Carlsbad Desalination Projects

- TWIN OAKS VALLEY WATER TREATMENT PLANT DESALINATION MODIFICATIONS (K0306)
- PIPELINE 3 DESALINATION RELINING SAN MARCOS TO TWIN OAKS (K0304) (27,100 FEET)
- DESSALINATION PRODUCT WATER CONVEYANCE PIPELINE (K0303) (10 MILES, 54-INCH PIPE)
- SAN MARCOS VENT DESALINATION MODIFICATIONS (K0305)
- CARLSBAD DESALINATION PLANT
- AQUEDUCT CONNECTION POINT
## Project Elements

<table>
<thead>
<tr>
<th>Project Element</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Marcos Vent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipeline 3 Relining</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twin Oaks Plant Modifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conveyance Pipeline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlsbad Desalination Plant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System Commissioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
San Marcos Vent

- Will construct a connection from Pipeline 3 to Pipeline 4 south of desal project
- Necessary to continue distributing water to the south.
- Status: A design-build contract has been awarded to T.C. Construction / RBF Engineering. Design work is underway.
San Marcos Vent Structure
Pipeline 3 Relining

- 72” and 75” in diameter / 5.2 miles
- Magnetic Flux Leakage analysis showed integrity of existing pipe is good
- Being re-purposed to carry desalinated water to Twin Oaks Treatment Plant (south to north)
- Completely different pressure regime
- Is beneath SR-78 and Sprinter tracks
- 15 portals / 17 property owners
- Board Info item August 2013
Carlsbad Desalination Projects

TWIN OAKS VALLEY WATER TREATMENT PLANT DESALINATION MODIFICATIONS (K0306)

PIPELINE 3 DESALINATION RELINING SAN MARCOS TO TWIN OAKS (K0304) (27,100 FEET)

DESA LINATION PRODUCT WATER CONVEYANCE PIPELINE (K0303) (10 MILES, 54-INCH PIPE)

AQUEDUCT CONNECTION POINT

SAN MARCOS VENT DESALINATION MODIFICATIONS (K0305)

CARLSBAD DESALINATION PLANT
Pipeline 3 Desalination Relining - Construction Budget & Schedule

- Estimated Construction Cost: $30 - $35M
- Advertisement for Bids – September 16, 2013
- Bid Opening – Mid October
- Contract Award – November Board Meeting
- Construction Activity: January 2014 to June 2015
Twin Oaks Valley Treatment Plant Modifications

- Operated by CH2M Hill/OMI
- Clearwell Piping
- Chemical Injection
- Treated Water Flow Control Facility Modifications
- Connection to Pipeline 3
- Status: Project is 100% designed and has been awarded to Shea. Work started last month.
TOWWTP Modifications

Clearwell Upgrades

New 54-inch Dia. Piping

Existing Pipeline 3

New 54-inch Dia. Connection and Valve Vault

Chemical Feed Facilities Upgrades

TWFCF Upgrades
Conveyance Pipeline
Progress to Date

- Safety: No injuries
- Design: Over 90% complete
- Total working on project: 150
- Currently three work areas
  - Trench work at Linda Vista Drive (San Marcos) and Poinsettia Ave (Vista)
  - Tunnel work on Cannon Road beneath Interstate 5 (Carlsbad)
Current Work
Desalination Conveyance Pipeline
10 miles of new 54-inch Pipe

Completed Work
Desalination Plant

Completed Work
Pacific Ocean Aqueduct Connection Facilities

TOVWTP Improvements

Current Tunnel Work

Completed Work
Current Trench Work

Completed Work
Pipeline 3 Relining
(27,100 feet)
Conveyance Pipeline Focus Areas

- Property Acquisition: flow control facility property and vent locations
- Working with Carlsbad and Vallecitos on their connections
- Public Outreach
  - Working with 3 cities
  - 9th Avenue, Las Flores Avenue, Linda Vista Avenue in San Marcos
  - Carlsbad property owners
- Macario Canyon
  - Bridge or Tunnel?
Public Outreach

Goals

- Inform neighbors and stakeholders before construction
- Anticipate and mitigate potential public impacts, when feasible
- Establish two-way communication with public to address issues and disruptions

Activities

- Focused efforts with some groups
- Postcards, door hangers
- Door-to-door canvassing for closest neighbors
- Open houses/community meetings
- Infoline, web and email portals for questions and concerns
- Briefings and consultations with San Marcos, Vista, Carlsbad staff
Public Outreach

- Working closely with the cities of Carlsbad, Vista, and San Marcos.
- Public meetings in San Marcos as trench work proceeds.
- Carlsbad businesses in the Faraday Avenue corridor
  - Survey was sent to all businesses who may be impacted
  - Many meetings with individual businesses
  - Open House on December 10
  - Continue to interact with the Carlsbad Research Center Owner’s Association
    - Provided detailed roadway/driveway plans
Pipeline Construction
Carlsbad Research Center
Driveway Detail • Page 9 of 17

LEGEND
- Desalination Pipeline
- Underground Tunnel
- Jack Pit (Tunnel Access Point)
- Impacted Driveway (No Access During Construction)
- No Impact
- No Left Turns (While Driveway is Impacted)
- Alternate Access Point
- Alternate Route
- Work Area
- Intersection Work Phase A
- Intersection Work Phase B

Tenant Directory
5791 Van Allen Way: Life Science Corporation
5802 Van Allen Way: 7/11
5804 Van Allen Way: US Bank
5806 Van Allen Way: Jose’s Taco

Subject to change pending City approval of traffic control plans. Active construction area will be a maximum of 500 feet throughout the Carlsbad Research Center.
Parking lots at this complex share driveway access. No two consecutive driveways will be impacted at the same time.

