Overview of the El Paso Kay Bailey Hutchison Desalination Plant

GWC Summer Water Conference
Boulder, Colorado

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Topics

- El Paso Water Supply
- KBH Desalination Plant
- Concentrate Management
- Plant Operation
- Future Plans
2017: TOTAL PRODUCTION
Acre-Feet

- Rio Grande 53,512 (45%)
- Hueco 43,213 (36%)
- Mesilla 22,583 (19%)
Surface Water Plants
- Hueco Wells
- Mesilla Wells
- Desalination Plant
Opened in 2007 to deal with:

- Drought
- Emergency situations
- Growth
- Brackish water intrusion
EPWU/Army Partnership Agreement

- All facilities to be constructed on Fort Bliss
- EPWU leases land from the Army
- All facilities owned and operated by EPWU
- EPWU sells water to Fort Bliss
ESPA-1 Membranes
Desalting 101
(quality and quantity)

• Source Water – 18 MGD, 3000 mg/l
• Permeate-15 MGD, 100 mg/l
• Concentrate – 3 MGD, 15,000 mg/l
• Blend Water -12.5 MGD, 900 mg/l
• Finished Water – 27.5 MGD, 700 mg/l
Deep Well Injection

- Remote Concentrate Disposal Area.
- Appropriate geologic conditions.
- Less costly than evaporation ponds
- 3 injection wells located 22 miles from plant
Enviro Water Minerals Company (EWM), Public Private Partnership

- Enviro Water Minerals Company is using cutting edge technology to recover minerals from waste brine from desalination plants.
EWM Concentrate & Permeate Pipeline
Enviro Water Minerals Company (EWM)

- EWM chemically separates the concentrate into high-purity industrial grade minerals products that are highly valued in commercial markets.
- Potash Liquid Fertilizer
- Bromide Rich Brine (Power plant mercury scrubbing)
- Milk of Magnesia (Water treatment)
Highlights of 10 year Plant Operation

- Typical Operation- 8 MGD

- February 7, 2011- Big Freeze-22 MGD to help restore water supply in EP.

- Drought Conditions - May 2012, No surface water in May- 19 consecutive days of production over 20 MGD
Highlights of 10 year Plant Operation

- Peak Annual Production was 2017 (8187 acre-feet).
- Over 53,000 acre-feet of finished water produced in 10 years.
Future Planning

- Plant production to increase
- Continued to be used in drought relief and interruption of supply
- Planning for additional 8 MGD of plant capacity
Questions
<table>
<thead>
<tr>
<th>Source</th>
<th>Amount ($)</th>
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<tbody>
<tr>
<td>Congressional Appropriations (requires 45% local match)</td>
<td>26.0</td>
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<tr>
<td>Texas Water Development Board (interest free loan)</td>
<td>1.0</td>
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<tr>
<td>EPWU Bonds and Cash</td>
<td>60.7</td>
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<tr>
<td>Army’s Contribution (in kind)</td>
<td>3.3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>91.0</strong></td>
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Capital Costs
(21 Contracts)

Production wells and collectors $32 Million
Plant and Near-Plant Pipes $40 Million
Concentrate Disposal $19 Million

Total Cost $91 Million