Agenda

• Introductions
• Water Management Goal Overview
• SJRRP Framework for Implementation
• 2016 Water Outlook
  – Restoration Flows
  – Recapture/Recirculation
• Long-term Recapture/Recirculation of Restoration Flows EIS
• 2016 Meeting Dates
• Adjourn
WATER MANAGEMENT GOAL
OVERVIEW
Settlement Background

1942 Friant Dam completed
1988 Lawsuit filed challenging Reclamation’s renewal of the long-term contracts with Friant Division contractors
2004 Federal Judge rules Reclamation violated Section 5937 of the California Fish and Game Code
2005 Settlement negotiations reinitiated
2006 Settlement reached; implementation began
2009 Federal legislation enacted (PL 111-11); Interim Flow releases began October 1
2014 Full Restoration Flow releases began in January
Settlement Goals

• Restoration Goal
  To restore and maintain fish populations in “good condition” in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.

• Water Management Goal
  To reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.
Restoration Goal Actions

• Release of Restoration Flows from Friant Dam (Settlement Paragraph 13)
  – Interim Flows started October 2009
  – Restoration Flows Guidelines completed in 2013

• San Joaquin River channel and structural improvements (Settlement Paragraph 11)
  – Mendota Pool Bypass
  – Reach 2B and Chowchilla Bypass Structure Improvements
  – Reach 4B channel and structural improvements
  – Arroyo Canal Fish Screen and Sack Dam Fish Passage

• Reintroduction spring-run and fall-run Chinook salmon (Settlement Paragraph 14)
Water Management Goal Actions

• Settlement Paragraph 16
  – Recirculate, recapture, reuse, exchange or transfer Restoration Flows
  – Recovered Water Account program

• Settlement Act (Part III)
  – Friant-Kern and Madera Canals Capacity Restoration
  – Friant-Kern Canal Reverse Flow Pump-Back Facilities
  – Financial assistance for local groundwater projects
Part III
Friant-Kern Canal Capacity Restoration

- Value Engineering Study – January 2015
- All canal lining alternatives exceeded allocated funding
- Project on hold to determine next steps
FKC Reverse Flow Pump-Back Project

• SJRRP purchased Red Bluff pumps and motors for the Friant-Kern Canal
• Loaned to SLDMA for temporary use in the DMC during summer 2015
• $2.38M in drought funding announced in February 2015
• USBR/FWA Financial Assistance Agreement in process
Madera Canal Capacity Restoration

• Feasibility Study:
  – Scope developed with feedback from Chowchilla Water District and Madera Irrigation District
  – Currently within- and off-canal options as part of the analysis
  – Feasibility Report and NEPA analysis underway, scheduled to be completed in Summer 2016
Groundwater Financial Assistance

Tulare ID- Cordeniz Basin Construction & Exchange Program

- 60-acre basin
- Groundbreaking: December 2015
- Construction complete: December 2016
Groundwater Financial Assistance

**Pixley ID- Joint Groundwater Bank**
- 560-acre bank with 4.5 mile pipeline to new FKC turnout
- Revising schedule

**Porterville ID- In-Lieu Project**
- Area 1: 1000 acres connected to Wood-Central Ditch
- Area 2: 650 acres connected to FKC
- Revising schedule

**Shafter-Wasco ID- Madera Avenue Intertie**
- Project modification proposed
- Revising schedule
FRAMEWORK FOR IMPLEMENTATION
Why Did We Update the Framework?

1. Establish a common vision/path forward for implementing the Program

2. Identify Implementing Agencies roles and responsibilities with more accountability

3. Set realistic schedules and funding outlooks so the Program can demonstrate success
SJRRP Challenges and Problems?

None here

Can Implementing Agencies do something about it?

No

Yes

Actions Within the Scope

Preliminary Draft, Subject to Revision
Why Bother?  
Why Not Let the Settlement Fail?

