KEEP WATER FLOWING

MARYAM BRAL, PH.D., P.E.
Chief Engineer
The Sustainability Challenge for Oxnard and Pleasant Valley Basins

Total GW Pumping = 96,000 AF/yr

Sustainable Yield (SY) = 51,000 AF/yr

TODAY

2040

Seawater Intrusion + Decline in Storage + Other Losses = 45,000 AF/yr

Optimization to increase sustainable yield

Conservation

New water supply projects

Conservation

New water supply projects

Optimization to increase sustainable yield
Brackish Water Treatment (GWT)
Optimize Water Delivery to Coastal Zone
Freeman Expansion
Recycled Water Utilization
Brackish GWT

PROJECT LOCATIONS
COASTAL BRACKISH GROUNDWATER TREATMENT
NOTABLE PROGRESS MADE

✦ Received DWR Prop 1 Planning Grant ($122,563) to evaluate extraction barrier wells to minimize seawater intrusion in the Oxnard Basin. Key tasks:
  ✧ Refine groundwater model in coastal areas
  ✧ Evaluate and identify potential locations and numbers of well sites, water distribution alternatives, impact on basin sustainability goals

✦ Partnering with the U.S. Navy
  ✧ Extraction wells and treatment plant to be located at Naval Base Ventura County Point Mugu
  ✧ Collaboration began in Nov 2019 and is ongoing
**Major Pipeline Lengths**

<table>
<thead>
<tr>
<th>Type</th>
<th>Laguna Rd. and 11th St.</th>
<th>Dump Rd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrate</td>
<td>15,877 ft</td>
<td>19,022 ft</td>
</tr>
<tr>
<td>Product Water</td>
<td>18,029 ft</td>
<td>21,806 ft</td>
</tr>
<tr>
<td>Raw Water</td>
<td>8,186 ft</td>
<td>8,531 ft</td>
</tr>
<tr>
<td>Total</td>
<td>42,092 ft</td>
<td>49,359 ft</td>
</tr>
</tbody>
</table>

**Coastal Brackish Groundwater Treatment Plant (Alternative Locations)**

**Extraction Wells**
**Extraction Wells**

**Coastal Brackish Groundwater Treatment Plant**

**Major Pipeline Lengths**

<table>
<thead>
<tr>
<th>Pipeline Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrate</td>
<td>23,432 ft</td>
</tr>
<tr>
<td>Product Water</td>
<td>16,985 ft</td>
</tr>
<tr>
<td>Raw Water</td>
<td>8,530 ft</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48,947 ft</strong></td>
</tr>
</tbody>
</table>

**Pacific Ocean**

**Mugu Canyon**
NEXT STEPS

✦ Submit Letter of Intent (LOI) to the Navy
  ✧ Request for Outgrant Easement

✧ Start work on groundwater modeling (Planning Grant)
  ✧ Form Technical Advisory Committee (TAC) - DDW, LA RWQCB, Navy and others
  ✧ Engage in public outreach - FCGMA and other local organizations/representatives

✧ Start Environmental Impact Analysis and determine permitting requirements

✧ Continue with Conceptual Design
  ✧ Comprehensive groundwater sampling using existing coastal monitoring wells
  ✧ Determine product water quality
  ✧ Identify pre-treatment/post-treatment requirements
FREEMAN EXPANSION PROJECT
ENVIRONMENTAL FACTORS

- Divert water with turbidity levels higher than in the past
- Increase instantaneous diversion rate
- Plan for long-term storage and sediment removal
- Upgrade conveyance system, eliminate hydraulic “bottlenecks”
Example storm illustrating the benefits of the Freeman Expansion Project

- Total River Flow
- Diversions

Potential additional diversion with the Freeman Expansion Project at 750 cfs

Actual Diversions at 375 cfs

750 AFD

1,500 AFD
INCREASING THE YIELD BY 6,000-9,000 AFY
PROJECT PROGRESS/ SCHEDULE

✦ Grand Canal Headworks
✦ Finalized Engineering Design
✦ Purchased new gates and due for delivery in September 2020
✦ Soliciting bids for Construction in August 2020
✦ Construction in 2020

✦ Three Barrel Culvert & Inverted Siphon
✦ Design contract executed in May 2020
✦ Topographic survey completed in June 2020
✦ Draft design alternative development completed in June 2020
✦ Final design alternatives to be delivered in July 2020
✦ Final design to be completed in 2020
✦ Tentative construction of one of the upgrades in 2020
RECYCLED WATER UTILIZATION
Additional recycled water could be used for groundwater recharge as available.

