Technical Advisory Panel (TAP) for City of Santa Barbara’s Subsurface Desalination Intake and Potable Reuse Feasibility Studies

PUBLIC MEETING #2
January 27, 2016
9:30 am–12:00 noon
Santa Barbara City Hall, Santa Barbara, CA
Welcome and Introductions

Jeff Mosher, Executive Director
National Water Research Institute (NWRI)
Public Meeting Purpose

• City of Santa Barbara’s Public Works Department
  • Evaluating water supply options
  • Conducting feasibility studies
• Technical Advisory Panel (TAP) review
  • Conceptual Design and Initial Technical Screening Analysis of Subsurface Desalination Intake Options
  • Regulatory and Permitting Requirements for Potable Reuse Alternatives
• TAP administered by NWRI
  • Public meeting component
About NWRI

- Based in Fountain Valley, California
- Founded in 1991
- 501c3 non-profit organization
- Water and wastewater agency members
- Purpose: to collaborate on research projects and activities that produce beneficial change and improved policy decisions

Visit [www.nwri-usa.org](http://www.nwri-usa.org) for more information
Agenda

1. Welcome and Introductions
2. Overview of the Panel Process
3. Presentation on Conceptual Design of Subsurface Desalination Intake Options and Regulatory and Permitting Requirements for Potable Reuse Alternatives
4. Questions from Technical Advisory Panel
5. Public comments
6. Wrap up and next steps
7. Adjourn
Resources

All materials distributed and presented at this meeting are available for download from the NWRI-Santa Barbara TAP Web Page. You may also sign up for e-mail updates on the panel’s activities at:

www.nwri-usa.org/santa-barbara-panel.htm

Contact:
Suzanne Faubl, NWRI
Sfaubl@nwri-usa.org
(714) 378-3728
Introductions

1. Panel Members
2. City of Santa Barbara staff
3. Project Team staff
4. NWRI staff
#2 Overview of the Panel Process

- Third-party review and evaluation
- Scientific and technical advice by leading experts
- Address challenging scientific questions and regulatory requirements
- Document findings and recommendations
- Assist with interactions of the public, decision makers, and regulators
Agenda Item #3a

Conceptual Design and Initial Technical Screening Analysis of Subsurface Desalination Intake Options

Introduction by:
Joshua Haggmark
City of Santa Barbara

Presented by:
Tom Seacord and Eric Cherasia
Carollo Engineers, Inc.
Subsurface Desalination Intake & Potable Reuse Feasibility Studies

TAP Workshop #2
City of Santa Barbara, California
January 27, 2016
Agenda

• Feasibility Study Background & Objectives
• Update following TAP Workshop #1
  – Comments addressed
  – Final Work Plan approval
• Subsurface Intake Study
  – Summary of Regulations
  – Summary of Alternatives
  – Initial Screening
  – Summary
• Potable Reuse Study
  – Status update
Feasibility Study
Background & Objectives
Study Scope & Work Plan Objective

• **Scope of Study**: “direct staff...[to evaluate the] feasibility, cost & timeline associated with both converting the offshore facility to a subsurface intake & look at the options about potable reuse” (City Council 9/23/14)

• **Scope includes**:
  - Identifying feasible alternatives

• **Scope excludes**:
  - Determining best alternative

• **Work Plan Objective**: Establish the process & criteria used to evaluate feasibility
Work Plans define how the studies are to be conducted

Work Plans have 7 sections that define study methods

1. Introduction
2. Basis of Design
3. Feasibility Criteria
4. Implementation Schedule Development
5. Cost Estimating Methodology
6. Feasibility Analysis
7. Technical Advisory Process
3 work authorizations allow incorporation of feedback from prior activities

- **Work Authorization 1**: Work Plan development
  - Both subsurface intake & potable reuse *(Completed)*

- **Work Authorization 2**: Subsurface intake initial screening analysis & potable reuse feasibility study *(In Progress)*

- **Work Authorization 3**: Subsurface intake feasibility study *(Pending)*
Permit deadline drives the project schedule

- TAP Workshop #1 (Work Plans): 8/5/15
- TAP Workshop #2 (SSI Initial Screening): 1/27/16
- TAP Workshop #3 (Potable Reuse Initial Screening): 6/29/16
- TAP Workshop #4 (Feasibility Analysis): 3/29/17 (pending)
- RWQCB Presentation: 5/18/17
Update Following TAP Workshop #1
Following August 5, 2015 TAP Workshop

