NOTICE OF MEETING & REQUEST FOR RSVPS

Members of the Joint Recycled Water Committee
   SCVWD Director Tony Estremera, Committee Member
   SCVWD Director Barbara Keegan, Committee Member
   SCVWD Director Gary Kremen, Committee Member

And Supporting Staff Members
   Jim Fiedler, Chief Operating Officer, Water Utility
   Leslie Orta, Senior Assistant District Counsel
   Katherine Oven, Deputy Operating Officer, Water Utility Capital
   Garth Hall, Deputy Operating Officer, Water Supply Division
   Charlene Sun, Treasury/Debt Officer
   Luisa Sangines-Uriarte, Senior Engineer
   Natalie Dominguez, Board Admin. Assistant II

A Santa Clara Valley Water District Recycled Water Committee special meeting and Carlsbad Desalination Plant Tour will take place at 1:30 p.m., on Tuesday July 19, 2016, at the Carlsbad Desalination Plant, 4600 Carlsbad Blvd., Carlsbad, California.

Attached for your convenience is a copy of the agenda. Please note the special requirements for shoes, attire, handbags and backpacks, and preregistration for the tour.

Please RSVP at your earliest convenience by contacting me at 408-630-2659, or by email to ndominguez@valleywater.org.

Regards,

Natalie F. Dominguez

Natalie F. Dominguez
Board Administrative Assistant
Santa Clara Valley Water District
Office of Clerk of the Board

Enclosures
AGENDA
Recycled Water Committee
Carlsbad Desalination Plant
4600 Carlsbad Blvd, Carlsbad, CA 92008
TUESDAY JULY 19, 2016
1:30 PM

Time Certain:
1:30 p.m.  1. Call to Order/Roll Call.

2. Time Open for Public Comment on Any Item Not on the Agenda.
Comments should be limited to two minutes. If the Committee wishes to discuss a subject raised by the speaker, it can request placement on a future agenda.

3. Presentation on the San Diego County Water Authority Experience with Delivery Methods.
 Recommendation: Receive information on the San Diego County Water Authority's experience with project delivery, including their Design-Build-Finance-Operate-Maintain (desalination), Design-Build-Operate (surface water treatment), and others.

4. Tour of the Carlsbad Desalination Plant
Notice to Public: Members of the Santa Clara Valley Water District Recycled Water Committee will not have any conversations with, or take any questions from, any parties during the tour. Advance security clearance is required to participate in the tour. Please contact Ms. Natalie Dominguez, Santa Clara Valley Water District Clerk of the Board's Office, at 408-630-2659, to register. REGISTRATION MUST BE COMPLETED NO LATER THAN THURSDAY, JULY 14, 2016, AT 5:00 P.M. Unregistered participants will not be permitted on the tour. Participants must wear long pants that fully cover the ankles and flat, sturdy, closed-toe shoes. Skirts, dresses, Capri pants, shorts, sandals, or raised heel shoes will not be permitted. Tour participants must be able to walk approximately 1 mile without sitting, and must be able to climb up and down stairs. No individual under the age of 16 will be permitted to attend, and individuals under the age of 18 must be accompanied by a parent or legal guardian. Tour participants should be prepared to show a government issued, photo I.D. No purses or backpacks are allowed on the tour.

5. Adjourn
The San Diego County Water Authority Experience with Delivery Methods

Santa Clara Valley Water District Recycled Water Committee
July 19, 2016

Maureen A. Stapleton, General Manager

San Diego County Water Authority
Wholesale water agency created by State Legislature in 1944
- 24 member agencies
- 36-member board of directors
- Serves 3.2 million people and region's $218 billion economy

Imports 80%-90% of water used in San Diego County
- Added desalinated seawater to local supply in late 2015
- Builds, owns, operates and maintains large-scale regional water infrastructure
- Largest member agency of Metropolitan Water District of Southern California
Increasing San Diego County's Water Supply Reliability through Supply Diversification

1991

- Metropolitan Water District: 78 TAF (5%)
- All American & Coachella Canal Lining: 33 TAF (22%)
- Seawater Desalination: 8 TAF (5%)

Total = 578 TAF

2015

- Metropolitan Water District: 305 TAF (57%)
- All American & Coachella Canal Lining: 190 TAF (32%)
- Seawater Desalination: 8 TAF (1%)

Total = 533 TAF

2020*

- Metropolitan Water District: 124 TAF (21%)
- All American & Coachella Canal Lining: 43 TAF (7%)
- Seawater Desalination: 8 TAF (1%)

Total = 588 TAF

2035*

- Metropolitan Water District: 110 TAF (16%)
- All American & Coachella Canal Lining: 72 TAF (10%)
- Seawater Desalination: 36 TAF (6%)

Total = 694 TAF

* Includes verifiable and additional planned local supply projects from 2015 UWMP
TAF = Thousand Acre-Feet