Subject to change pending City approval of traffic control plans. Active construction area will be a maximum of 500 feet throughout the Carlsbad Research Center.
Conveyance Pipeline
Macario Canyon: Bridge or Tunnel

- Project is permitted with the bridge.
  - Single 54-inch pipe splits off into four 24-inch pipes (weight distribution)

- Design Build Agreement provides for either

- Reasons for moving to tunnel
  - Security / Attractive Nuisance
  - Maintenance
  - Visual
Delivery System
Pipeline Construction March 2013 – December 2014
Macario Canyon Tunnel Approval Process

- Conceptual design approved including portals/shafts locations
- Environmental resource survey
- Board approves EIR addendum in Water Planning today
- Geotechnical work
- Easement language approved by agencies
- Easements acquired
- SDG&E approval
- City of Carlsbad approves LCP consistency (November)
- Coastal Commission approval (December)
Las Flores Drive – San Marcos
Desalination Plant Progress

- Safety: No injuries
- Total working on project: 200
- Amount of concrete poured: 5,867 Cubic yards (22%)
- Amount of reinforcement steel: 2 tons (37%)
- Amount of conduit/pipe placed: 3850 feet (5%)
- Design is 70% complete
- Total anticipated subcontractors: 65
  - Number of subcontracts executed: 27
  - Percentage of volume: 89.7%
  - Number of countries supplying equipment: 11
Desalination Plant Progress (cont.)

- Completed all key demolition tasks (Tank 3, abandoned power plant buried infrastructure)
- Completed rough grading/soil remediation for entire plant site
- Installed large diameter fiberglass pipelines and electrical conduit/duct banks
- Construction of primary concrete storage tanks and basins
Energy Recovery at the Desalination Plant

- Water Purchase Agreement: price of water has an energy usage target/guarantee built in that Poseidon must satisfy.

- Plant will be using 38 MW at capacity
Configuration without Energy Recovery

Sea Water

Pump 100%

R.O. Membranes

Product Water 50%

Brine Concentrate 50%

Pacific Ocean
Typical Configuration

Pacific Ocean

Sea Water

Pump

50%

Sea Water

R.O. Membrane

50%

Product Water

50%

Energy Recovery

50%

Brine Concentrate

Brine Concentrate

50%
ERI PX-Q300 Pressure Exchanger Technology

144 isobaric pressure exchange units

Brine stream high pressure (800+ psi) is transferred to feedwater (96%+ efficiency)

Approx. one-half of the feedwater flow is pressurized using “recovered” energy

Approx. 30%+ power savings for the entire plant
Plant Construction – Seawater Feed Pipeline
Plant Construction – Filtered Water Tank & Pipeline
Plant Construction – Product Water Tank & Electrical Conduit
## Carlsbad Desalination Project
### Budget Summary

<table>
<thead>
<tr>
<th>Task/Activity</th>
<th>Lifetime Budget ($ Millions)</th>
<th>Expended ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desalination Plant Water Purchase Agreement</td>
<td>$3.1</td>
<td>$0.6</td>
</tr>
<tr>
<td>Desalination Product Water Conveyance Pipeline</td>
<td>$8.2</td>
<td>$1.7</td>
</tr>
<tr>
<td>Pipeline 3 Desalination Relining</td>
<td>$48.0</td>
<td>$0.7</td>
</tr>
<tr>
<td>San Marcos Vent Desalination Modifications</td>
<td>$3.2</td>
<td>$0.2</td>
</tr>
<tr>
<td>Twin Oaks Treatment Plant Modifications</td>
<td>$17.4</td>
<td>$3.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$80.0</strong></td>
<td><strong>$6.3</strong></td>
</tr>
</tbody>
</table>
### Carlsbad Desalination Conveyance Facilities

**“Contract Administration Memoranda”**

<table>
<thead>
<tr>
<th>Contract Administration Memoranda Number/Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Credit: San Marcos Street Improvements not required</td>
<td>($190,000)</td>
</tr>
<tr>
<td>2. Credit: Department of Public Health cutoff wall and monitoring wells not required</td>
<td>($130,000)</td>
</tr>
<tr>
<td>3. Add: Property for air release and vacuum valve structures</td>
<td>$400,000</td>
</tr>
<tr>
<td>4. Add: Costs to permit and develop Macario tunnel design</td>
<td>$150,000</td>
</tr>
<tr>
<td>5. Credit: Final pipeline design thickness</td>
<td>($4,830,000)</td>
</tr>
</tbody>
</table>

*There will be two changes related to Member Agency turnouts that are fully reimbursable.*
Carlsbad Desalination Projects

TWIN OAKS VALLEY WATER TREATMENT PLANT DESALINATION MODIFICATIONS (K0306)

PIPELINE 3 DESALINATION RELINING SAN MARCOS TO TWIN OAKS (K0304) (27,100 FEET)

CARLSBAD DESALINATION PLANT

DESALEATION PRODUCT WATER CONVEYANCE PIPELINE (K0303) (10 MILES, 54-INCH PIPE)

AQUEDUCT CONNECTION POINT

SAN MARCOS VENT DESALINATION MODIFICATIONS (K0305)
Planned Air Release Valve and Carlsbad #5 Flow Control Facility

New Desalination Conveyance Pipeline
Recommendation

- Authorize the General Manager to execute an agreement with the Carlsbad Municipal Water District for reimbursable costs for construction of new facilities related to future contract purchases of treated water from the Water Authority – Carlsbad Desalination Project.

