Overview of the El Paso Kay Bailey Hutchison Desalination Plant

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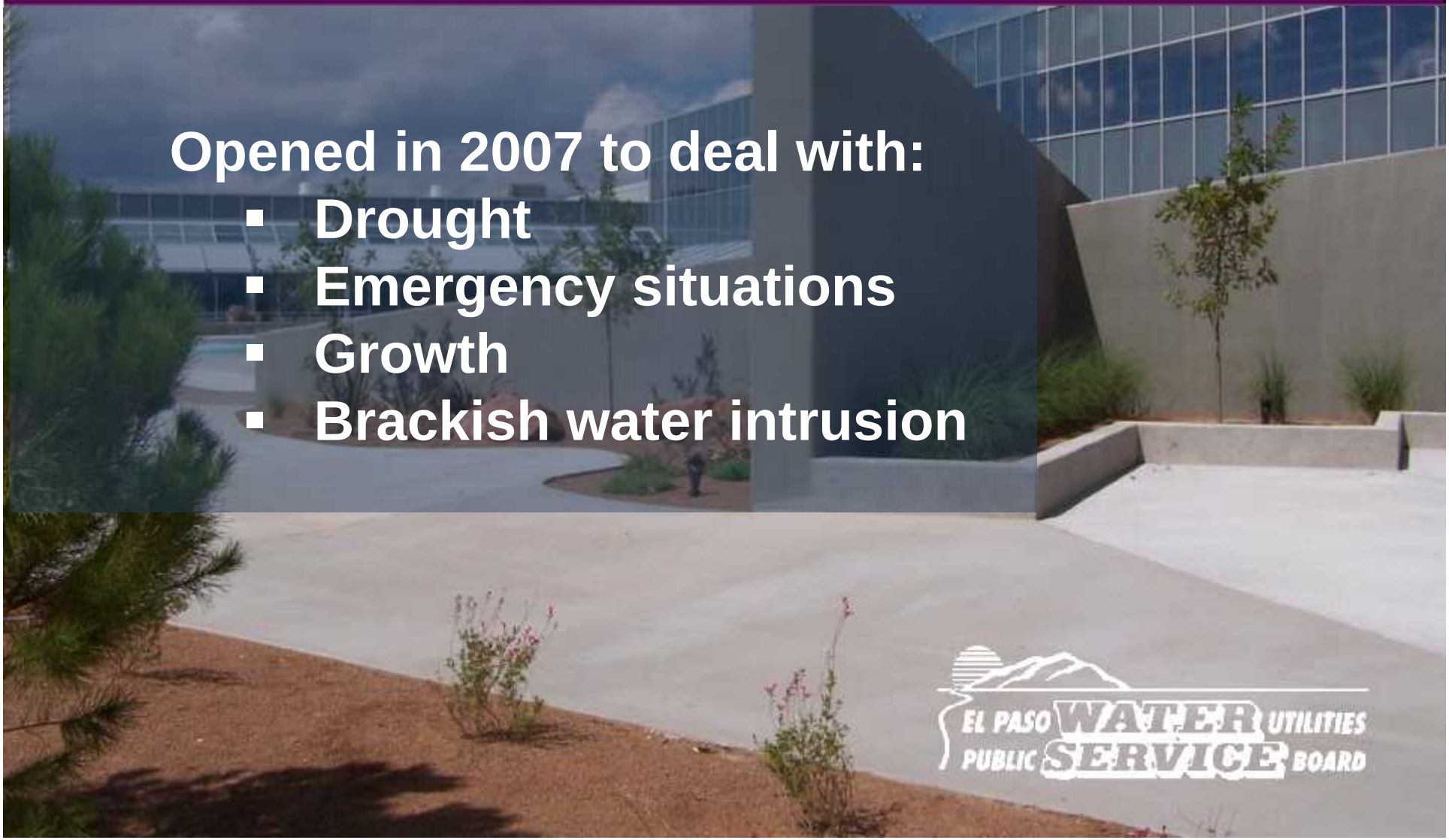
Texas Desal Conference

