CLEAN WATER FACTORY UPDATE

May 21, 2019

Presented by:
Kevin Stewart, PE, Director of Water Reclamation
Water Utility

- 100% from Bunker Hill Basin
- Approx. 80% of City and County pockets
- 56 square mile service area
- 44,000+ services
- 750+ miles of water mains
- 51 active wells
- 38 active reservoirs
- 23 pump stations
Sanitary Sewer Collections System

- 467 miles of Collections piping (8” – 54”)
- 12 small lift stations (< 1 MGD)
- 3 large lift stations (3-12 MGD)
Wastewater Treatment

- SBMWD WRP currently serves:
  - San Bernardino (80%)
  - East Valley Water District
  - City of Loma Linda
  - Approx. 22 MGD

- RIX serves:
  - WRP
  - Cities of Colton & Grand Terrace
  - Approx. 27 MGD
**SB WATER RECLAMATION PLANT (WRP)**
- Secondary Treatment Standards
  - Conventional Activated Sludge treatment process
- Current ADF of 22 MGD, rated capacity of 33 MGD
- Effluent flows conveyed to RIX

**RAPID INFILTRATION AND EXTRACTION FACILITY (RIX)**
- Tertiary Treatment Standards
  - Unique sand basin filtration with rapid extraction
- Current avg discharge 30 MGD to Santa Ana River
Water Supply Sustainability

- Conservation
  - State regulations
  - Rebate programs
  - Public outreach
- Recycled water
  - Clean Water Factory
- Storm water capture
  - Devil Canyon Creek diversion
- State Water Project water
- Regional partnerships
  - Groundwater Council
  - Regional recycled water system
Bunker Hill Basin Recharge
Tertiary and advanced treatment at SBWRP
Phased reduction of RIX discharge
RW Yield = 21,700 AFY
Capital Cost = $255M

<table>
<thead>
<tr>
<th>Discharge Scenarios</th>
<th>RIX Discharge (MGD)</th>
<th>CWF RW Yield (AFY)</th>
<th>Capital Cost ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2012)</td>
<td>34.3</td>
<td>0</td>
<td>-</td>
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<tr>
<td>Phase 1</td>
<td>29.0</td>
<td>4,900</td>
<td>80</td>
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<tr>
<td>Phase 2</td>
<td>24.8</td>
<td>8,900</td>
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<tr>
<td>Phase 3</td>
<td>20.8</td>
<td>12,700</td>
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<tr>
<td>Phase 4</td>
<td>17.0</td>
<td>16,100</td>
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<tr>
<td>Phase 5</td>
<td>13.4</td>
<td>21,700</td>
<td>50</td>
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</tbody>
</table>
## Current Clean Water Factory

- Direct NPR and Bunker Hill Basin Recharge
- Tertiary treatment at SBWRP
- Maintain 18 MGD discharge @ RIX
- RW Yield = **10,000 AFY**
- Capital Cost = **$40M**

### Discharge Scenarios

<table>
<thead>
<tr>
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<th>CWF RW Yield (AFY)</th>
<th>Capital Cost ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (HCP)</td>
<td>28.0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Phase 1 (2021)</td>
<td>18.0*</td>
<td>5,600</td>
<td>20</td>
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<td>Phase 2 (2035)</td>
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<td>7,800</td>
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<tr>
<td>Phase 3 (2040)</td>
<td>18.0</td>
<td>10,000</td>
<td>10</td>
</tr>
</tbody>
</table>

*Factors in EVWD 6 MGD*
Clean Water Factory

1 - INFLUENT PUMP STATION
2 - CLOTH DISK FILTERS
3 - EFFLUENT PUMP STATION
4 - DISINFECTION
5 - CHEMICAL FEED
6 - ELECTRICAL
Clean Water Factory – DESIGN DETAILS

- DESIGN FLOW: 5.0 MGD
- USES: 1.2 MGD DIRECT NON-POTABLE REUSE
  3.8 MGD AVAILABLE FOR BASIN RECHARGE
- AVERAGE INFLUENT TURBIDITY: 2.5 NTU SECONDARY EFFLUENT
- MAX HYDRAULIC LOADING RATE: 3.3 GPM/SF (AVG FLOW, ALL IN SERVICE)
- INFLUENT PUMP STATION: 3 EA 25HP HORIZONTAL SPLIT CASE PACKAGE LIFT STATION
- CLOTH DISK FILTERS: 2 TRAINS (TANKS), OUTSIDE-IN TECHNOLOGY, ABOVE-GRADE, 5 µ FILTER
- FILTER CANOPY: 52 FT x 40 FT
- EFFLUENT PUMP STATION: 3 EA 20HP HORIZONTAL SPLIT CASE PACKAGE LIFT STATION
- DISINFECTION: ULTRAVIOLET (LIKELY)
- STORAGE: REHABILITATED EXISTING RESERVOIR
- CHEMICAL FEEDS: ALUM (COAGULATION)
- REQUIRED EFFLUENT TURBIDITY: < 2 NTU
Clean Water Factory
Regional Recycled Water
CWF Status

- **Preliminary Planning**
- **Environmental**
- **Engineering Design**
  - Completion early 2020
- **Construction**
  - Begin Construction mid 2020
- **Operation**
  - Begin Operation late 2021
THANK YOU