- Increase the FY 2014/2015 Capital Improvement Program appropriation and lifetime budget for the Carlsbad Desalination Project by $124,300 for reimbursable costs related to future contract purchases of treated water from the Carlsbad Desalination Project.
Websites

- Poseidon’s Website: project updates
  Carlsbaddesal.com

- Water Authority: all documents, facts sheets
  Sdcwa.org/issue-desal
Capital Improvement Project Delivery

- Gate Process
- What is a “Gate”? 
- Gate Group Composition
Gate Process

Planning
- Gate 1: Project Initiation (20 deliverables)

Design
- Gate 2: Design Initiation (10 deliverables)
- Gate 3: Preliminary Design (6 deliverables)
- Gate 4: Mid-Point Design (6 deliverables)
- Gate 5: Final Design (12 deliverables)

Construction
- Gate 6: Beneficial Occupancy (5 deliverables)
- Gate 7: Approval - Go to Board for NOC (9 deliverables)

Post-Construction
- Gate 8: Project Closeout (15 deliverables)
Gate Process

Planning
- Gate 1: Project Initiation (20 deliverables)

Design
- Gate 2: Design Initiation (10 deliverables)
- Gate 3: Preliminary Design (6 deliverables)
- Gate 4: Mid-Point Design (6 deliverables)
- Gate 5: Final Design (12 deliverables)

Construction
- Gate 6: Beneficial Occupancy (5 deliverables)
- Gate 7: Approval - Go to Board for NOC (9 deliverables)

Post-Construction
- Gate 8: Project Closeout (15 deliverables)
Gate Process Deliverables

Gate 1 - Project Initiation:

- Planning Study Final Report
- Project Delivery Plan
- Preliminary Project Schedule
- Project Budget
- Risk Management Plan
- Value Engineering Study for Pipeline Projects
Gate Process Deliverables

Gate 1 - Project Initiation:
- Planning Study Final Report
- Project Delivery Plan
- Preliminary Project Schedule
- Project Budget
- Risk Management Plan
- Value Engineering Study for Pipeline Projects
Gate Process Deliverables

Project Delivery Plan

- It is a plan that examines/explores various options to execute the project.
- Examples: Design/Bid/Build
  Design/Build
  Design/Build/Operate
  Pre-purchase of equipment
  Staged construction
Gate Process Deliverables

Project Delivery Plan

- Project size
- Type of project
- Schedule
- Desired level of involvement
- Tolerance for risk
- Resources and capabilities
Gate Process Deliverables

Risk Management Plan

- Identify
- Update
- Manage Risks During All Project Phases
- Analyze
- Mitigate
- Monitor

Project Initiation and Design Phases
Nob Hill Schedule

- Gate 1 – Project Initiation – February 2012
- Gate 2 – Draft EIR – December 2013
- Gate 3 – Preliminary Design – June 2014
- Gate 4 – Mid-point Design – October 2014
- Gate 5 – Final Design – May 2015
- Gate 6/7 – Beneficial Occupancy/Construction Completion – February 2017
- Gate 8 – Project Closeout – June 2017
San Vicente Dam Raise
Construction Update

Engineering & Operations Committee Meeting
September 26, 2013
Schedule Update

Contractor’s Baseline Schedule

- Complete Outlet Works
- Start-up Testing
- Decommission Exist OW
- 6 Months

May Begin Reservoir Fill*
* Subject to water availability

RESERVOIR FILL TO EL.640
FALL 2014 – 2017

CONTRACTORS BASELINE SCHEDULE
Outlet Works Delay

DECEMBER 2013 FINISH
Low Level Outlet Gate Structure
Low Level Outlet Gate Structure
Cofferdam Removal
Quagga Mussels
Outlet Tower
Crest Control Building
Outlet Works

Emergency Discharge

Lower Level Outlet 108-inch Diameter Pipe

City 66-inch Diameter Pipe

Water Authority 90-inch Diameter Pipe
Downstream Control Facility
Control System Start-up Testing

SDCWA Control Room → SDCWA Pump Station → Downstream Control Facility ↔ Dam Crest Control Building ↔ City Control Room
Control System Start-up Testing
Contractor’s Baseline Schedule

(Construction Contract Duration) 6 Months

Complete Outlet Works

Start-up Testing

Decommission Exist OW

May Begin Reservoir Fill*

* Subject to water availability

CONTRACTORS BASELINE SCHEDULE
Outlet Works Delay

DECEMBER 2013 FINISH
RESERVOIR FILL TO EL.640
FALL 2014 – 2017
Decommissioning Existing Outlet Works

1. Connect New Outlet Works to City Pipelines and Cut/Cap Existing City Pipelines
2. Cut & Cap Existing Pipelines
3. Connect New Outlet Works to Water Authority’s System
4. Decommission Original Outlet Tower, Valve Vault and City Pipelines

Legend:
- San Vicente Pipeline
- San Vicente Pump Station / Surge Control Facility
- San Vicente Reservoir Interconnect Pipeline
- San Vicente Dam Raise Project - Water Authority Circuit
- San Vicente Dam Raise Project - City of San Diego Circuit
- City of San Diego - Existing
- City of San Diego - Abandoned
Upcoming Activities

- Award Marina Facilities Construction - Fall of 2013
- Award Package 4 Bypass Pipeline Construction - Summer of 2014
- Fill to Height of Existing Dam (2014-2017)
- Obtain Division of Safety of Dams Certification - Summer of 2015
- Complete Package 4 Bypass Pipeline Construction - Winter of 2015
- Can Begin Filling to Full Height of Raised Dam
Bay–Delta Conservation Plan (BDCP): Comparison of Estimated Export Yields

Presented by:
Dana Friehauf, Principal Water Resource Specialist
Larry Purcell, Water Resources Manager

Imported Water Committee
September 26, 2013
What is the BDCP?

- Comprehensive conservation strategy for Sacramento–San Joaquin River Delta
  - Results in 50 year ESA permits to operate CVP/SWP

- 22 Conservation Measures (CMs)
  - CM 1: water conveyance facilities and operations
  - CM 2–22: restore, protect and conserve ecosystem

- Achieve co-equal goals of restoring ecosystem and securing water supply reliability within stable regulatory framework
How is the Water Authority Staff Analyzing the BDCP?

