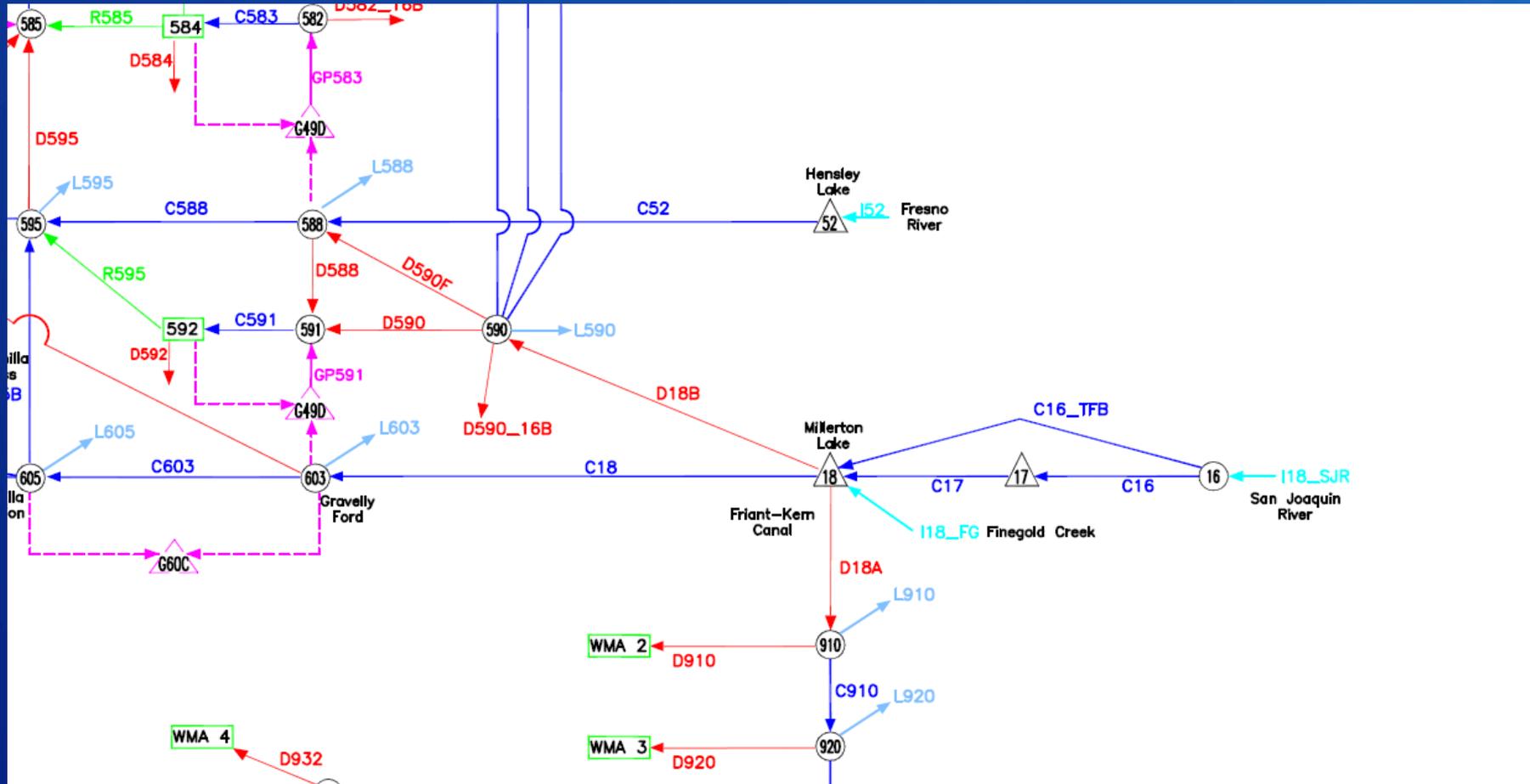
## Modeling Issues (cont.)