R. Alan Shubert, P.E.
Vice President

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

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

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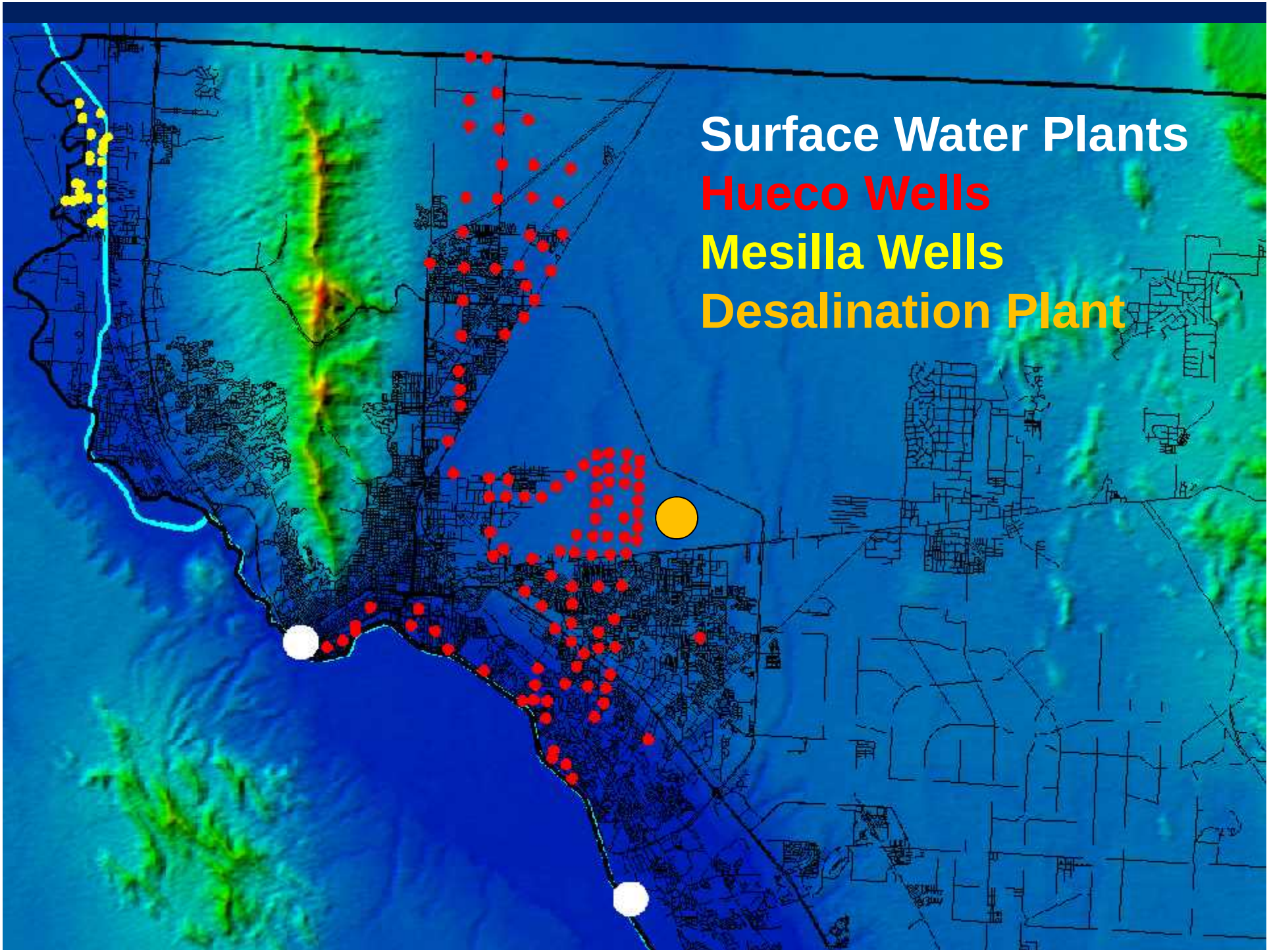
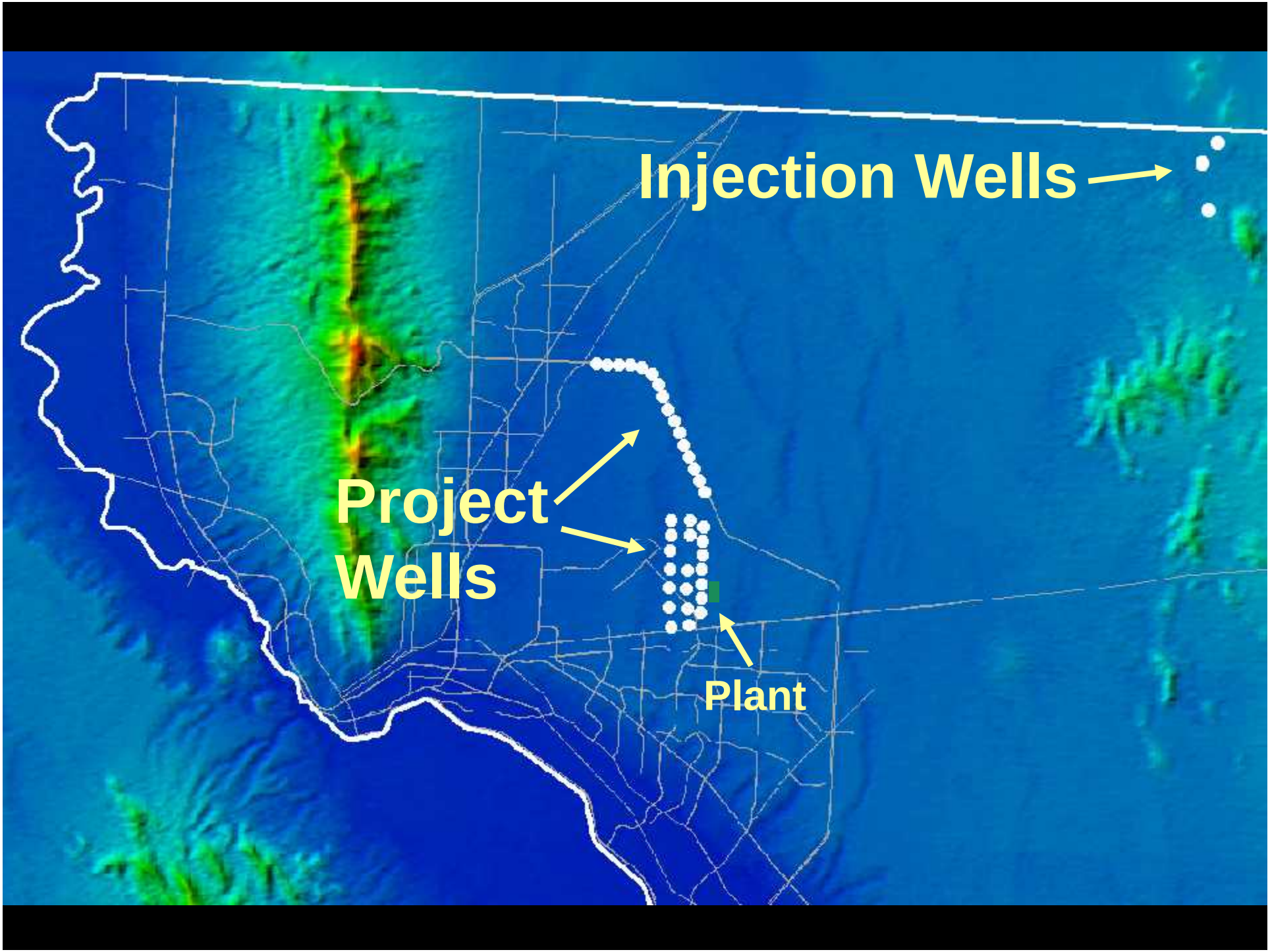