Significant risks for all parties:

Reclamation  - Judge continues remedy phase, orders flows  
               - SWRCB includes in-stream flow requirements on water rights

NRDC  - No channel improvement projects  
       - No active fish reintroduction

Friant  - Flow releases as ordered by Judge  
         - No Water Management Goal projects  
         - SWRCB in-stream flow requirements

Third Parties  - Flow releases as ordered by Judge  
               - No seepage, levee stability, third party protections and other infrastructure projects  
               - Uncertain future California Fish and Game Code 5937 compliance at Mendota Dam and Sack Dam  
               - SWRCB in-stream flow requirements
Did Not Consider…

- Changes to or violations of the Settlement
- Changes to or violations of the Act
- Changes to or anything inconsistent with Reclamation law or policy
- Anything that violates State or Federal law
- Returning to court for a “better” deal
- “Just get more money”
- Not implementing the entire Settlement or Settlement Act (no cherry picking actions)
- Miracles in addressing staffing, schedule, and process constraints
- Reclamation/Congress just go “fix it”
- Hopeing it fixes itself
Key Foundational Factors and Assumptions

- Around $50 million per year maximum additional federal appropriations
- Everyone gets better together
  - NRDC: Flows and fish in the river
  - Friant: Progress on Water Management Goal commensurate with increases of flows
  - 3rd Parties: “Protections” built as flows increase
- Only specific 3rd Party protections are required to be in place before actions are taken
## Vision Approach and Key Actions

<table>
<thead>
<tr>
<th>2015-2019</th>
<th>2020-2024</th>
<th>2025-2029</th>
<th>2030+</th>
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<tbody>
<tr>
<td><strong>Goal: 1,300 cfs Capacity in all Reaches</strong></td>
<td><strong>Goal: Increased Capacity</strong></td>
<td><strong>Goal: Phase 1 and 2 Projects Complete</strong></td>
<td><strong>Goal: All Remaining Projects Complete</strong></td>
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<tr>
<td>- Friant-Kern Capacity Restoration</td>
<td>- Part III / Financial Assistance for Groundwater Banks</td>
<td>- Reach 4B</td>
<td>- Ongoing Operations and Maintenance</td>
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<tr>
<td>- Madera Canal Capacity Restoration</td>
<td>- Reach 2B</td>
<td>- Mud and Salt Sloughs</td>
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<tr>
<td>- Mendota Pool Bypass</td>
<td>- Arroyo Canal and Sack Dam</td>
<td>- Chowchilla Bifurcation Structure</td>
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<tr>
<td>- Conservation Facility</td>
<td>- Reach 4B Land Acquisition</td>
<td>- Gravel Pits</td>
<td></td>
</tr>
<tr>
<td>- Seepage Projects to 1,300 cfs</td>
<td>- Seepage Projects to 2,500 cfs</td>
<td>- Seepage Projects to 4,500 cfs</td>
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<tr>
<td></td>
<td>- Levee Stability to 2,500 cfs</td>
<td>- Levee Stability to 4,500 cfs</td>
<td></td>
</tr>
</tbody>
</table>

Preliminary Draft, Subject to Revision
5 Year Vision: Capacity in all Reaches
(FY 2015 – 2019)

• Flow connectivity and fish passage, such that adult and juvenile salmon can complete migration without human assistance

• Continue to implement Water Management actions to reduce or avoid supply impacts to Friant Division contractors
5 Year Vision: Capacity in all Reaches (FY 2015 – 2019)

Key Elements

- Seepage Projects and Levee Improvements to allow for flows up to 1,300 cfs
- Mendota Pool Bypass Completed
- Friant-Kern and Madera Canal Capacity Restoration

Preliminary Draft, Subject to Revision
Flow Related Activities – 5 Year

• PEIS/R ROD Conservation Strategy and Mitigation Actions

• Seepage and Levee Stability to allow up to 1,300 cfs in all reaches
Seepage and Levee Stability
Channel and Structural Improvements – 5 Year

- Mendota Pool Bypass
  - Minimize trap and haul of fish
- Reach 4B, Eastside Bypass/Mariposa Bypass EIS/R and Report to Congress
  - Routing decision to determine bypass levee repairs
- Passage at Key Barriers
  - Minimize trap and haul of fish
Mendota Pool and Reach 2B Project
Fish Reintroduction – 5 Year