- High level analysis of four Delta fix options
  - BDCP proposed action
    - 9,000cfs north Delta conveyance
  - Delta Vision Foundation (DVF)
    - 6,000cfs north Delta conveyance
    - Include storage, local supplies as part of BDCP
- NRDC portfolio option
  - 3,000cfs north Delta conveyance
  - Include storage, local supplies as part of BDCP
- Existing conveyance (no project alternative)
  - Sole reliance on south delta diversion and pumping
  - Levee and habitat improvements as currently identified
How Is Water Authority Staff Analyzing the BDCP? (Con’t)

- Two Step Approach
  1. Using BDCP documents conduct “apples to apples” comparison of key in-delta features of each alternative
     - August 11 Workshop, Board directed staff to conduct “apples to apples” comparisons between alternatives
  2. Qualitatively assess benefits and risks of adding local supplies and storage to each alternative
     - Insufficient information in NRDC and DVF proposals to quantitatively evaluate out-of-delta components
     - Where possible, conduct quantitative analysis
Comparison of Estimated Export Yields: Operating Rules are Everything

- SWP/CVP operating rules and objectives have a major influence on export yields
  - Required to balance conflicting uses and protect species
  - Guide daily Delta operations

- Operating rules and objectives (scenarios) affect amount of diversions
  - Existing south Delta diversions
  - Proposed new north Delta diversion

- Important that scenarios for each conveyance option be consistent
  - Allow for “apples-to-apples” comparison for yields
Balancing the Delta System

NEW NORTH DELTA CONVEYANCE DIVERSION STRUCTURE

Seawater

Salmon

EBMUD DIVERSION

SOUTH DELTA PUMPS

EBMUD DIVERSION

MOKEUMNE AQUEDUCT

SFPUC SUPPLY

HETCH HETCHY AQUEDUCT

DELTA MENDOTA CANAL

CALIFORNIA AQUEDUCT
Two Major Elements that Influence Delta Export Yields

- Conveyance Option
- Operating Scenario
Selection of Analysis used to Compare Estimated Export Yields

**BDCP EIR/EIS**
- Alternatives developed to evaluate potential environmental impacts
- Different operating scenarios applied to conveyance options
- Cannot conduct “apples to apples” comparison

**BDCP Planning Documents**
- Analysis of “take alternatives” includes practicability analysis
- Applied high-outflow scenario to all conveyance alternatives
- Allows for comparison among alternatives
Delta outflow is the net amount of water flowing out of the Delta toward the San Francisco Bay.
Correlation between Delta Outflow Criteria and resulting Supply Export Yield

High-Outflow Criteria  =  Decrease in Export Yield
Correlation between Delta Outflow Criteria and resulting Supply Export Yield

Low-Outflow Criteria = Increase in Export Yield
BDCP Scenarios and Alternatives
Estimated Average Annual Export Yields

<table>
<thead>
<tr>
<th>Alternative or Scenario</th>
<th>Early Long-Term (2025)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Action</td>
<td></td>
</tr>
<tr>
<td>High-Outflow Scenario</td>
<td>4.7 MAF (51% South, 49% North)</td>
</tr>
<tr>
<td>Low-Outflow Scenario</td>
<td>2.3 MAF (48% South, 52% North)</td>
</tr>
<tr>
<td>Existing Conveyance</td>
<td></td>
</tr>
<tr>
<td>High-Outflow</td>
<td>2.4 MAF (59% South, 41% North)</td>
</tr>
<tr>
<td>Low-Outflow</td>
<td>2.9 MAF (72% South, 28% North)</td>
</tr>
</tbody>
</table>

Source: BDCP Chapter 9, Table 9-3
Consider Reliability of Yield: Comparison of Potential Earthquake Supplies

Proposed Action: 9,000 cfs

6,000 cfs Alternative

3,000 cfs Alternative

Comparison of Estimated Export Yields: Capacity Matters

- 9,000cfs and 6,000cfs delta conveyance options provides greater SWP yield than 3,000cfs and no action
  - Additional south of Delta storage adds yield to all alternatives
- The greater the amount of north Delta diversions the greater the improvement in SWP water quality
  - Lower salinity and organics
- Greater reliance on south Delta diversions creates more risk
  - Impacts to fish species and uncertainty over export yields
  - Reliability during levee failure, other catastrophic events
What is a “Decision Tree”

- An analytical tool to decide between options
  - Project possible outcomes when uncertainty exists
- Two main uncertainties identified in BDCP:
  - Is the USFWS reasonable and prudent alternative for fall outflow criteria necessary to achieve delta smelt biological objectives?
  - Are the initial spring outflow criteria necessary to achieve the longfin smelt biological objectives?
Why do we need Decision Trees?

- Current scientific uncertainty on spring and fall outflows
  - Can be reduced by new studies before operations
- Habitat restoration will alter Delta flow patterns and habitat quality
- There is good understanding of the biological goals for covered fish species
- Using a decision tree increases the chances of meeting the biological goals
How will Decision Trees Work?

- Conduct scientific studies on outflow criteria during years before dual-conveyance operations commence

- Permitting agencies will identify spring and fall outflow criteria
  - Sets initial outflow amount to meet biological goals
  - Decision Tree process ends

- Adaptive management is the primary process for making all future adjustments
  - Decision Tree functions as an early part of the overall adaptive management process
Decision Tree Operating Scenarios

- Combines different spring and fall outflows
- Permit would cover all four outcomes
- One would be selected for initial operations

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outflows per USFWS 2008 Smelt BiOp for Fall X2 (High Outflow)</td>
<td>Outflows per D–1641 (Low Outflow)</td>
</tr>
<tr>
<td></td>
<td>H1 5.6 MAFY</td>
</tr>
<tr>
<td></td>
<td>H3 4.7–5.6 MAFY</td>
</tr>
</tbody>
</table>
Restoring wildlife habitat and recovering endangered species relies on complex but **known** biological principles

Specific success criteria must be met
- Can require additional studies that affect future operations
- Water Authority NCCP/HCP wetlands mitigation
- Carryover Storage Project Section 404 permit