• August 31, 2015
  – Responded to public comments
  – Finalized & submitted Work Plans to RWQCB
    http://www.nwri-usa.org/santa-barbara-panel.htm

• September 22, 2015
  – Awarded Work Authorization 2 contract to Carollo for:
    • Subsurface Intake Basis of Design & Initial Screening
    • Potable Reuse Feasibility Study

• October 20, 2015
  – Received approval of Work Plans from RWQCB
Regulatory Summary

Subsurface Intake Study
TM02 presents regulatory & permitting requirements associated with SSI alternatives

• Major permitting agencies include:
  – Army Corps of Engineers (ACOE)
  – California Coastal Commission (CCC)
  – State Water Resources Control Board (SWRCB)
    • Division of Drinking Water (DDW)
    • Regional Water Quality Control Board (RWQCB)
  – City of Santa Barbara
  – Etc.
There are many environmental, regulatory, & permitting requirements for developing SSI alternatives

• Testing & Data Collection
  – Bore hole drilling
  – Soil sample collection

• Environmental Review
  – CEQA
  – EIR

• Regulatory Requirements & Permitting
  – 10 regulatory bodies
  – 17 requirements/permits were identified
Basis of Design

Subsurface Intake Study
Design, construction, & operational criteria must be evaluated when implementing an SSI project

• Design requirements
  – Blend of seawater & groundwater
  – Exposure to inundation & erosion

• Operation & maintenance requirements
  – Periodic redevelopment
  – Pump maintenance

• Construction requirements
  – Construction area
  – Duration
Project capacity

- Replace City’s existing screened open ocean intake
- Provide seawater for buildout capacity of 10,000 AFY
  - Design capacity: 15,898 gpm
    - Includes:
      - 45% RO recovery
      - Volume of raw water needed for pretreatment backwashing
Site alternatives

- Onshore/Offshore considered
  - Dependent on intake tech
- Offshore areas within ½ mile offshore considered
  - Simplifies property acquisition
  - Avoids fault crossing
Summary of Alternatives & Conceptual Design

Subsurface Intake Study
Conceptual designs developed for alternatives

- Based on greatest production capacity if unable to meet 10,000 AFY production requirement
- 9,000 ft of beach available for SSI development
  - East Beach: 5,300 feet
  - West Beach: 1,300 feet
  - Leadbetter Beach: 2,400 feet
- Property available (condemnation not required)
- Assume re-use of existing intake pipeline
Intake technologies

- Based on state of intake technology & recent studies conducted by others:
  - Slant Wells
  - Subsurface Infiltration Galleries (SIG) – offshore
  - HDD wells (i.e., Neodren)
  - Lateral Beach Wells (Onshore Infiltration Galleries)
  - Radial Collector Wells (i.e., Ranney Wells)
  - Vertical Wells
  - Radial Collector Wells (i.e., Ranney Wells)
Vertical wells are located close to the shoreline to maximize seawater contribution

- Hydrologic properties
  - Depth and productivity
- Construction area: 100 ft x 100 ft
- Site preparation, drilling, development & testing: ~2 months per well
- Service facilities require an additional ~6 months
Vertical wells cross section

Electrical Building (12'x24'x15')

Well Structure (8'x8'x1' above grade)

Upper Sand Aquifer Unit

Clay Lenses

Lower Sand Aquifer Unit
Vertical wells conceptual layout

- 15 wells & 5 electrical buildings
- 600 ft well spacing
- 1,400 gpm total capacity
Vertical wells are the most common SSI for desalination facilities

• Success in porous geology

• Global experience:
  – Sand City (Monterey County): 400 gpm
    • Well capacity reduced by ~50%
  – Marina Coast WD (Monterey County): 400 gpm
    • No operational data; threatened by erosion
  – Morro Bay (CA central coast): 850 gpm total capacity
    • 5 beach wells; high iron concentrations = pretreatment
Vertical wells conceptual design considerations

- Impact shallow groundwater
- Impact sensitive habitats
- Impacted by contamination
- Susceptible to tsunami inundation & erosion
- Impacted by sea level rise
Intake technologies

- Based on state of intake technology & recent studies conducted by others:

  - Slant Wells
  - SIG – offshore
  - Vertical Wells
  - HDD wells (i.e., Neodren)
  - Lateral Beach Wells (Onshore Infiltration Galleries)
  - Radial Collector Wells (i.e., Ranney Wells)
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Onshore infiltration galleries are similar in configuration & operation to SIGs

- Engineered filtration bed
- Successful in small projects
  - Offshore conditions infeasible
- Compared to a SIG,
  - 30-35% more area req’d
  - Freshwater impacts
- May require backwashing & chemical treatment
- Construction ~2 years
Onshore infiltration gallery cross section

- **Collection Vault**
- **Pump Station Building** (24'x24'x15')
- **Upper Sand Aquifer Unit**
- **Clay Lenses**
- **Lower Sand Aquifer Unit**

4,500' Length of Drains, Total
Onshore infiltration gallery conceptual layout

- Infeasible at East Beach
- Feasible at Leadbetter, but problematic to construct
- 3 galleries total
- 5,000 gpm total capacity
There are no onshore infiltration galleries worldwide matching size & complexity

• Alicante 1 Seawater RO Plant (Spain)
  – 3.2 mgd (2,100 gpm) capacity
  – Highly porous limestone formation
  – Lower water quality w/ much higher turbidity & SDI
Onshore infiltration gallery conceptual design considerations

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Intake technologies

- Based on state of intake technology & recent studies conducted by others:

  - Slant Wells
  - SIG – offshore
  - Vertical Wells
  - HDD wells (i.e., Neodren)
  - Lateral Beach Wells (Onshore Infiltration Galleries)
  - Radial Collector Wells (i.e., Ranney Wells)
Radial collector wells produce at higher rates than vertical wells

- Well screens placed horizontally w/in most productive aquifer zone
- Individual wells designed @ 1 to 5 mgd (700-3,500 gpm)
Radial collector wells cross section

Well Structure (20' Dia x 15' H)

Caisson (20' Dia)

150' Setback

Upper Sand Aquifer Unit

Clay Lenses

5 Radial Screens (150' Length Each)

Lower Sand Aquifer Unit
Radial collector wells conceptual layout

- 15 wells total
- 600 ft well spacing
- 5,600 gpm total capacity
Radial wells require close proximity to shore – sediment transport is important

- Salina Cruz (Mexico) only installation worldwide
  - 3 wells deliver 3.8 mgd (2,650 gpm), each
- Beach erosion, reliability & environmental problems
  - >20% decrease in production
  - Seawater intrusion & complete drainage of coastal wetlands
Like vertical wells & onshore infiltration galleries, radial collector wells require access for operation & maintenance.
Radial collector wells conceptual design considerations

- Impact shallow groundwater
- Impact sensitive habitats
- Impacted by contamination
- Susceptible to tsunami inundation & erosion
- Impacted by sea level rise
Intake technologies

- Based on state of intake technology & recent studies conducted by others:

  - Vertical Wells
  - Lateral Beach Wells (Onshore Infiltration Galleries)
  - Slant Wells
  - SIG – offshore
  - Radial Collector Wells (i.e., Ranney Wells)
  - HDD wells (i.e., Neodren)
Slant wells are SSI wells drilled at an angle to maximize seawater collection & reduce impacts to coastal habitat areas

- Natural filtration by ocean floor sediments
- Construction similar to vertical wells
  - Specialized drilling equipment needed
Slant wells cross section

- Slant Well Structure (24'x30'x15')
- 150' Setback
- Collection Vault
- Screen Location (175')
- Upper Sand Aquifer Unit
- Clay Lenses
- Lower Sand Aquifer Unit
Slant wells conceptual layout

- 16 wells total, 8 sites
- 650 ft well spacing
- 4,400 gpm total capacity
Although no full scale installations exist, several test facilities have been constructed

**Dana Point, CA**
- Test well salinity stabilized
  - 50% seawater
  - % seawater may increase
- High iron & manganese
- Very low DO requires brine treatment

**Monterey, CA**
- Drilling & testing ongoing
- Current test demonstrates ~90% seawater
Slant wells conceptual design considerations

- Impact shallow groundwater
- Impact sensitive habitats
- Impacted by contamination
- Susceptible to tsunami inundation & erosion
- Impacted by sea level rise
Intake technologies

- Based on state of intake technology & recent studies conducted by others:
  - Slant Wells
  - Vertical Wells
  - Lateral Beach Wells (Onshore Infiltration Galleries)
  - Radial Collector Wells (i.e., Ranney Wells)
  - SIG – offshore
  - HDD wells (i.e., Neodren)
SIGs are an engineered slow sand media filtration bed at the ocean floor.