- Construction & operation of Salmon Conservation and Research Facility
- Spring-run donor stock collection and tagging
- Trap and haul of fish as passage barriers still exist
- Permit for and possible use of wild stock
Fish Reintroduction

• 2015: Caught 931 fall-run Chinook salmon at Hills Ferry Barrier
  – Transported to Reach 1 to spawn
• 2014: 510 fish
• 2013: 367 fish
• 2012: 119 fish
Water Management – 5 Year

- Continued Recapture and Recirculation of Restoration Flows, RWA accounts
- Recapture and Recirculation Plan
- Recapture and Recirculation EIS
- Friant-Kern and Madera Canal Capacity Restoration Projects
  - Construct ASAP to maximize funding value (costs not indexed)
10 Year Vision: Increased Capacity (FY 2020 – 2024)

• SJR Restoration Fund available without further appropriation in FY 2020
  – Level of construction action increases with available funding
  – Make all major project decisions and award funds
10 Year Vision: Increased Capacity (FY 2020 – 2024)

Key Elements

- Arroyo Canal Fish Screen & Sack Dam Fish Passage construction
- Increase Reach 2B channel capacity to 4,500 cfs, levee construction
- Reach 4B land acquisition
- Seepage Projects and Levee Improvements to allow for flows up to 2,500 cfs
- Continue Implementing Water Management Goal; Award remaining funds for groundwater banking projects
15 Year Vision: Conveyance  
(FY 2025 – 2029)

• Increase capacity of all reaches to 4,500 cfs

• Reach 4B Project

• Continue to implement Water Management Actions to reduce or avoid supply impacts to Friant Division contractors
15 Year Vision: Conveyance
(FY 2025 – 2029)

Key Elements

- Friant-Kern Canal Salt and Mud Slough Seasonal Barrier projects
- Reach 4B/ESB High Flow Routing
- Increased channel capacity to allow for flows up to 4,500 cfs
- Gravel Pit Filling and/or isolation

Chowchilla Bifurcation Fish Passage Construction

Continue implementing Water Management Goal

Preliminary Draft, Subject to Revision
Beyond 15 Year Vision (FY 2030+):
Monitoring, Maintenance and Final Project work

• Complete any remaining construction actions
• Paragraph 12 projects, if any recommended
• Monitor and maintain system for long-term
• Phase out hatchery production
  – Phase out hatchery production and population augmentation
  – Monitor self-sustaining, naturally reproducing populations
• Continue implementing Water Management Goal
  – Recapture/recirculation, tracking and allocating RWA water
## Cost Summary

<table>
<thead>
<tr>
<th>Action</th>
<th>2015 Revised (2015, in millions)</th>
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<tbody>
<tr>
<td>Staffing and Administration</td>
<td>$124</td>
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<tr>
<td><strong>Flow Actions</strong></td>
<td></td>
</tr>
<tr>
<td>Conservation Strategy / Mitigation Measures</td>
<td>$38</td>
</tr>
<tr>
<td>Flows</td>
<td>$26</td>
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<tr>
<td><strong>Channel and Structural Improvements</strong></td>
<td></td>
</tr>
<tr>
<td>Mendota Pool Bypass and Reach 2B</td>
<td>$336</td>
</tr>
<tr>
<td>Reach 4B, Eastside Bypass and Mariposa Bypass</td>
<td>$264</td>
</tr>
<tr>
<td>Arroyo Canal Fish Screen and Sack Dam Fish Passage</td>
<td>$29</td>
</tr>
<tr>
<td>Salt and Mud Slough Seasonal Barriers</td>
<td>$6</td>
</tr>
<tr>
<td>Passage at Key Barriers</td>
<td>$6</td>
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<tr>
<td><strong>Fish Reintroduction</strong></td>
<td></td>
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<tr>
<td>All Other Fish Reintroduction</td>
<td>$12</td>
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<tr>
<td>Conservation Facility</td>
<td>$26</td>
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<tr>
<td><strong>Water Management Goal &amp; Friant Division Improvements</strong></td>
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<tr>
<td>Water Management Goal &amp; Friant Division Improvements</td>
<td>$96</td>
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<tr>
<td><strong>Total</strong></td>
<td>$962</td>
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<td>Seepage Projects</td>
<td>$189</td>
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<td><strong>Total “Core” Projects</strong></td>
<td>$1,150</td>
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<tr>
<td>Chowchilla Fish Passage</td>
<td>$20</td>
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<tr>
<td>Gravel Pits Filling or Isolation</td>
<td>$14</td>
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<td>Miscellaneous</td>
<td>$49</td>
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<tr>
<td><strong>Total Settlement</strong></td>
<td>$1,232</td>
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<tr>
<td>Levee Stability</td>
<td>$307</td>
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<tr>
<td><strong>Total</strong></td>
<td>$1,539</td>
</tr>
</tbody>
</table>
Key Changes in Costs