Decision Tree process and adaptive management not unusual in large NCCP/HCPs
- Direct link between achieving biological objectives and export yield
- Habitat restoration objectives (other conservation measures) also subject to change as new information developed
Biological Risks and Uncertainties

- BDCP is voluntary process to comply with state and federal Endangered Species Acts
  - Based on best available science
  - Negotiated; both parties have to benefit and accept some risk
  - Wildlife Agencies get habitat and species conservation assurances
  - Permittees get long-term financial and yield assurances

- Not clear if BDCP contains adequate “assurances” and “no surprises” to justify the cost/yield uncertainty
  - Concern that permitting agencies will impose further restrictions on exports if biological objectives are not met
  - Currently being negotiated between permitting agencies, DWR and other stakeholders
  - Public review documents need to provide additional clarity
Summary: Comparison of Estimated Export Yields

- SWP/CVP operating rules and objectives have a major influence on export yields
- Important that the comparison of dual conveyance options is “apples to apples”
- From in-Delta *only* perspective, 9,000cfs Delta option provides:
  - Most SWP yield
  - Better export water quality
  - Greatest reliability in a seismic event
- Uncertainties remain regarding operating scenario to be utilized when project operations begins
<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Meeting Type</th>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/25/2013</td>
<td></td>
<td>Provide input on scope of proposed Water Authority analysis of BDCP alternatives; provide input on policy questions to be addressed</td>
</tr>
<tr>
<td>8/8/2013</td>
<td>Special Meeting</td>
<td>Overview of Bay–Delta and proposals for Delta fix, including description of alternatives</td>
</tr>
<tr>
<td>8/22/2013</td>
<td></td>
<td>Review of technical analysis – demand assumptions; alternative project yield assumptions; projected costs</td>
</tr>
<tr>
<td>9/12/2013</td>
<td>Special Meeting</td>
<td>BDCP economic study on cost–benefit of BDCP preferred alternative</td>
</tr>
<tr>
<td>9/26/2013</td>
<td></td>
<td>Review of technical analysis (cont.), including yield review</td>
</tr>
<tr>
<td>10/24/2013</td>
<td></td>
<td>Information: Review of technical analysis (cont.), including baselines; preliminary review of conveyance facilities; other potential impacts to BDCP</td>
</tr>
<tr>
<td>11/14/2013</td>
<td>Special Meeting</td>
<td>Continuing review</td>
</tr>
<tr>
<td>1/9/2014</td>
<td>Special Meeting</td>
<td>Information: Review of public draft EIR/EIS – identify issues</td>
</tr>
<tr>
<td>1/23/2014</td>
<td></td>
<td>Information: Comparison of alternatives with Board’s adopted Bay–Delta policy principles; answers to policy questions</td>
</tr>
<tr>
<td>2/13/2014</td>
<td>Special Meeting</td>
<td>Information: review draft EIR/EIS comment letter</td>
</tr>
<tr>
<td>2/27/2014</td>
<td></td>
<td>Action: approve EIR/EIS comment letter</td>
</tr>
</tbody>
</table>
Colorado River Hydrology and Operations Update

Imported Water Committee
September 26, 2013

Halla Razak, Colorado River Program Director
Colorado River Water Supply

• Originates in Upper Basin snowpack
  – Snowmelt flows into river throughout spring
  – Storage in Lake Powell until released to Lower Basin
Factors Impacting Supply

- Dust on snow
  - Timing and quantity of water
- Temperature increase/Climate Change
  - Reservoir evaporation
  - Increased evapotranspiration
Upper Basin Snowpack and Precipitation

Mountain Snowpack as of May 1, 2013

- Reduced precipitation
  - Reduced inflow to the River

Precipitation Summary for October 2012 - August 2013

- ~80% of average this year

Reduced precipitation = Reduced inflow to the River
Hydrology since 1999-2000

- Driest span in 100 yrs
  - 11 years below average inflows
- Releases > Inflows
- Reservoir levels drop
  - Storage decreases
# Colorado River Basin Storage

<table>
<thead>
<tr>
<th>Current Storage</th>
<th>Percent Full</th>
<th>MAF</th>
<th>Elevation (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Powell</td>
<td>45%</td>
<td>10.929</td>
<td>3,591.2</td>
</tr>
<tr>
<td>Lake Mead</td>
<td>47%</td>
<td>12.363</td>
<td>1,106.9</td>
</tr>
<tr>
<td>Total System Storage</td>
<td>50%</td>
<td>29.977</td>
<td>NA</td>
</tr>
</tbody>
</table>

- Net loss of 5 maf in 2013

September 26, 2013
2007 Interim Guidelines for Operation of Lake Powell and Lake Mead

- Coordinated operation of Hoover and Glen Canyon Dams
  - Trigger elevations
- Strategy for shortages in Lower Basin
- Encourages efficient water use in Lower Basin
Colorado River Reservoir Elevations

Video: 1 minute
2014 Reservoir Operations

• Lake Powell
  • Elevation dropping below trigger level (3,575 ft)
  • Reduced release of 7.48 maf to Lower Basin

• Lake Mead
  • Normal/ICS Surplus Conditions
  • Remain above Shortage Triggers
2014 Reservoir Operations

- Full allocations in 2014
- Shortages likely in 2016 if trends continue
Lower Basin Shortages

- Reductions to Nevada and Arizona
- Reductions to Mexico (Minute 319)
- California receives full 4.4 maf order

Less flexibility during Shortage
- Restrictions on ICS Use
- Prohibitions on Overruns
IRWM planning: an innovative way to increase reliable water supplies, improve water quality and protect natural resources through cooperation among public agencies with different jurisdictions and non-profit public interest organizations.
IRWM in California

- IRWM: high priority for state since 2002
  - Key initiative in Water Plan Updates since 2005
- Supports planning on regional and watershed level
- Directs bond funds to cost-effective projects
- Helps achieve state and regional goals