Surface Water Plants
Hueco Wells
Mesilla Wells
Desalination Plant


Injection Wells
Project Wells
Plant


NEW MEXICO
TEXAS
DEEP WELL
DISPOSAL SITE
CONCENTRATE LINE
BY DEEP WELL DISP.
BLEND WELLS &
COLLECTION LINE
LOOP STS
SOURCE WELLS
RO PLANT SITE
© 2003
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Remote Concentrate Disposal Area

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

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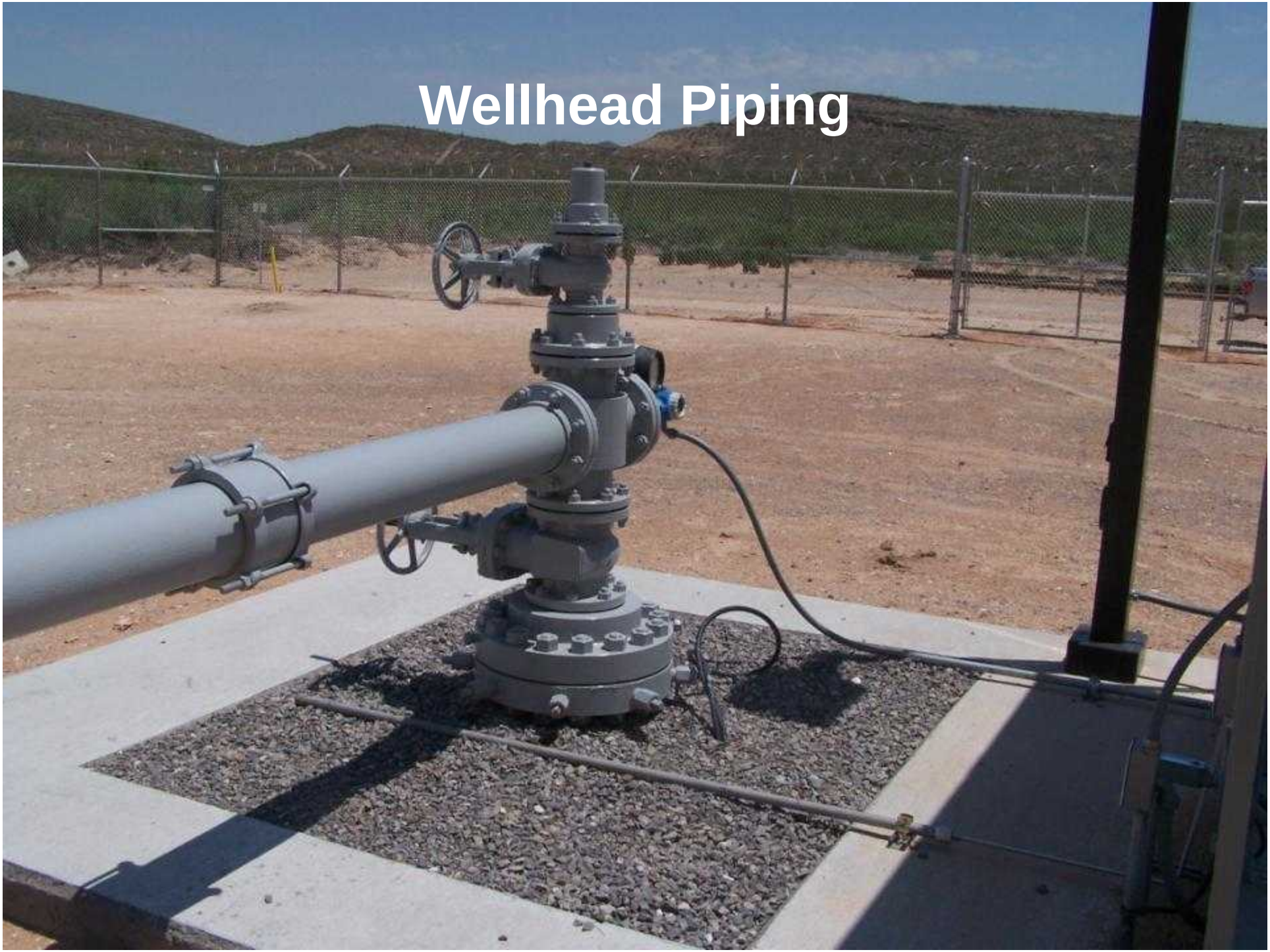
Injection Well Construction

- 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)*

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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