- Used when horizontal/vertical wells are infeasible
- Sized & configured using slow sand filter design criteria
- Rely on wave/current action to remove solids
Construction of a SIG is more complex than any SSI alternative

- Huntington Beach TAP recommended construction of a permanent trestle
- Construction impacts may include:
  - Loss of marine life & habitat w/in footprint
  - Limited public beach access
  - Large amounts of ocean sediment require dewatering & disposal
  - Increase in truck traffic & construction phase GHG emissions.
Trestles provide a safer, more reliable means for construction & long term maintenance

Jack up barge

Dredging & periodic fill replacement

Trestle

Sheet pile
Global experience indicates SIGs may have long term performance issues

• Fukuoka (Japan)
  – 13.2 mgd (9,200 gpm) from 5 acres
  – In operation since 2006
  – 25% capacity reduction
    • Biological fouling

• Long Beach (CA)
  – Test facility
  – Pretreatment necessary
  – Cartridge filters replaced weekly

Cartridge filter after one week of operation
Construction of a SIG at any of the project sites is infeasible

- **East Beach:**
  - Stable sediment transport conditions not achieved within ½ mile area offshore

- **West Beach:**
  - Construction activities interfere with harbor use & navigation
  - Requires crossing the Rincon Creek Fault

- **Leadbetter Beach:**
  - Stable sediment transport conditions not achieved within ½ mile area offshore
  - Requires crossing the Rincon Creek Fault.
Intake technologies

- Based on state of intake technology & recent studies conducted by others:

  - Slant Wells
  - SIG – offshore
  - HDD wells (i.e., Neodren)
  - Lateral Beach Wells (Onshore Infiltration Galleries)
  - Radial Collector Wells (i.e., Ranney Wells)
  - Vertical Wells

[Diagrams of intake technologies]
HDD systems consist of drains extending seaward from the shore

- Individual pipes deliver water into a common wet well
- Each collector well pipe yields 1.1 – 3.4 mgd (800-2,400 gpm)
HDD wells cross section

- Pump Station Building w/ collection vault (24'x24'x15')
- 150' Setback
- Clay Lenses
- Drain Screen (1,000')
- Lower Sand Aquifer Unit
HDD wells conceptual layout

- 11 drains total, 1 site
- 1,500 ft well length
- 15,898 gpm total capacity
HDD technology used for 10 years in Spain w/ performance & reliability variability

- San Pedro de Pinatar Plant (Spain)
  - 17 mgd (11,800 gpm); 20 wells in fan shape
- Encountered “technical issues & limitations”
  - 4 wells lost over 40% capacity in 9 months
  - Other wells losing capacity
  - New wells needed to restore plant capacity
- 2nd phase plant expansion uses screened open ocean intake
HDD well considerations

- Specialized equipment & materials required
- Must stabilize pressurized borehole walls w/ drilling fluid coating
- Conventional system installation requires daylighting the drill offshore
  - Potential drilling fluid release would require mitigation
  - New technologies claim to avoid drill daylighting (no successful installations to date)
HDD wells conceptual design considerations

- Do not impact shallow groundwater
- Do not impact sensitive habitats
- Not impacted by contamination
- Beach facilities are susceptible to tsunami inundation & erosion
- Beach facilities are impacted by sea level rise
Sediment Transport & Coastal Hazards

Supporting Technical Analyses
Full analysis report is provided as an appendix in TM03

- Addressed for each beach location in study
  - Sediment transport
  - Coastal hazards
Sediment transport analysis: West Beach

- Potentially Feasible for onshore infiltration gallery
  - Sediment type leads to high plugging/fouling potential
  - West Beach cannot sustain reliable production without periodic maintenance
- Not feasible for SIG or HDD due to fine sediment deposits
Sediment transport analysis: Leadbetter Beach

• Feasible for onshore infiltration gallery & SIG
  – Construction & operational challenges
    • High energy wave climates
  – SIG cannot be constructed w/in ½ mile offshore

• Feasible for HDD
Sediment transport analysis: East Beach

- Not feasible for onshore infiltration gallery or SIG
- Feasible for HDD
  - Only viable option

*Periodic dredging operation on East Beach*
Coastal hazards analysis results

• Erosion
  – 150 ft setback protects against shoreline erosion
  – HDD drains unaffected by tsunami erosion @ depth of 12 ft