• Program extended 10 years – increased admin costs
• Reach 4B costs increased
• Seepage and levee stability costs increased
  – About $500M total
• Added Paragraph 11(b) projects
• Costs now provided in 2015 dollars
## Funding Needs and Sources

<table>
<thead>
<tr>
<th>(FY 2015 to FY 2029, in thousands)</th>
<th>Funds in 2015 Dollars</th>
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</thead>
<tbody>
<tr>
<td><strong>Funding Needs</strong></td>
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<tr>
<td>Total Estimated Federal Funding Need</td>
<td>$1,095,081</td>
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<td>Total Estimated State Funding Need</td>
<td>$137,277</td>
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<tr>
<td>Total Estimated State Funding Need with Levee Stability ¹</td>
<td>$443,954</td>
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<tr>
<td><strong>Funding Sources Remaining</strong></td>
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<tr>
<td>SJRR Fund ²</td>
<td>$356,730</td>
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<td>CVP Restoration Fund ($2,448 annual when indexed to 2015)</td>
<td>$36,724</td>
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<td>New Federal Appropriations (Part I, indexed)</td>
<td>$268,953</td>
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<tr>
<td>New Federal Appropriations (Part III, indexed)</td>
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<tr>
<td>State Authorized Funding Remaining ³</td>
<td>$50,090</td>
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<tr>
<td>Total Estimated Remaining Funding Sources</td>
<td>$704,731</td>
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<td><strong>Anticipated Additional Federal Funding Needed</strong></td>
<td>$390,350</td>
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<tr>
<td>Anticipated Additional State Funding Needed ⁴</td>
<td>$86,377</td>
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<tr>
<td>Anticipated Levee Stability Funding Needed ¹,⁴</td>
<td>$306,677</td>
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<tr>
<td><strong>Anticipated Additional State Funding Needs with Levee Stability</strong></td>
<td>$393,054</td>
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</table>

Notes: This table has been revised from the Draft Framework to add clarity. We anticipate that this table will be included in the Final Framework.

1. The responsible agency for levee stability costs has not been determined; however, it is assumed that DWR would continue to lead levee evaluations and improvements if State funds are available.
2. Includes estimated future Unreleased Restoration Flows sales, RWA sales, and Friant surcharge collections.
3. Funds remaining within those funds currently allocated by the State Legislature.
4. Includes a portion of the at least $200 million that the State has previously committed to look for to support the Program.
Questions?
RESTORATION FLOWS
OUTLOOK 2016
2016 Restoration Year Actions

Restoration Year: March 2016 - February 2017

Preparing for the release of Restoration Flows (Paragraph 13)

- Restoration Flows allocation
- Measuring Restoration Flows and losses in the Restoration Area
- Managing Unreleased Restoration Flows

Preparing for the recapture of Restoration Flows (Paragraph 16)

- Mendota Pool
- Lower San Joaquin River
- South-of-Delta facilities
PREPARATIONS FOR RESTORATION FLOWS
Restoration Flow Allocation

- Restoration Flow Guidelines (RFG) describe processes for determining Restoration Year Type and Flow Schedules.
- Reclamation provides the first default flow schedules to the Restoration Administrator in January and receives recommendations for releases at Friant Dam in return.