*Excludes El Rio Groundwater Recharge Basins*
NEXT STEPS

✧ Stakeholder Meetings - City of Oxnard & UWCD (April, May, July-upcoming)

✧ Riverpark-Saticoy pipeline
  ✧ Pipeline Hydraulics re-evaluation underway
  ✧ Conceptual design plans underway
  ✧ Conduct tracer study in Saticoy basins
  ✧ Prepare Title 22 Engineering report

✧ Hueneme Road (Phase 2) pipeline
  ✧ City plans to re-bid this year
  ✧ City/UWCD to evaluate connection (Nauman Rd or Laguna Rd)
RIVERPARK RWBS EXTENSION

RWBS Extension

Saticoy Groundwater Recharge Basins (Saticoy, Rose, Noble, Ferro)

Riverpark-Saticoy Pipeline

Main Supply Pipeline

Riverpark-Central Pipeline

5,500 LF

9,900 LF

4,400 LF

Woolsey Pit

Moss Screen

Oxnard RWBS

El Rio WTP

O-H Pipeline

PV Pipeline

Surface/ Groundwater (non-potable)
Treated Groundwater (potable)
Recycled Water (non-potable)
Proposed Conveyance or Pipeline (Phase 1)
Proposed Conveyance or Pipeline (Phase 2)
STATE WATER PROJECT
Allocations, Conjunctive Use & Optimization
Recent Successes:

✓ 37,800 AF of additional supply to Ventura County

Long-term Average Diversions at Freeman (~60,000 AF/yr)

Potential Article 21 Purchases

Article 21 Purchase (10,000 AF)

Article 21 Purchase (15,000 AF)

SCV Water Table A Exchange with United

Ventura Table A Transfer to United

United’s SWP Table A Purchases

Actual Diversions at Freeman

Calendar Year

Acre-feet

0 20,000 40,000 60,000 80,000 100,000


Recent Successes:

✓ 37,800 AF of additional supply to Ventura County

Long-term Average Diversions at Freeman (~60,000 AF/yr)

Potential Article 21 Purchases

Article 21 Purchase (10,000 AF)

Article 21 Purchase (15,000 AF)

SCV Water Table A Exchange with United

Ventura Table A Transfer to United

United’s SWP Table A Purchases

Actual Diversions at Freeman

Calendar Year

Acre-feet

0 20,000 40,000 60,000 80,000 100,000

34,000 to 50,000 AF of New Supplies and Enhanced Basin Yield

<table>
<thead>
<tr>
<th>Source</th>
<th>Yield (AF/yr) range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimization</td>
<td>3,000 – 10,000</td>
</tr>
<tr>
<td>Brackish Water</td>
<td>7,000 – 14,000</td>
</tr>
<tr>
<td>Recycled Water</td>
<td>6,000</td>
</tr>
<tr>
<td>Freeman Expansion</td>
<td>6,000 – 9,000</td>
</tr>
<tr>
<td>ASAPP</td>
<td>6,000</td>
</tr>
<tr>
<td>SWP Imports</td>
<td>6,000</td>
</tr>
<tr>
<td>Groundwater Sustainable Yield</td>
<td>51,000</td>
</tr>
</tbody>
</table>

Sustainability | Resilience | Water Quality | GHGs | DACs | Economy-Farms
---|---|---|---|---|---
✔ | ✔ | ✔ | ✔ | | ✔
✔ | ✔ | ✔ | ✔ | | ✔
✔ | ✔ | ✔ | ✔ | | ✔
✔ | ✔ | ✔ | ✔ | | ✔
✔ | ✔ | ✔ | | | ✔

34,000 to 50,000 AF
Questions