• Sea Level Rise:
  – No shore-side facilities flooded by wave run-up at present sea levels
  – All facilities threatened from run-up @ projected 50-year sea levels

• Tsunami Runup:
  – All shore-side facilities inundated by tsunami events
Hydrogeological Analysis of SSI Alternatives

Supporting Technical Analyses
## Yield, intake facility spacing, & length of beach required

<table>
<thead>
<tr>
<th>Intake Type</th>
<th>Shallow Zone Layer</th>
<th>No. Facilities Required(^1)</th>
<th>Approx. Spacing (feet)</th>
<th>Beach Length Required (miles)(^1)</th>
<th>Yield per Facility (gpm)</th>
<th>Potential Total Yield (gpm)(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Wells</td>
<td>Lower Sand</td>
<td>40 - 160</td>
<td>600 - 750</td>
<td>5.5 – 18</td>
<td>100-400</td>
<td>1,500 - 4,800</td>
</tr>
<tr>
<td>Onshore Infiltration Gallery</td>
<td>Upper Sand</td>
<td>6</td>
<td>N/A</td>
<td>3</td>
<td>Varies with length of available beach</td>
<td>10,100</td>
</tr>
<tr>
<td>Radial Collector Wells</td>
<td>Upper Sand</td>
<td>43</td>
<td>600</td>
<td>5</td>
<td>375</td>
<td>5,625</td>
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<tr>
<td></td>
<td>Lower Sand</td>
<td>16 - 58</td>
<td>600 – 1,500</td>
<td>4 - 6</td>
<td>275 - 1,000</td>
<td>4,125 - 7,000</td>
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<tr>
<td>Slant Wells</td>
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<td>560 - 1,125</td>
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<td>4,400 - 8,000</td>
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<tr>
<td>SIG</td>
<td>Upper Sand</td>
<td>1</td>
<td>N/A(^3)</td>
<td>N/A(^3)</td>
<td>15,898</td>
<td>15,898</td>
</tr>
<tr>
<td>HDD</td>
<td>Upper Sand</td>
<td>11</td>
<td>N/A</td>
<td>0.1</td>
<td>1,500</td>
<td>15,898</td>
</tr>
</tbody>
</table>

**Notes:**

1. Total required to meet 10,000 AFY desal production (15,898 gpm).
2. Potential yield within available beach.
3. SSI is constructed offshore.
# Yield, intake facility spacing, & length of beach required

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<th>Potential Total Yield (gpm)²</th>
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**Notes:**

1. Total required to meet 10,000 AFY desal production (15,898 gpm).
2. Potential yield within available beach.
3. SSI is constructed offshore.
Impact to sensitive habitats

<table>
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<th>Intake Type</th>
<th>Drawdown Beneath Sensitive Habitats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Wells</td>
<td>1 to 3 feet</td>
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<tr>
<td>Onshore Infiltration Gallery</td>
<td>1 to 4 feet¹</td>
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<tr>
<td>Radial Collector Wells</td>
<td>0.5 to 3 feet</td>
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<tr>
<td>Slant Wells</td>
<td>1 to 3 feet</td>
</tr>
<tr>
<td>SIG</td>
<td>0 feet</td>
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<tr>
<td>HDD</td>
<td>0 feet</td>
</tr>
</tbody>
</table>

Note:
(1) Measured at a distance 250 feet from end of trench.

Capture of known groundwater pollutants

- 75 contaminated sites w/in study area
- Only SIG & HDD technologies are not expected to mobilize groundwater contaminants
Initial Screening

Subsurface Intake Study
SSI Study Initial Screening Criteria

• Criteria were included in Work Plan
  – Geotechnical Hazards
  – Hydrogeologic Factors
  – Benthic Topography
  – Oceanographic Factors
  – Presence of Sensitive Habitats
  – Design and Construction Constraints

• Approved by RWQCB October 20, 2015
## Initial screening results (continued)