IRWM funding areas in California
IRWM Governance Structure

Regional Water Management Group
- San Diego County Water Authority representing 24 member agencies
- City of San Diego
- County of San Diego representing 21 Copermittees

Regional Advisory Committee
- 29 agencies and organizations, some with statutory authority over water management

Workgroups
- focused on specific water resources topics

Tri-County FACC
- San Diego
- Upper Santa Margarita
- South Orange County

Interested Parties and Members of the Public
IRWM RAC
Member Composition by Category

Total Voting Members: 28
- Regional Water Management Group (3)
- Water Supply (5)
- Water Quality (6)
- Natural Resources and Watersheds (5)
- DAC/Environmental Justice (2)
- Other Members (7)

Non-voting members: 6
- State, federal and regional agencies
IRWM in San Diego Region

- First San Diego IRWM Plan approved 2007
  - $33.9 million in grant funds
- 2013 San Diego IRWM Plan completion deadline in October
  - Update and expand contents
  - Maintain eligibility for state grant funds
  - $1 million state grant supported plan update
  - Eligible for an additional $46M in Proposition 84 funds
Collaboration with Regional Board Planning Study

Land Use Planning Study

Climate Change Planning Study

Integrated Flood Planning Study

Regulatory Workgroup

Land Use Workgroup

Climate Change Workgroup

Integrated Flood Workgroup

2013 IRWM Plan

Governance & Financing Workgroup

Priorities & Metrics Workgroup

Completed

Completed

Completed

Completed
San Diego IRWM Program vision:
An integrated, balanced and consensus-based approach to ensuring the long-term sustainability of the Region’s water supply, water quality, and natural resources
Regional Advisory Committee recommendation

• RAC voted unanimously to recommend approval of plan with revisions based on public comments
• Plan requires approval by 3 governing bodies
• Once plan is approved, it will go to DWR for further review and acceptance
IRWM grant administration

- Approved IRWM Plan enables region to receive project funding from DWR
- Water Authority administers grants received by San Diego Region
- Water Authority must contract directly with project sponsors
Staff recommendation

1. Adopt a resolution adopting the 2013 San Diego Integrated Regional Water Management Plan

2. Authorize the General Manager to enter into contracts to distribute funding from the San Diego region’s Proposition 84, Round 1 integrated regional water management grant to Olivenhain Municipal Water District, San Elijo Lagoon Joint Powers Authority, rural Communities Assistance Corporation, County of San Diego, City of San Diego, City of Santee, Jacobs Center for Neighborhood Innovation and San Diego Coastkeeper
Development of Draft Master Plan Documents

- Supply/Demand Analysis and Scenario Planning
- Evaluation Thresholds and Decision Metrics
- Baseline System Performance
- Storage Utilization Analysis
- New Supply and Conveyance Options (Long-Term)
- Recommended System Improvements (Near-Term)
- Project Costs, Supply/Conveyance Cost Comparisons
- Overview of CEQA Process (Supplemental PEIR)
- Consider Approval/Selection of Recommended Projects
- Review Specific Project Cost Estimates
- In-line Hydroelectric Opportunities
No supply/demand gaps under normal weather
- Dependent on member agencies achieving conservation and local supply targets

Supply/demand gaps will occur under multi–dry year weather and MWD water shortage allocation
- Infrastructure needs influenced by frequency of dry–weather occurrence and magnitude of dry–weather shortfall

Untreated water conveyance utilization threshold to be exceeded around 2020
- New infrastructure needed between 2020 – 2025 to alleviate risk

Supply shortage risks increase beyond 2025
- Shortage risk compounded with lower local supply development and conservation
Project Recommendations

- **Project focus is based on:**
  - Optimizing the timing of existing CIP projects (not yet constructed)
  - Development of new projects that provide an operating enhancement or remove an existing deficiency
  - Development of new projects to meet a particular conveyance or supply need

- **Project need/definition provided in Master Plan**
  - Further evaluations may be required to ensure successful implementation and integration
Projects Evaluated in the Master Plan

⇒ Near/ Mid-Term Projects
(Project Implementation before 2025)
1. ESP North County Pump Stations
2. ESP San Vicente Pump Station 3rd Pump Drive and Power Supply
3. Pipelines P3/P4 Conversion
4. Mission Trails Flow Regulatory Structure
   4a. Lake Murray Control Valve
   4b. South County Intertie
5. System Storage
6. System Isolation Valves (various locations)
7. Asset Management Program (various locations)
8. Facility Planning Studies

⇒ Potential Long-Term Projects
(Project Implementation beyond 2025)
1. Pipeline 6
2. Second Crossover Pipeline
3. Camp Pendleton Desalination
4. Colorado River Conveyance
Near-Term Projects (2014–2025)
- Address untreated water conveyance constraints
- Revise scope and timing of existing CIP projects
- Defer ~$600 million in CIP expenditures beyond 2025

Long-Term Projects (beyond 2025)
- Apply an adaptive management strategy for long-term supply projects
- Provide staff direction on continuing to develop long-term options
- Determine implementation of facilities based on needs and cost efficiencies
Overview of Climate Action Plan (CAP) process

Linkage of CAP and Energy Management Policy

Current issues in assessment of greenhouse gases
  ◦ Timeline horizons and current litigation
  ◦ How Water Authority’s CAP addresses issues

Key elements of the Water Authority CAP
  ◦ 2009 baseline emissions and reductions implemented since 2009
    ◦ Future emissions, targets, and emission reduction strategies

Elements of 2013 Supplemental Program EIR

Remaining steps in environmental process
Development of Draft Master Plan Documents

Since January 2013

Water Planning Committee Meetings covering Master Plan elements
- 6 Regular Committee Meetings
- 4 Special Meetings/Workshops