- Using CalSim results
  - Modeled deliveries **implicitly** reflect modeled system regulations (assumptions will be discussed later)
  - Model hydrology (inflows/demands) reflects a consistent level of land development
- Determine storage needed to meet :
  - deliveries under current regulations
  - distributed reimbursable regulatory actions

# Single Purpose Facility Sizing (SPuFS) Model

- Use CalSim2 schematic
- Inputs – CalSim2 hydrology
  - Inflows and Accretions/Depletions = Available Water
- Fix deliveries and exports to CalSim2 results
  - Remand NEPA No Action Alternative
- Include reimbursable regulations (COA Exhibit A)
- Determine reservoir sizes needed to facilitate the fixed deliveries and reimbursable regulations

# Friant/Millerton Example

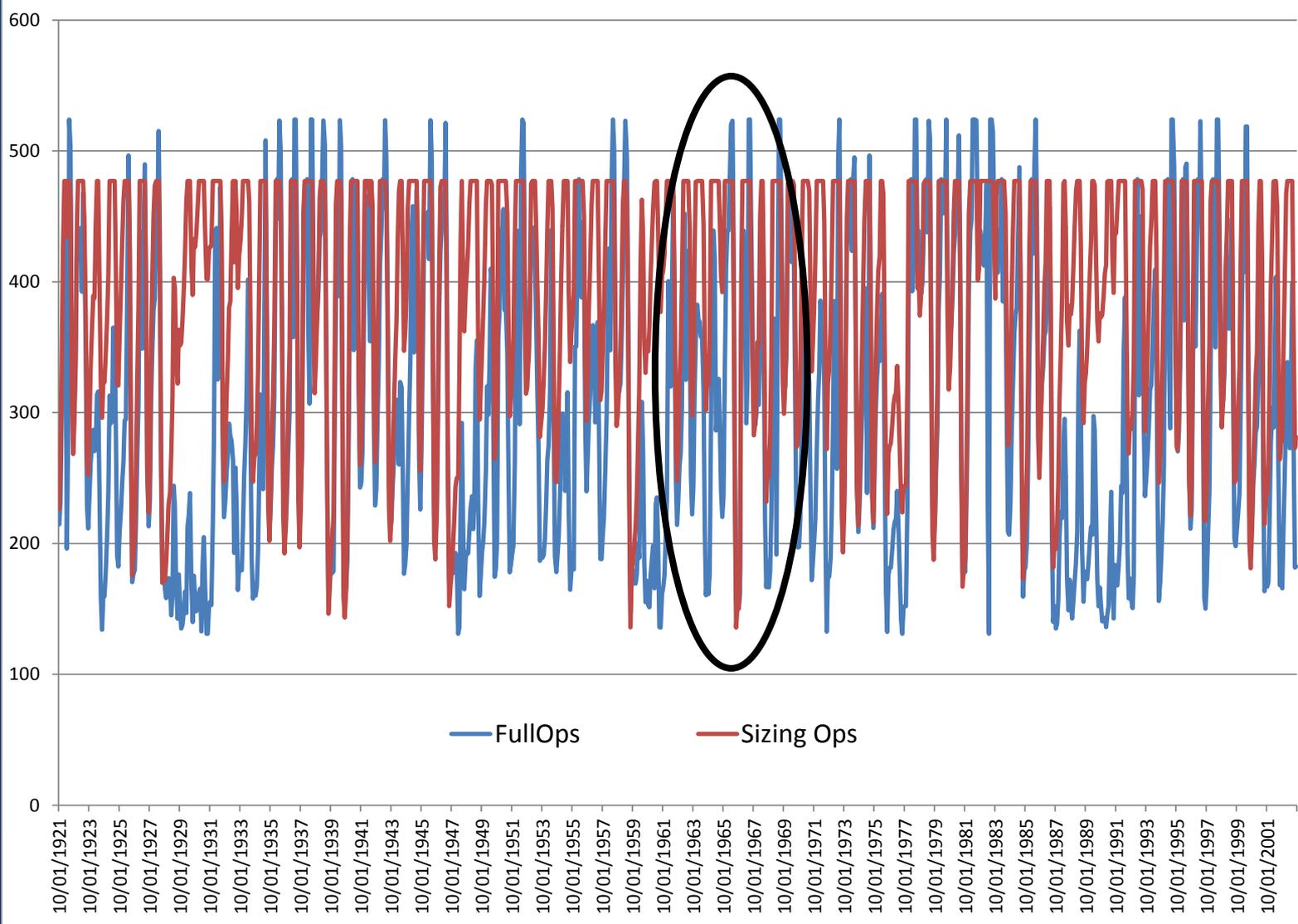


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# Friant Operations

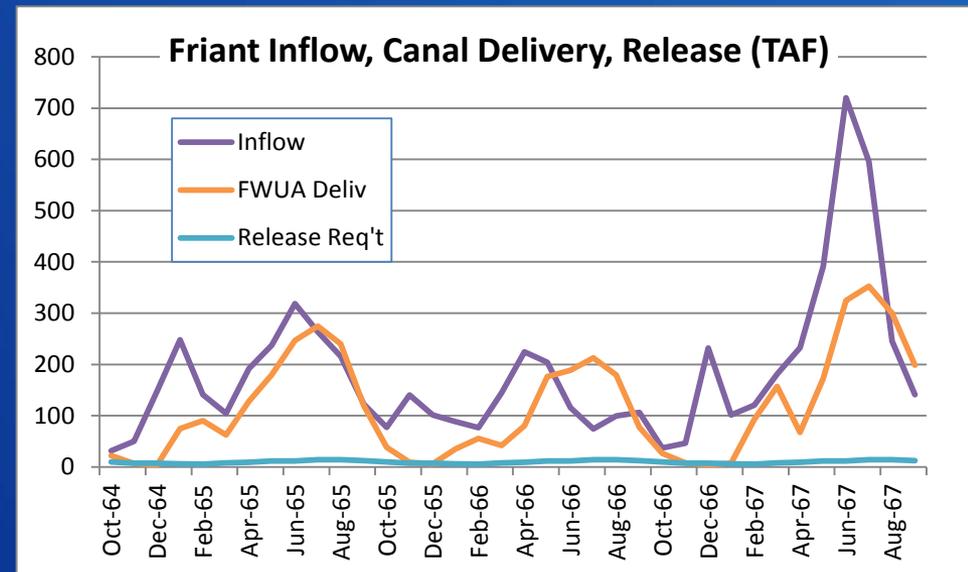
- 135 TAF dead pool
- Evaporation
- Scenarios
  - Current (Expected) Operations
    - Release for SJRR, flood ctrl, downstream delivery
    - Deliveries to FWUA canals
  - Single Purpose Sizing Operations
    - Release for downstream delivery
    - Deliveries to FWUA canals fixed to current ops
    - No SJRR, flood control