Historic Investments in Infrastructure

- San Vicente Dam Raise & Related Projects: $816 million
- Twin Oaks Valley Water Treatment Plant: $179 million
- Pipeline Relining: $493 million
- Carlsbad Seawater Desalination Projects: $1 billion
- Olivenhain Dam & Reservoir: $185 million
- All-American & Coachella Canal Lining Projects: $647 million ($150 million from Water Authority)
- Lake Hodges Projects: $38 million

Note: Images of infrastructure projects are shown.
Lewis Carlsbad Desalination Plant

- Owned and operated by Poseidon Water
- 30 year contract
- $1 billion investment
- 48,000-56,000 acre-feet/year of drought-proof supplies
- Largest, most advanced seawater desalination facility in North America
- On-line in December 2015

Project Components
### Total Project Costs

**Total Capital Cost**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total desalination plant</td>
<td>$537 million</td>
</tr>
<tr>
<td>Total conveyance pipeline</td>
<td>$159 million</td>
</tr>
<tr>
<td>Financing costs</td>
<td>$227 million</td>
</tr>
<tr>
<td>Water Authority improvements and oversight</td>
<td>$80 million</td>
</tr>
<tr>
<td><strong>Total Capital Costs</strong></td>
<td><strong>$1.003 billion</strong></td>
</tr>
</tbody>
</table>

**2016 water purchase price* (includes pipeline)**

*Current estimate based on highest electricity rate applicable*

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Water Purchase Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>56,000 acre-feet per year</td>
<td>$2,131/AF</td>
</tr>
<tr>
<td>48,000 acre-feet per year</td>
<td>$2,367/AF</td>
</tr>
</tbody>
</table>
Project Financing Structure

- 82% funded through Bonds issued via the California Pollution Control Financing Authority
  - Plant Bonds issued as Tax-Exempt Private Activity Bonds with Poseidon as sponsor
  - Pipeline Bonds issued as Tax-Exempt Governmental Purpose Bonds with the Water Authority as sponsor
  - Bonds sold on December 24, 2012
  - Interest rate 4.78%

- 18% Cash Equity from Stonepeak Infrastructure

Landmark Water Purchase Agreement between the Water Authority and Poseidon

- Water Authority Board approved WPA on Nov 29, 2012

- Outlines commercial and financial terms for production and delivery of water from the Lewis Carlsbad Desalination Project

- Transfers risk to private developer
Key Objective of WPA
Balancing Price and Risk

- SDCWA had never constructed or operated a seawater desalination facility
- Assign appropriate risks to private developer at minimum cost to ratepayers

Project Structure – Desalination Plant

- Developer/Owner
  - Poseidon Water
- Construction/Operation of the Plant
  - WPA between Water Authority and Poseidon
  - Contractor – Kiewit/Shea Desalination
  - IDE Technologies provided process technology
  - Plant Operations and Maintenance also provided by IDE
Site Lease

- Poseidon long-term site lease arrangement with NRG, owner of the Encina Power Station
- Lease Area: 5.7 acres
  - Easements: 12 acres
- Lease Term: 35 years from start of commercial operation, plus two 10-year extensions
- Rent escalates with CPI

---

Project Structure – Conveyance Pipeline

- Owner/Operator
  - Water Authority
- Construction of Pipeline
  - Design-Build Agreement between Water Authority and Poseidon
  - Contractor – Kiewit Shea Desalination
### Project Risk Allocation

<table>
<thead>
<tr>
<th>Risk Description</th>
<th>Poseidon &amp; Investors</th>
<th>Water Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Risk</strong> - that facility is not completed on time, on cost and according to design standards</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Permitting Risk</strong> - that current permit and environmental mitigation requirements increase</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Change in Law Risk</strong> - that future anticipated laws or regulations increase operating costs</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Technology Risk</strong> - that the plant technology does not perform as expected</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Output Risk</strong> - that the plant produces less than the projected volume of water</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Operating Margin Risk</strong> - that the price of water is not adequate to generate enough revenue to pay expenditures or may increase more than projected</td>
<td>X (Budget Cap)</td>
<td>X (Subject to CPI)</td>
</tr>
<tr>
<td><strong>Pipeline Operating Risk</strong> - the Pipeline connecting the Plant to the regional aqueduct system and appurtenant facilities transport acceptable water to Water Authority wholesale customers</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Electricity</strong> - the cost of electricity is accounted for in the water price</td>
<td>X (Electricity Consumption)</td>
<td>X (Electricity Price)</td>
</tr>
</tbody>
</table>

### Risks Transferred

- Construction and Operating Cost Overruns
- Timely Project Completion
- Regulatory and Law Compliance
- Regulated or Differing Site Conditions
- Capital Maintenance, Repair and Replacement
- Labor Supply and Relations
Risks Retained by Water Authority

- Changes in Law that affect all desalination plant operators or wastewater dischargers
- Cost of Intake Modifications due to expected power station closure *(also a change in law)*
  - Closure-related capital costs capped at $21.3 million (indexed)
  - Closure-related operating costs capped at $2.7 million
- Uninsurable Force Majeure Events
- Unusual Raw Seawater Water Parameters (no additional compensation)
- Retained risks are "uncontrollable circumstances"