Member Agency Technical Advisory Committee (TAC)
- 6 Meetings (including reservoir coordination meeting)
- 3 Workshops since January 2013
- Reviewed and commented on detailed modeling and analysis results
- Provided input on information presented to Water Planning Committee
## 2013 Master Plan – Remaining Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 26, 2013</td>
<td><strong>Water Planning Committee Meeting</strong> – Information on preparation of Draft Master Plan, CAP, and SPEIR prior to public release.</td>
</tr>
<tr>
<td>October 2013</td>
<td><strong>Member Agency TAC Meeting</strong> - Review of technical issues and conclusions.</td>
</tr>
<tr>
<td>October 24, 2013</td>
<td><strong>Water Planning Committee</strong> – Overview of draft documents.</td>
</tr>
<tr>
<td>November 2013</td>
<td><strong>Public Release</strong> of the Draft SPEIR, CAP and Draft Master Plan for the 45-day public review and comment period.</td>
</tr>
<tr>
<td>January 9, 2014</td>
<td><strong>Public Hearing</strong> on Draft SPEIR, CAP and Draft Master Plan.</td>
</tr>
<tr>
<td>January 9, 2014</td>
<td><strong>Public Comment Period Closes</strong></td>
</tr>
<tr>
<td>February - March 2014</td>
<td><strong>Regular Board Meeting</strong> – Certification of Final SPEIR and approval of Final Master Plan and CAP.</td>
</tr>
</tbody>
</table>
Carlsbad Desalination Project

Conveyance Pipeline Changes
CEQA Compliance
Design–Build Agreement

Presented by:
Larry Purcell, Water Resources Manager
CEQA Compliance History

- 2006: City of Carlsbad certified a Final Environmental Impact Report for the “Precise Development Plan and Seawater Desalination Plant Project”
- 2009: City of Carlsbad approved a First Addendum to FEIR
- 2012: Water Authority approved a Second Addendum to FEIR
Carlsbad Desalination Project Pipeline Modifications
Macario Canyon Crossing Modifications

Figure 3: Macario Tunnel Easements—City Of Carlsbad Option
Third Addendum to the Carlsbad Desalination Project EIR and MMRP

CEQA Compliance:

- Water Authority is Responsible Agency and considered the project as described in FEIR/First Addendum certified/approved by Carlsbad, as well as Second Addendum approved by Water Authority.
- Evaluation of proposed pipeline modifications do not reach the threshold for preparation of a SEIR, therefore an Addendum to Carlsbad FEIR is appropriate document.
- A Third Addendum to Carlsbad FEIR has been prepared.
Existing Poseidon Agreements

- Water Purchase Agreement
  - Poseidon owns the Plant
  - Designates Water Authority as the sole purchaser of water produced at the Plant
  - Provides commercial and financial terms for production, quality delivery and purchase of water
  - Establishes risk transfer to private developer

- Design - Build Agreement for Product Water Pipeline Improvements
  - Water Authority owns the conveyance pipeline
  - Provides commercial and financial terms for design and construction of the pipeline
  - Costs related to the pipeline modifications are within existing terms
Staff Recommendation

- Adopt a resolution that:
  
a) Finds that only minor technical changes are being made to the previously approved project;
  
b) Approves the Third Addendum to the City of Carlsbad Precise Development Plan and Desalination Project Final Environmental Impact Report;
  
c) Adopts the Mitigation Monitoring and Reporting Program;
  
d) Approves the revised Project;
  
e) Authorizes filing a Notice of Determination; and
  
f) Authorizes the General Manager to execute required amendments to the Design Build Agreement for Product Water Pipeline Improvements Relating to the Carlsbad Seawater Desalination Project necessary to build the approved Project.
Quagga Mussels and the Federal Lacey Act

Legislation, Conservation, & Outreach Committee
September 26, 2013
Discovery of Quagga Mussels

- First discovered in U.S. in the Great Lakes region in 1988 – have spread to 20 other states, including California
- 2007 – Quagga mussels detected for first time in California – Lake Havasu – also found that same year in Lake Miramar
- By 2010 – Quagga mussels were confirmed in 11 San Diego County reservoirs
Quagga mussels can severely hinder water delivery systems by clogging pipes, pumps, and other water intake structures.

Quagga mussels are harmful to aquatic ecosystems because they are disruptive to the food chain.

Pose threat to California recreation, infrastructure, agriculture, and commercial and sport fisheries.
California’s Response to Quagga Mussels

- **AB 1683 (Wolk)** – requires public agencies to cooperate with DFW to implement measures to avoid quagga mussel infestation (2007)

- **AB 2065 (Hancock)** – requires an entity that owns/operates a reservoir to assess the vulnerability to introduction of mussels and develop/implement preventative programs (2008)

- **AB 2443 (Williams)** – imposes a quagga mussel infestation prevention fee on vessel registrations to fund grant programs for quagga mussel prevention and inspection programs
Federal Law – Lacey Act

- Lacey Act is one of the oldest wildlife protection statutes in the United States
  - Helps states protect native species by prohibiting interstate transport of wildlife killed or taken in violation of state law
  - Authorizes the Secretary of Interior to prescribe by regulation a listing of injurious species
  - Provides civil and criminal penalties for violation

- U.S. Fish and Wildlife Service is proposing a “categorical exclusion” from National Environmental Policy Act (NEPA) review be provided for adding species to the “injurious species” list of the Lacey Act
Compliance with NEPA for Federal Actions

- Under NEPA, federal agencies are required to consider potential environmental impact of federal agency actions prior to implementation.

- Consideration of potential environmental impacts is typically performed through an Environmental Impact Statement (EIS) or an Environmental Assessment (EA).