# Friant Storage – 82 Years

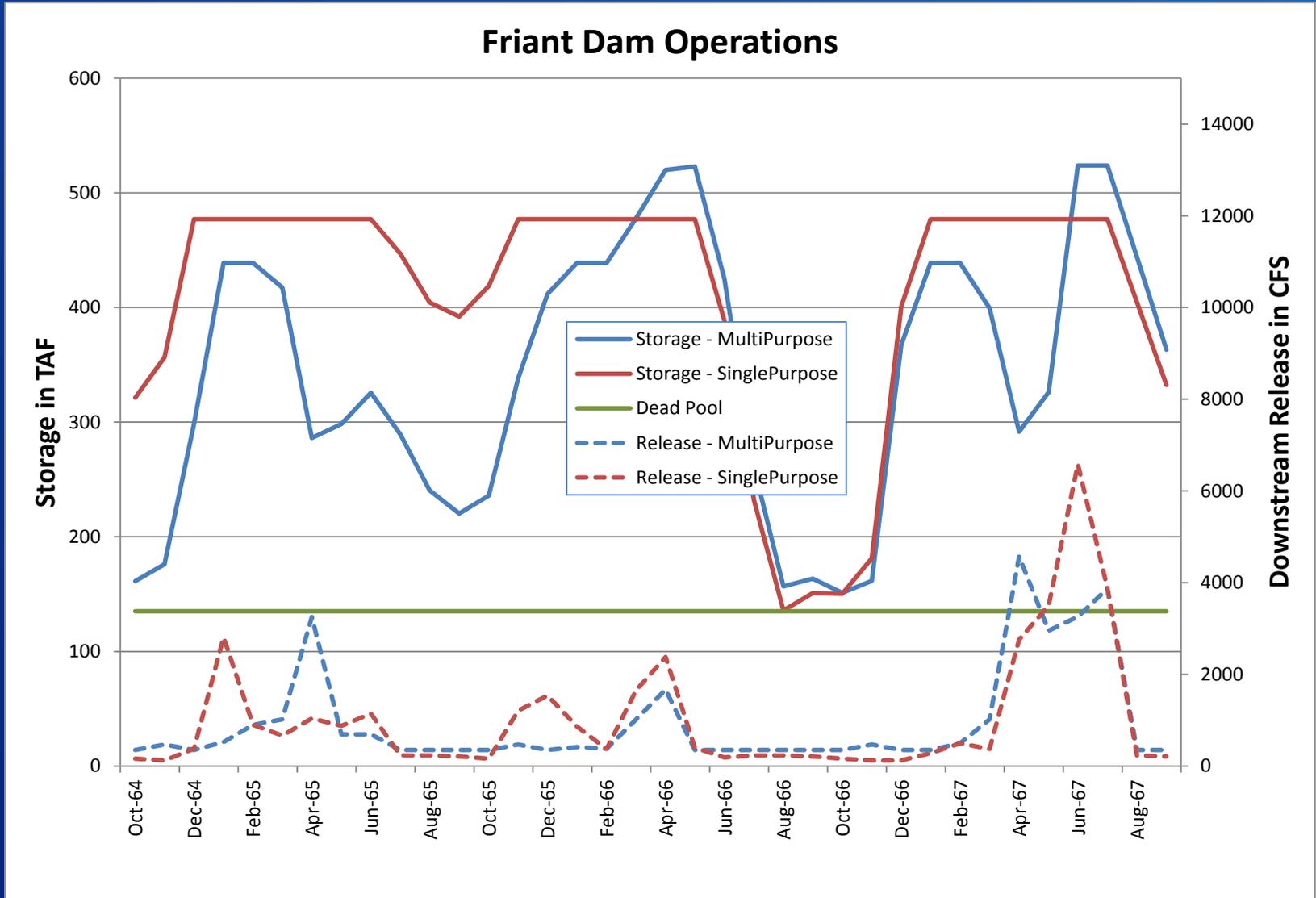


# Friant Sizing Results

- Current Operations
  - 524 TAF
- Sizing Operations
  - 477 TAF
- Defining timestep is August 1966
- Note inflow, release, delivery...



# Friant Storage and Release



# Friant Results

- Without SJRR release req'ts or flood control operations, storage accumulates
- Sizing model releases can be higher or lower than current operations
  - No advance planning – higher flood releases
  - No SJRR – lower “minimum” releases
- A reservoir size of 477 TAF ensures that storage never dips below dead pool

# Sizing of Other CVP Reservoirs

- Analysis Status
  - SPuFS model is functional system-wide
  - Fixed deliveries to baseline results
  - Reimbursable regulatory criteria in development
  - Updating D1485 CalSim run to get :
    - River flows reflecting regulatory criteria
    - Delta water quality / required outflow

# What's Next

- Sizing model QA/QC
  - “Color” releases to enable tracking of CVP, SWP, non-project water
  - Ensure project integrity (CVP water for CVP purposes)
- Trinity/Shasta/Folsom
  - Develop scenarios for multi-facility sizing

# Questions?



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# CalSim2 Operations Criteria

- USFWS and NMFS BO RPA's
- CVPIA 3406(b)(2) Actions
- SWRCB Water Rights Decision 1641
  - Delta WQ, X-channel gates, Vernalis, E/I ratio, etc...
- San Joaquin River Restoration
- Coordinated Operations Agreement
- Flood Control Rules
- Other tributary-specific operations

# CalSim2 Delivery – Contracts

## North of Delta

- Consumptive use demands based on land use
- Contract allocation limits surface delivery
  - Sacramento River Settlement Contracts
  - North of Delta Ag Service Contracts
  - American River Water Forum M&I
  - North of Delta Refuge

## South of Delta

- Demands = Contracts
- Deliveries = Contract Allocation
  - San Joaquin River Exchange Contracts
  - South of Delta Ag Service Contracts
  - San Felipe and other SOD M&I
  - SJR Basin Refuge Contracts

# CalSim2 Delivery – Allocation and Ops

- Deliveries to contractors are affected by
  - Storage in project reservoirs
  - Forecasted inflows
  - Environmental regulations
  - Contractual commitments
  - Demands
  - Export restrictions
  - Conveyance constraints
- Allocation determination considers these factors