Overview of the El Paso Kay Bailey Hutchison Desalination Plant

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Texas Desal Conference
Kay Bailey Hutchison Desalination Plant

Opened in 2007 to deal with:

- Drought
- Emergency situations
- Growth
- Brackish water intrusion
Desalination Plant Details

- Up to 27.5 MGD capacity
- Utilizes 5 reverse osmosis skids
- Year round usually runs at 1-2 skids
- Operated at full capacity for the first time in May 2012
Surface Water Plants
Hueco Wells
Mesilla Wells
Desalination Plant
Project Wells

Injection Wells

Plant

Project Wells
Remote Concentrate Disposal Area

- Less costly and less environmental impact than evaporation ponds
- 3 injection wells
- Concentrate pipeline (22 mi)
Injection Well Construction

- Well 1 (2004)  
  - 3,777 ft deep

- Well 3 (2006)  
  - 4,030 ft deep

- Well 2 (2007)  
  - 3,720 ft deep
Surface Injection Facilities
Wellhead Piping
Regulatory Concepts

- Safe Drinking Water Act (SDWA) prohibits injection which endangers an underground source of drinking water.

- Injection zone is considered a USDW because the TDS is > 10,000 mg/L.

- Current Class V injection well authorization prohibits injecting water that does not meet primary drinking water standards. (*achieved by blending*)
Regulatory Concepts (cont.)

- Groundwater from the injection zone does not meet national and state primary drinking water standards.
- Membrane treatment would be required prior to use. It is not a source of drinking water.
- Aquifer Exemption-EPA approval
- TCEQ amendment of Class V authorization
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
Kay Bailey Hutchison Desalination Plant Production

Unprecedented Freeze & Reduction of Surface Water

Thousand Gallons

2007 2008 2009 2010 2011 2012 2013
The Path Forward

- Finding ways to improve water recovery
- Beneficial use of concentrate
  - EWM Pilot Plant
- Continued to be a model for other inland cities considering desalination
- Feasibility study for expansion of desalination plant
EWM separates waste brine into commodities, allowing access to vast sources of additional freshwater supplies

Illustration of EWM's Solution

Kay Bailey Hutchison Desalination Plant concentrate

ENVIRO WATER MINERALS COMPANY
Separates waste brine into valuable commodities and potable water, eliminating all waste

- High Purity Salt (bleach, chemicals)
- Agricultural Gypsum (metal fixer)
- Caustic Solution (chemicals, alumina)
- Potash Liquid Fertilizer
- Bromide Rich Brine (power plant mercury scrubbing)
- Milk of Magnesia (water treatment)
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