- Federal regulations allow certain actions that do not have a potentially significant environmental impact to be granted a “categorical exclusion” from NEPA.
  - Allowed to bypass completion of an EIS or EA.
Water Authority Concerns with “Categorical Exclusion”

- There is concern that, once on the injurious species list of the Lacey Act, USFWS could take drastic regulatory action to control quagga mussels

- USFWS could consider such drastic actions as:
  - Imposition of requirements for substantial financial investments to screen diversions off Colorado River
  - Possible cessation of water deliveries from Colorado River

- “Categorical exclusion” would allow for bypassing NEPA analysis, including a cost–benefit analysis of the proposed action
Lake Texoma crosses the boundaries of Texas and Oklahoma
- Zebra mussels are present in Lake Texoma
- Zebra mussels are on the Lacey Act list of injurious species

North Texas Municipal Water District has intake facilities in Lake Texoma
- Concerns were raised about transport of zebra mussels across state lines

Under Lacey Act authority, USFWS terminated the ability of the North Texas MWD to use supplies
- $300 million new 46-mile pipeline
- Legislation providing Lacey Act exemption
Recommended Course of Action at Federal Level

- Water Authority staff is proposing for Board consideration the following course of action at the federal legislative level relating to the Lacey Act:
  - Direct staff to submit written comments during the USFWS public comment period opposing the proposed categorical exclusion under NEPA
    - Comment period scheduled to close October 15
  - Authorize staff and legislative advocates to participate in a coalition effort, led by the Western Urban Water Coalition, to evaluate legislative options for addressing the proposed NEPA categorical exclusion
Legislative Update

Legislation, Conservation, & Outreach Committee
September 26, 2013

Glenn Farrel, Government Relations Manager
Work on reshaping the water bond has begun to occur during the Interim Recess

- Water bond informational hearing in Senate on September 24

Two water bond bills are focus of attention:

- AB 1331 (Rendon) – last amended on September 11
  - $6.5 billion water bond

- SB 42 (Wolk) – last amended on September 11
  - $6.475 billion water bond
Water Bond

- AB 1331 (Rendon) – $6.5 billion water bond
  - $1B – water quality improvements – disadvantaged community focus
  - $1.5B – ecosystem and watershed protection and restoration projects
  - $1.5B – projects that are included in, and implement, an adopted IRWMP
  - $1B – projects to improve sustainability of the Delta, including levee projects
  - $1.5B – continuously appropriated funding for public benefits associated with water storage projects
Water Bond

- SB 42 (Wolk) – $6.475 billion water bond
  - $2B – projects that address safe drinking water needs (disadvantaged community focus) and IWRM projects ($1.5B)
  - $2.1B – wastewater treatment projects to protect receiving waters and ecosystem restoration and community sustainability projects
  - $1.375B – projects to implement the Central Valley Flood Protection Plan and stormwater management projects
  - $1B – legislative appropriation of funding for water system operational improvements, including surface and groundwater storage projects
Legislative Policy Guidelines

- Annual update for 2014

- Legislative Policy Guidelines are used to direct staff and legislative advocates on issues of importance to the Water Authority, its member agencies, and the San Diego region
  - Provide a framework to evaluate the potential impact of state and federal legislation

- Staff is evaluating suggestions for revisions from member agencies and Water Authority staff

- Staff will provide the draft proposed Legislative Policy Guidelines to the Board at its October 24 meeting
  - Board consideration of adopting 2014 Legislative Policy Guidelines – November 21 Board meeting
Legislative Proposals for 2014 State Legislative Session

- Water Authority staff is in the process of soliciting legislative proposals for possible sponsorship of legislation in 2014
- Staff will undertake an evaluation, analysis, and review process and present legislative proposals to the Board on November 21
- Staff is requesting suggestions from Board members
  - E-mail suggestions to Glenn Farrel at gfarrel@sdwca.org
  - Response requested by October 11
What is SCOOP?

- Small Contractor Outreach and Opportunities Program

- Maximizes small business participation on Water Authority contracts and procurements
  - Ensures a level playing field for businesses of all sizes
  - Encourages small businesses to participate in the procurement process
  - Facilitates diversity, in terms of types and business size, of our contractors
What is a Small Business?

- Small business is certified based on size standards of the U.S. federal government or the State of California.

- Size standards are based on gross average annual receipts and/or number of employees.

- Small business participation is race- and gender-neutral.
Outreach Events

- 41 events
  - Caltrans Procurement Fair
  - Construction Expo
  - Meet the Buyers
  - Operation Opportunity

- 31 organizations
  - Associated General Contractors
  - Construction Management Association of America
  - San Diego Regional Chamber of Commerce
Training

- Attendance
  - 260 unique firms
  - 640 attendees
    - 27% online

- New Course offerings
  - Get Certified for Shelter Market Opportunities
  - Bidding and Estimating (online)
  - Introduction to Surety Bonds (online)
Teaming With Prime Contractors
One of the best courses I’ve attended. Effective, brief and resourceful.

Sheltered Market
We appreciate the time the Water Authority takes to help out and provide guidance to small businesses.

Doing Business With the Water Authority (Online)
You are to be commended for this incredible and user friendly approach…

Bidding and Estimating (Online)
This was fantastic! I truly believe this will allow us to be more competitive. Thanks!
## SCOOP Quarterly Report

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Total</th>
<th>% Small</th>
<th>% M/W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database</td>
<td>4,777</td>
<td>42%</td>
<td>28%</td>
</tr>
<tr>
<td># Bidders</td>
<td>412</td>
<td>47%</td>
<td>20%</td>
</tr>
<tr>
<td># Firms</td>
<td>429</td>
<td>42%</td>
<td>15%</td>
</tr>
<tr>
<td>Contracts</td>
<td>74</td>
<td>38%</td>
<td>19%</td>
</tr>
<tr>
<td>$ Awarded</td>
<td>$39,987,730</td>
<td>32%</td>
<td>6%</td>
</tr>
</tbody>
</table>

**Overall SCOOP participation goal for 2013 = 25%**
Update on SCOOP Enhancements

- Sheltered market procurement
  - Modifying *The Network*, our online registration and notification system
  - Implementing the marketing plan
  - Conducting training classes

- Small Business Clearinghouse
  - Continuing to collaborate with the four agencies currently in *The Network*
  - *Discussing how to share databases with other agencies*