The values shown for the Restoration Flow Allocation in the following slides include water diverted by holding contractors in Reach 1.
2016 Potential Range of Restoration Year Types

Current Forecast Range:
Dry to Normal-Wet year type

750 TAF – 90% forecast from DWR
1,700 TAF – 50% forecast from NWS

(January 20, 2016)
Bracketing Potential Restoration
Flow Release Patterns

Default Flow Schedule, Wet Year

Maximized Release Flow Schedule, Wet Year

Preliminary Draft, Subject to Revision
Flow Constrictions in SJRRP Restoration Area

Reach 4 Constraint: 300 cfs (by Summer)
- Due to requirement (per Settlement Act) to protect adjacent lands from damage resulting from Restoration Flows
- SJRRP developing seepage easements and drainage projects to allow for full conveyance of Restoration Flows in 2030

Reach 2 Constraint: 1,120 cfs
- Due to seepage and levee stability challenges in Reach 2B caused by Restoration Flows
- SJRRP Reach 2B and Mendota Pool Bypass Project will allow for full conveyance of Restoration Flows
Measurement of Restoration Flows

- The RFG identifies gages to be used for measuring and monitoring Restoration Flows, and for calculating seepage and diversion losses.
Anticipated Losses in SJRRP Restoration Area

Reaches 4 and 5
- Channel losses during period of wet-up, as RF reach equilibrium with near-river groundwater levels
- Unknown potential for losses
- Long-term losses assumed to be zero in Settlement

Preliminary Draft, Subject to Revision
Effects of Channel Constraints on Restoration Flows

Limits full release of Restoration Flows from Friant Dam

- Losses and diversions in Reaches 1 and 2 plus the flow that can be conveyed through Reach 2.

Unreleased Restoration Flows (URFs)

- Volume of Restoration Flows that cannot be released from Friant Dam due to channel capacity constraints.

- SJRRP is preparing for URFs by:
  - Obtaining environmental coverage for the sale/exchange and delivery of URFs.
  - Securing agreements with Friant contractors to purchase/exchange URFs.
  - Coordinating with Friant Dam Operations.

- Dispersal of URFs will occur in a manner that best achieves the Restoration Goal.

Preliminary Draft, Subject to F
Quantifying URFs

Reach 2 Constraint

Up to 4500 cfs

Month

0 1,000 1,500

Reaches 1 and 2

Flows into Mendota Pool

Total Release from Friant Dam

URFs
### Potential Availability of URFs, Default Flow Schedule

<table>
<thead>
<tr>
<th>Restoration Year Type</th>
<th>Restoration Flow Allocation (TAF)</th>
<th>Releases Based on Reach 2 Constraint</th>
<th>Potential URFs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flow at Gravelly Ford (TAF)</td>
<td>TAF</td>
</tr>
<tr>
<td>Wet</td>
<td>673.5</td>
<td>497.4</td>
<td>176.0</td>
</tr>
<tr>
<td>Normal-Wet</td>
<td>473.9</td>
<td>365.0</td>
<td>184.9</td>
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<tr>
<td>Normal-Dry</td>
<td>365.3</td>
<td>331.3</td>
<td>180.9</td>
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<tr>
<td>Dry</td>
<td>301.3</td>
<td>298.4</td>
<td>2.8</td>
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<tr>
<td>Critical-High</td>
<td>187.8</td>
<td>184.9</td>
<td>139.0</td>
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<tr>
<td>Critical-Low</td>
<td>116.9</td>
<td>116.9</td>
<td>0.0</td>
</tr>
</tbody>
</table>

- **Restoration Flow Allocation (TAF)**: The amount of flow allocated for restoration purposes in cubic feet per second (cfs).
- **Releases Based on Reach 2 Constraint**: The releases from the Gravelly Ford based on the constraint from Reach 2.
- **Flow at Gravelly Ford (TAF)**: The flow at Gravelly Ford in TAF.
- **Losses (TAF)**: The losses in TAF.
- **Potential URFs**: The potential availability of URFs in TAF and as a percentage of the restoration allocation.
Questions?
PREPARING FOR RECAPTURE
2016 Recapture Locations