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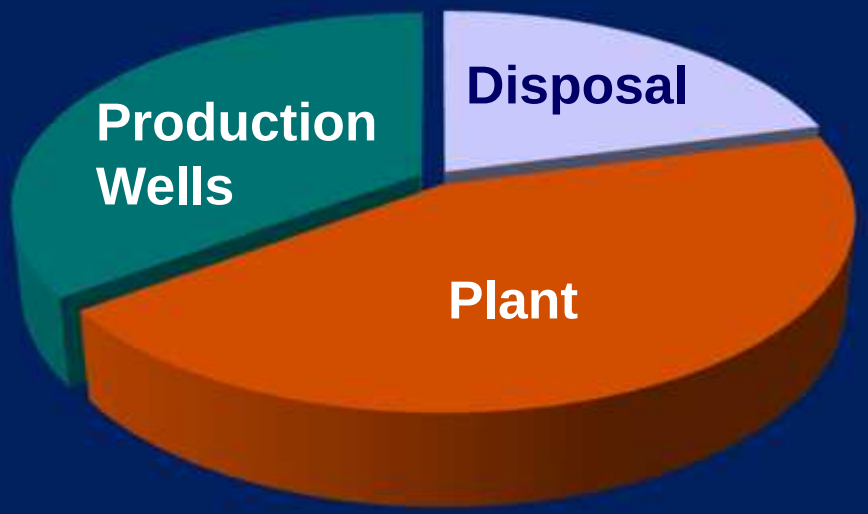
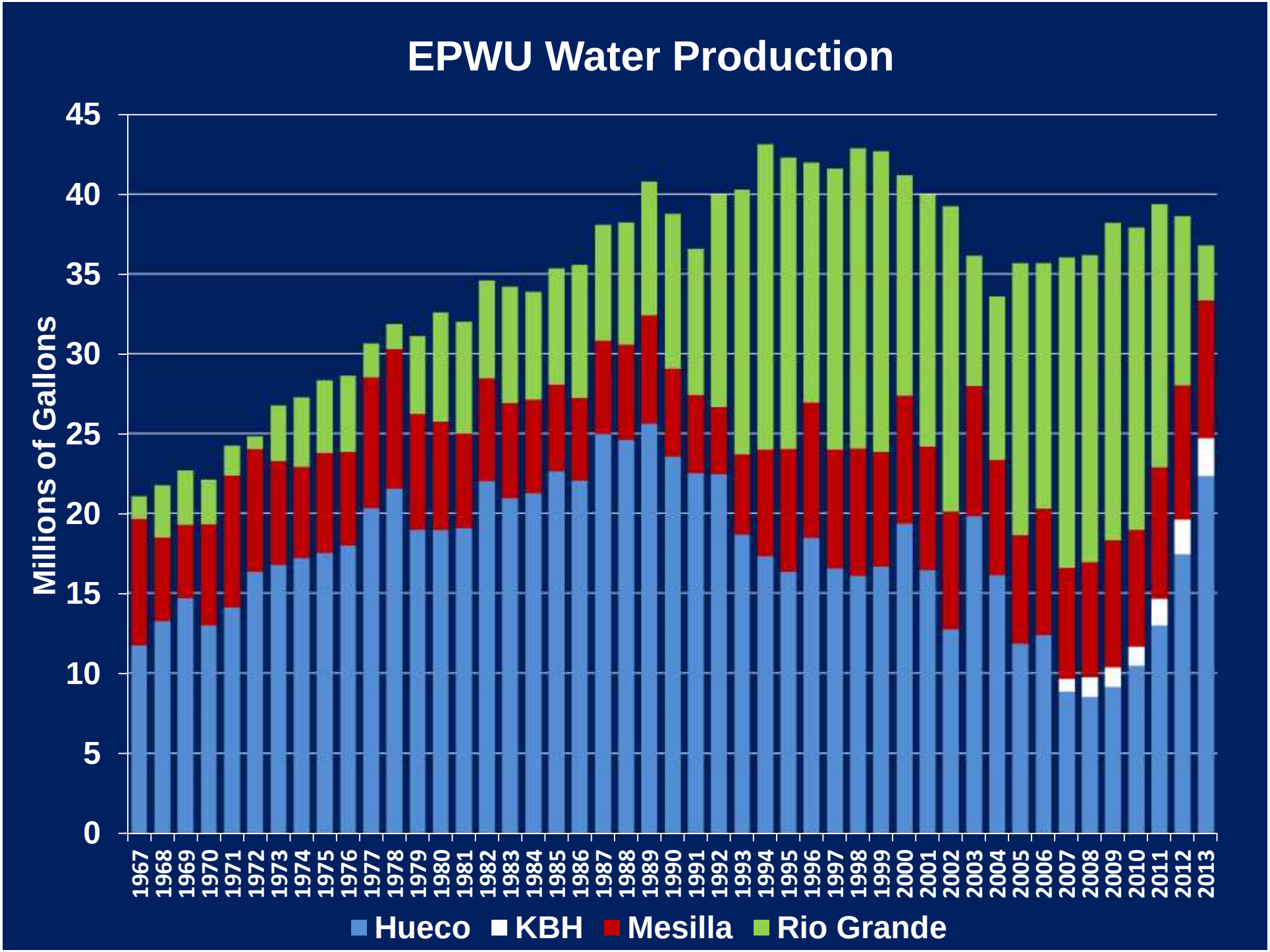
Capital Costs
(21 Contracts)

Production wells and collectors	$ 32 Million
Plant and Near-Plant Pipes	$ 40 Million
Concentrate Disposal	$ 19 Million
Total Cost	**$ 91 Million**



Kay Bailey Hutchison Desalination Plant Production


EPWU Water Production
Millions of Gallons
45
40
35
30
25
20
15
10
5
0
1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
Hueco
KBH
Mesilla
Rio Grande

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

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WHAT EWM DOES

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 *(metals free)*	Caustic Solution *(chemicals, alumina)*	Potash Liquid Fertilizer	Bromide Rich Brine *(power plant mercury scrubbing)*	Milk of Magnesia *(water treatment)*
					

Contact Information

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