<table>
<thead>
<tr>
<th>Initial Screening Criteria</th>
<th>Vertical Beach Wells</th>
<th>Onshore Infiltration Gallery</th>
<th>Radial Collector Wells</th>
<th>Slant Wells</th>
<th>Subsurface Infiltration Galleries</th>
<th>HDD Wells</th>
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</thead>
<tbody>
<tr>
<td>Presence of Sensitive Habitats</td>
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<td>7 Proximity to marine protected areas</td>
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<td>PF PF PF</td>
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<tr>
<td>a. Location would require construction within a marine protected area.</td>
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<td>Design &amp; Construction Constraints</td>
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<tr>
<td>8 Adequate capacity</td>
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<td>PF PF</td>
</tr>
<tr>
<td>a. Subsurface material lacks adequate transmissivity to meet target yield of at least 15,898 gpm (i.e., build-out intake capacity necessary to produce 10,000 AFY).</td>
<td>NF NF NF NF NF PF PF</td>
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</tr>
<tr>
<td>9 Lack of adequate linear beach front for technical feasibility</td>
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<td>PF PF</td>
</tr>
<tr>
<td>a. Length of beachfront available is not sufficient for construction of the required number of wells of all or portion of intake to meet target yield.</td>
<td>NF NF NF NF NF PF PF</td>
<td></td>
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<tr>
<td>10 Lack of adequate land for required on-shore facilities</td>
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<td>PF PF</td>
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<tr>
<td>a. Surface area needed for on-shore footprint (i.e., pump house) of an intake unit is greater than the available onshore area.</td>
<td>PF PF PF PF PF PF PF</td>
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<tr>
<td>b. Requires condemnation of property for new on-shore intake pumping facilities.</td>
<td>PF PF PF PF PF PF PF</td>
<td></td>
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<tr>
<td>11 Lack of adequate land for required on-shore construction staging</td>
<td></td>
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<td>PF PF</td>
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<tr>
<td>a. The amount of land available to stage construction does not meet need.</td>
<td>PF PF PF PF PF PF PF</td>
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<tr>
<td>12 Precedent for subsurface intake technology</td>
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<td></td>
<td>PF NF</td>
</tr>
<tr>
<td>a. Intake technology has not been used before in a similar seawater or fresh water application at a similar scale.</td>
<td>PF PF PF PF PF PF PF</td>
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<td>Passes Initial Screening? Yes (Y) or No (N)</td>
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**Notes:**

1. NF = Not Feasible
2. PF = Potentially Feasible
3. PF* = Potentially Feasible, but does not meet current study goals
4. Potentially feasible at Leadbetter & West Beach only. Sediment transport conditions at East Beach make the implementation of an onshore infiltration gallery infeasible (refer to Section 3.4.2).
HDD wells passed all initial screening criteria except for #12 - Precedent

- No CA or U.S. experience
- 10 years of global experience
  - Inconsistent performance
- “Not Feasible” conclusion supported by TAP assembled by CCC for proposed Huntington Beach desalination facility.
- Experience at San Pedro de Pinatar
  - Capacity loss & poor water quality
  - Expansion will use screened open ocean intake
Subsurface desalination intake feasibility study summary

• No alternative passed initial screening criteria
  – One alternative constrained by seismic and oceanographic factors
  – Four alternatives impacted sensitive habitat areas
  – Five alternatives had design and construction constraints

• HDD technology is being tested by others
  – SDCWA pilot test @ Camp Pendleton
Status Update

*Potable Reuse Study*
Potable Reuse Study – Status Update

• TM01 & TM02 are available on NWRI website
  – Introduction & Regulatory/Permitting Requirements

• Groundwater modeling & conceptual design in progress
  – Collaboration w/ USGS

• Presentation @ Workshop #3
  – Tentative date: June 29, 2016
Potable Reuse – Programmatic WPD

[Diagram showing workflow and decision points for Potable Reuse – Programmatic WPD]
Agenda Item #4

Questions from Technical Advisory Panel on the Work Plans presented

Moderated by Amy Childress, Ph.D.
TAP Chair
Agenda Item #5

Public Comments

Moderated by Jeff Mosher, NWRI

Written comments may also be submitted electronically until midnight on February 11, 2016, to: sfaubl@nwri-usa.org
Agenda Item #6

Wrap-Up and Next Steps

Moderated by Jeff Mosher, NWRI
Resources

All materials distributed and presented at this meeting are available for download from the NWRI-Santa Barbara TAP Web Page. You may also sign up for e-mail updates on the panel’s activities at:

www.nwri-usa.org/santa-barbara-panel.htm

Contact:

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Adjourn Meeting #2

To download reports and to subscribe to e-mail updates on this project, go to www.nwri-usa.org/santa-barbara-panel.htm