South-of-Delta Facilities

In the Restoration Area (Mendota Pool)

Preliminary Draft, Subject to Revision
Availability of Restoration Flows for Recapture at Mendota Pool

Restoration Flows at Mendota Pool
• Total Volume of releases from Friant Dam
• Less Reach 1 and 2 losses and diversions
• Less 5% operational loss
• Less any flows that can be conveyed past Sack Dam

Recapture Opportunities
• San Joaquin Exchange Contractors
  – Limited to deliveries otherwise made from the Delta
  – 1:1 exchange ratio
  – Results in recaptured supplies in San Luis Reservoir
  – SJRRP can facilitate exchanges
• Other Water Users
  – Westlands Water District, Mendota Pool groundwater pumpers, and groundwater banks
  – SJRRP PEIS/R provides environmental coverage
  – Requires further coordination

Preliminary Draft, Subject to Re
Potential Recapture at Mendota Pool, Default Flow Schedule

<table>
<thead>
<tr>
<th>Condition</th>
<th>Normal-Wet</th>
<th>Normal-Dry</th>
<th>Dry</th>
<th>Total Available for Recirculation</th>
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</thead>
<tbody>
<tr>
<td>Normal-Wet</td>
<td>180.1</td>
<td>72.6</td>
<td>0.0</td>
<td>72.6</td>
</tr>
<tr>
<td>Normal-Dry</td>
<td>150.4</td>
<td>49.9</td>
<td>0.0</td>
<td>49.9</td>
</tr>
<tr>
<td>Dry</td>
<td>120.7</td>
<td>27.2</td>
<td>0.0</td>
<td>27.2</td>
</tr>
</tbody>
</table>

Potential Recapture at Mendota Pool, Default Flow Schedule

Preliminary Draft, Subject to Revision
Availability of Restoration Flows for Recapture on the Lower San Joaquin River

Flows at the Merced River Confluence
- Releases from Sack Dam minus wet-up losses in Reach 4 and the Eastside Bypass.

Recapture Opportunities at Patterson and Banta-Carbona Irrigation Districts
- Limited to flows originating at Friant Dam
- Limited by districts’ existing uses of their facilities
- ~40 cfs at Patterson ID
- ~60 cfs at Banta-Carbona ID
- 1:1 recapture ratio, subject to costs to Friant contractors
- SJRRP is obtaining environmental coverage for recapture
- Requires agreements with Friant contractors
Availability of Restoration Flows for Recapture at Delta Facilities

Remaining Restoration Flows in the Delta after any recapture occurs on the lower San Joaquin River

Recapture at South-of-Delta Facilities

- <1:1 recapture ratio, subject to ongoing negotiations between CVO, the State Water Project, and South-of-Delta users
- SJRRP is coordinating through CVO to support development of agreements for 2016
- SJRRP PEIS/R provides environmental coverage
# Potential Recapture in Lower San Joaquin and Delta, Default Flow Schedule

<table>
<thead>
<tr>
<th>Restoration Year Type</th>
<th>Volume of Restoration Flows Passing Sack Dam (TAF)</th>
<th>Assumed Losses in Reach 4 and 5 (TAF)</th>
<th>Patterson ID</th>
<th>Banta-Carbona ID</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet</td>
<td>125.4</td>
<td>TBD</td>
<td>19.5</td>
<td>TBD</td>
<td>80.3</td>
</tr>
<tr>
<td>Normal-Wet</td>
<td>98.5</td>
<td>TBD</td>
<td>19.5</td>
<td>TBD</td>
<td>53.4</td>
</tr>
<tr>
<td>Normal-Dry</td>
<td>93.0</td>
<td>TBD</td>
<td>19.5</td>
<td>TBD</td>
<td>47.8</td>
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<tr>
<td>Dry</td>
<td>87.5</td>
<td>TBD</td>
<td>19.5</td>
<td>TBD</td>
<td>42.3</td>
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<tr>
<td>Critical-High</td>
<td>19.1</td>
<td>TBD</td>
<td>1.8</td>
<td>TBD</td>
<td>11.8</td>
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<tr>
<td>Critical-Low</td>
<td>0.0</td>
<td>TBD</td>
<td>0.0</td>
<td>TBD</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Notes:**
- Wet-up losses are anticipated but unknown.
- Patterson Irrigation District has capacity for 50 cfs of recapture from September through July and 10 cfs for August.
- Banta-Carbona Irrigation District has capacity for 50 cfs of recapture from November through March and 0 cfs for April through October.