Water Authority/ Poseidon Responsibilities

- **Poseidon**
  - Permit, Design, and Build the Desal Plant
  - Permit, Design, and Build the Conveyance Pipeline (design-build agreement)
  - Own, operate, and maintain the Desal Plant
  - Supply Product Water that meets water quality requirements

- **Water Authority**
  - Timely Construction of Required Aqueduct Improvements
  - Own, operate, and maintain the conveyance facilities
  - "Take or Pay" for Product Water, if it meets specifications (minimum commitment of 48,000 AF/Year)
Water Purchase Payments

- Monthly, based on actual deliveries in acre-feet
- First 48,000 acre-feet per year paid at Fixed and Variable Price
- Next 8,000 acre-feet paid at Variable Unit Price
- If Poseidon does not deliver, Water Authority does not pay

Price Increases Under WPA

- Unit costs set and can only increase consistent with WPA provisions
- Annual operating cost increases generally tied to rate of inflation
- Price may also increase due to unanticipated changes in law or regulations
  - Changes generally apply industry-wide
  - Cannot exceed 10% in single-year or maximum 30% increase over 30-year term
Performance Guarantees

- Product Water Quality Guarantee
  - Compliance with all federal and state drinking water regulations
  - Additional standards for certain water quality parameters

- Minimum Product Water Delivery Guarantee
  - Annual supply to meet SDCWA demands (between 48,000 and 56,000 AF)

- Water Ordering Rights
  - Water Authority has rights to adjust delivery orders to reflect seasonal and daily demand changes

Termination & Purchase Options

- Purchase options at Water Authority sole discretion

- Convenience termination
  - Early buy-out provisions after 10 years

- End of term
  - $1 at end of 30-year term

- Event of default
  - Poseidon bankruptcy
  - Repeated violations of primary drinking water standards
WPA – Ratepayer Protection

- **Risk Transfer** to Poseidon/Contractor team
- **Price certainty** throughout WPA term
- **Buy-out provisions** after 10 years of operation
- **Transfer to public ownership** at the end of the 30 year agreement

DBOOT Pros and Cons

**Pros:**
- Risk transfer to the private sector
- Speed (design and construction can proceed concurrently)
- A commodity purchase with defined terms and conditions
- Performance guarantees
- Approval rights over acceptance/performance testing
- Debt is kept off the public agency balance sheet

**Cons:**
- Take or Pay contract
- Higher cost of capital
- Greater overall transactional complexity
- Limited public agency input regarding design, construction and operations
- Public agency does not have a direct relationship with contractors
Design – Build – Operate
Twin Oaks Valley Water Treatment Plant

Twin Oaks Valley WTP

- 100 mgd submerged membrane WTP, ozone and biologically active carbon contactors
- Solids handling facilities, water control facilities, emergency power generators
- Environmentally-friendly project
- 15 years of O&M, with 5-year optional extension
- Fixed Design-Build Price = $157M
- Annual Service Fee = $7 million (2015)
Twin Oaks Valley Water Treatment Plant
Process Train

Module

Cassette
81–99 Modules

Process Train - 7 mgd
6 Cassettes
Choosing an Alternative Procurement Method

Why Design-Build-Operate over Design-Bid-Build?
- Primary reason: Schedule
- Secondary reason: Water Authority Engineering and O&M Experience is in Conveyance Facilities not Treatment

Benefits:
- Integration of designer/contractor/operator
- Facilitates Use of Industry Expertise
- Cost and Schedule Savings

Use of Knowledgeable Advisors

Owners Representative
- DBO Solicitation and Award
- Conceptual Designs and support
- Management of DBO Contract

Board of Senior Consultants
- Experienced public owners
- Industry experts
- DBO procurement experts

DBO attorney
**Project Timeline**

- RFQs       June – Aug 2004
- SOQs       Aug – Sep 2004
- Shortlist  Oct 2004
- RFPs       Dec 2004 – May 2005
- Initial Submittal  Feb 2005

**Project Timeline Cont’d**

- Proposals  May 2005
- Negotiations  June – Aug 2005
- BAFO       Aug 2005
- Board Award  Sep 2005
- Execute Contract/Design  Oct 2005
**Project Timeline Cont’d**

- Construction begins: Feb 2006
- Design Complete: Aug 2006
- Substantial Comp.: April 2008
- Acceptance Test: June 2008
- Operations Period begins: June 2008

**Risks Transferred**

- Construction and Operating Cost Overruns
- Timely Project Completion
- Capital Maintenance, Repair and Replacement
- Labor Supply, Costs and Relations
- Water quality
- Cost of chemicals
- Variation in water sales
Risks Retained

- EIR and Securing land
- Differing Site Conditions
- Raw water characteristics
- Changes in Law or Regulatory changes
- Power Consumption (Shared)

Questions?