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Preliminary Draft, Subject to Revision
LONG-TERM RECAPTURE AND RECIRCULATION OF RESTORATION FLOWS EIS
Introductions

• Bureau of Reclamation, SJRRP
  – Kellye Kennedy, NEPA Project Manager

• CDM Smith
  – NEPA Consultant Team
  – Carrie Buckman, Project Director
Overview

• Water Management Goal Actions
  – Implementation of existing Recirculation of Recaptured Water Year 2013-2017 EA
  – Long-term Recapture and Recirculation of Restoration Flows EIS

• Alternatives Formulation

• Alternative Refinement and Screening

• Next Steps and Schedule
Water Management Goal Actions

• Actions proposed in 2016 and 2017
  – Covered under the Recirculation of Recaptured Water Year 2013-2017 EA

• Actions planned for 2018 and beyond
  – Will be covered in the Long-term Recapture and Recirculation of Restoration Flows EIS
Long-term Recapture & Recirculation EIS

Develop Purpose and Need
Conduct Public Scoping
Develop Initial Alternatives
Evaluate Alternatives
Select Alternatives for EIS

Screening Criteria
ALTERNATIVES FORMULATION
Initial Options Identification

- Initial options include individual recapture, recirculation and storage components
- Identified utilizing:
  - Published Studies
  - Input during Public Scoping
  - Input from Settling Parties
Options Identified - Recapture

• Existing Facilities
  – Banta-Carbona ID Recapture
  – Patterson ID Recapture
  – West Stanislaus ID Recapture

• Expanded
  – Banta-Carbona ID Recapture
  – Patterson ID Recapture
  – West Stanislaus ID Recapture

• New Recapture with Conveyance to DMC
  – New Conveyance Infrastructure
  – North Valley Regional Recycled Water Program Facilities
  – Use of the Newman Wasteway

• New Seepage Losses Recapture Facilities in Restoration Area
Options Identified - Recirculation

- Direct Deliveries to Shafter-Wasco ID
- Arvin-Edison WSD Long-term Exchange
- Kings River Exchange
- Kings River Exchange with Gould Canal
- Kaweah & Tule River Exchange
- Kern River Exchange
- Fresno River Exchange
- Fresno Irrigation District Exchange and Sale of Friant Class II Supply

- Recirculation through the Mid-Valley Canal
- Trans-Valley Canal
  - Multi-District Alignment
  - Tulare Alignment
  - Poso Alignment
- Transfers to buyers within the CVP/SWP service area
Options Identified - Storage

• Surface Storage
  – Storage in Metropolitan WD
  – Storage in Contra Costa WD
  – Storage in North of Delta Reservoirs
  – Storage in San Joaquin River Tributary Reservoirs
  – Delta Island Storage

• Groundwater Storage
  – Semitropic WSD Groundwater Storage Bank
  – Cawelo WD Groundwater Banking
  – Rosedale-Rio Bravo WSD
  – Kern WB
  – Meyers Water Bank
  – City of Bakersfield 2800 Acre Groundwater Recharge Facility
  – Arvin-Edison WSD
  – Private Groundwater Banks (CalMat Company)
Alternatives Formulation

- Identified options were screened based on:
  - Meeting the Purpose and Need
  - Legal and Technical Complexity
  - Cost
- Remaining Options were combined into alternatives
Options Screened

• Recapture
  – Recapture of seepage losses in Restoration Area

• Recirculation
  – Mid-Valley Canal
  – Trans-Valley Canal
    • Multi-District Alignment
    • Tulare Alignment
    • Poso Alignment

• Storage
  – North of Delta Reservoirs
  – San Joaquin River Tributary Reservoirs
  – Delta Island Storage
Alternative 1 – No Action

• Reflects conditions if no further Federal action was taken to expand recapture and continue recirculation over the long-term

• Includes elements analyzed at a project level in the PEIS/R and other ongoing efforts:
  – Reoperation of Friant Dam and downstream flow control structures to route Restoration Flows
  – Recapture Restoration Flows in the Restoration Area
  – Recapture Restoration Flows at the CVP and SWP Delta Pumps with and without a 1,000 cfs recapture facility on the Lower San Joaquin River
Alternative 2 – Continue Existing Recirculation Actions

• Implementation of the Recirculation of Recaptured Water Year 2013-2017 EA
  – Recapture would continue the same as the No Action Alternative
  – Recirculation to the Friant Contractors would be accomplished through direct delivery, exchange, and/or transfer
Alternative 3 – Maximize Use of Existing Facilities

• Recapture would expand to utilize any existing unused diversion capacity at West Stanislaus Irrigation District, Patterson Irrigation District, and Banta Carbona Irrigation District

• Same Recirculation as Alternative 2
Alternative 4 – Expand Existing Facilities

- Improvements to expand recapture at existing local diversion facilities
- Expanded recirculation through exchanges that would require new facilities or complex agreements
- Use of local storage with CCWD or MWD
Alternative 5 – Construct New Facilities

• Development of a new facility on the Lower San Joaquin River to recapture by itself or in combination with other existing facilities up to 1,000 cfs

• Same Recirculation as Alternative 4

• Storage in Groundwater Banks
Alternative 5 – New Intake Siting

- Identification of potential intake sites completed in two phases
  - Phase 1 eliminated sites with river geometry where salmon smolts are known to congregate, sites located in urban areas, recreation areas, and refuges, and sites adjacent to large intact riparian habitat
  - Phase 2 identified sites with geomorphic, aquatic and terrestrial habitat suitability, and compatibility with fish screen design requirements
Alternative 5 – New Intake Siting

• Identification of potential conveyance pathways
  – Avoid crossing urbanized areas (including reserve boundaries) to reduce utilities crossings and impacts to development
  – Avoid crossing protected lands (wildlife refuges, conservation and recreation areas)
Alternative 5 – New Intake Siting

- The investigation identified 11 potential intake sites and 6 potential conveyance zones.
- Preliminary screening eliminated 3 intake locations and the conveyance pathway north of the Stanislaus River.
Alternative Refinement

• The four action alternatives will be carried forward for additional refinement through field surveys and engineering design

• Alternative refinement will also include outreach to potential project proponents to verify interest in participating and collect details on available capacity and any ongoing expansion plans to support alternative design

• Alternative refinement will also include additional evaluation and screening of the 8 remaining intake sites
Alternative Screening

• The refined alternatives will then be evaluated with screening criteria that include completeness, effectiveness, acceptability and efficiency

• The final action alternatives will be carried forward for review in the Environmental Impact Statement
Next Steps and Schedule

- Development of the Project Description TM
- Analysis of Alternatives in the EIS

August 2015
Conduct Public Scoping

January 2016
Develop Initial Alternatives

February to March 2016
Select Alternatives for EIS

November 2015
Scoping Report

February 2016
Initial Alternatives Report

October 2016
Project Description Memo

Stakeholder Outreach
Contact Us

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Questions?
NEXT MEETINGS
## Next Meetings

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<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>January 20, 2016</td>
<td>Reno, NV</td>
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<tr>
<td>March 18, 2016</td>
<td>Visalia, CA</td>
</tr>
<tr>
<td>May 20, 2016</td>
<td>Sacramento, CA</td>
</tr>
<tr>
<td>Sept 16, 2016</td>
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