



ACHIEVING THE UTILITY OF THE FUTURE: WATER REUSE

**NATIONAL ASSOCIATION OF
CLEAN WATER AGENCIES**

DEVELOPMENTS IN CLEAN WATER LAW
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Presented by:

LAUREN KALISEK

lkalisek@lglawfirm.com

(512) 322-5847

*816 Congress Avenue
Suite 1900*

Austin, Texas 78701

(512) 322-5800

(512) 472-0532 Fax

www.lglawfirm.com

WHY REUSE?

- Urbanization and Water Scarcity
- Water-Energy Nexus
 - Environmental Protection



2012
Guidelines for Water Reuse

RECENT NATIONAL DEVELOPMENTS

- EPA 2012 Reuse Guidelines
- National Academy of Sciences 2012 Water Reuse: Potential for Expanding the Nation's Water Supply through Reuse of Municipal Wastewater
- USGS National Water Census



REUSE AND THE UTILITY OF THE FUTURE : TEXAS

- History of Reuse in Texas
- Reuse in 2012 State Water Plan
- Legal Challenges
- Statutory and Regulatory Tools
- Examples of Current Reuse Projects

Canadian River, Panhandle



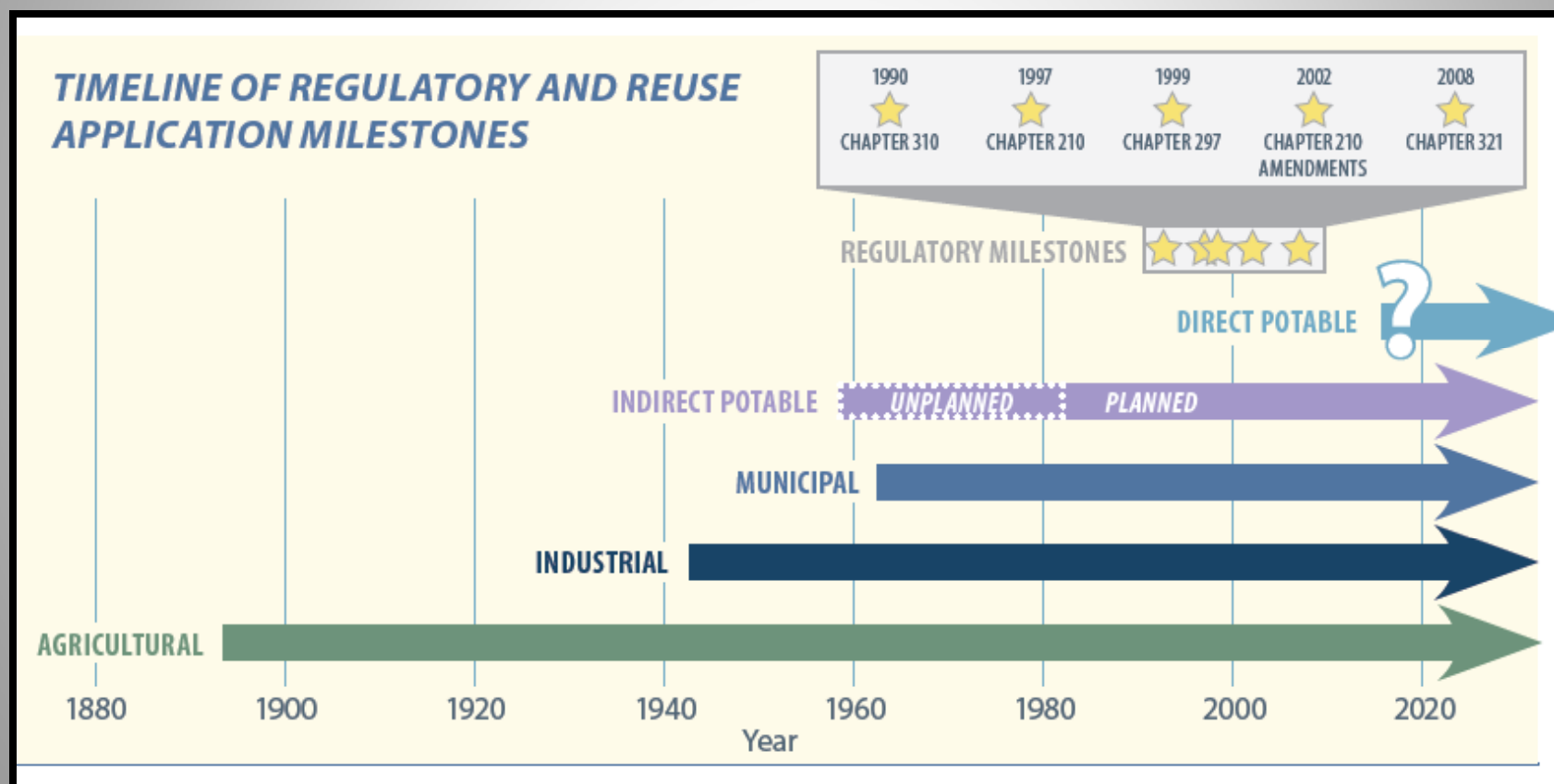
Sabine River, East Texas



HISTORY OF REUSE IN TEXAS

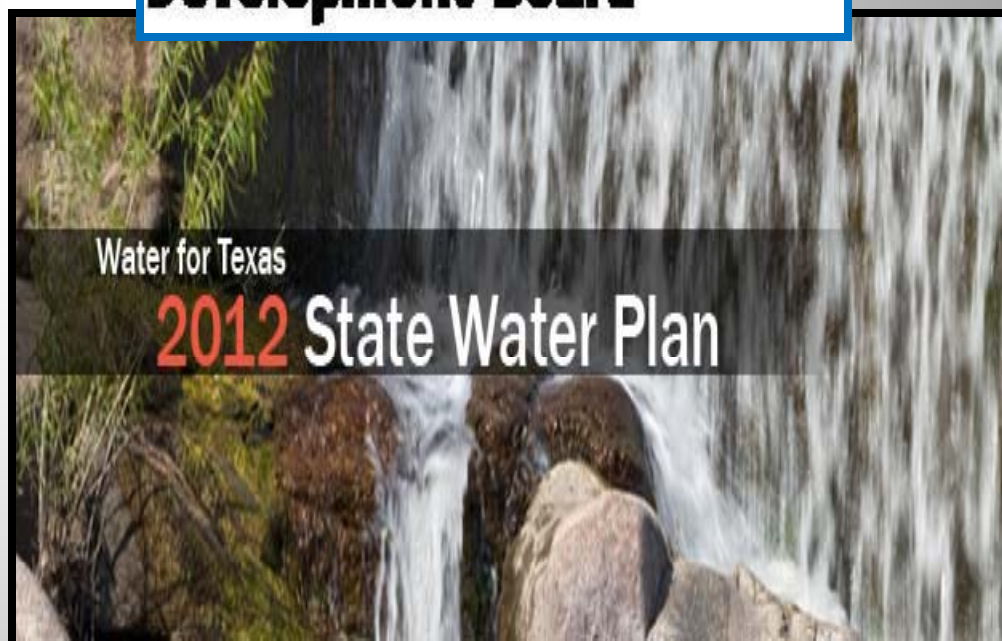
- Agricultural, industrial and municipal uses throughout 20th Century
- 1968 Texas Water Plan recognized wastewater return flows as valuable water resource
- Unplanned indirect potable reuse
- 1990 State regulations for direct non-potable reuse
- Recent focus on planned indirect potable reuse

HISTORY OF REUSE IN TEXAS



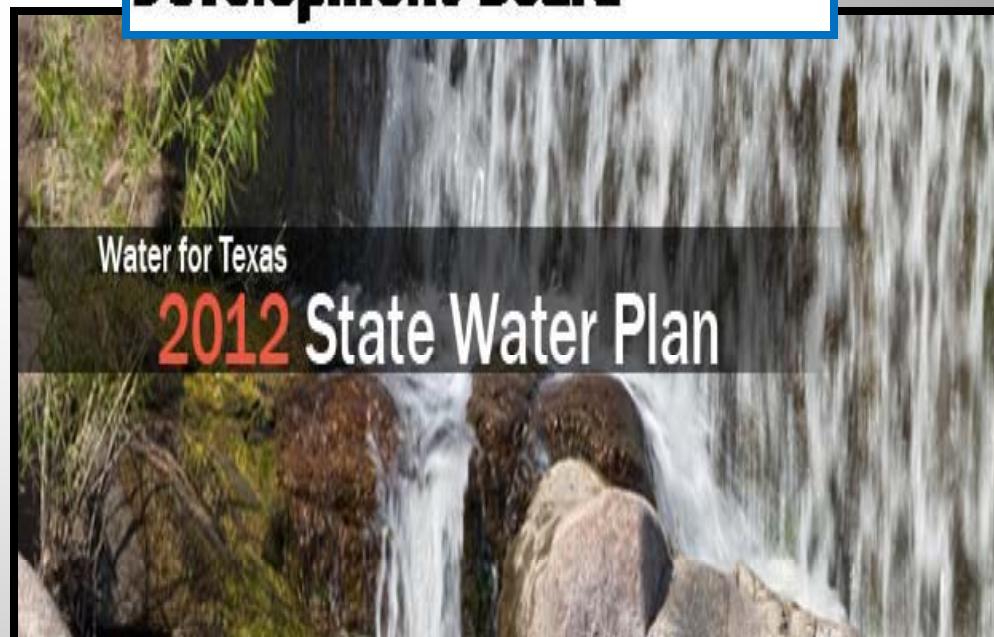
REUSE IN 2012 STATE WATER PLAN

- State population to increase by 82% over next 50 years
- State needs additional 8.3 million acre feet of water by 2060



REUSE IN 2012 STATE WATER PLAN

- Water reuse expected to increase by 65%
- Reuse expected to account for 10.2% of total volume of state water supply by 2060



LEGAL CHALLENGES-WATER RIGHTS PERMITTING



- Ownership of Return Flows
- Downstream Consumptive Uses
- Environmental Flows



LEGAL CHALLENGES-TECHNICAL GUIDELINES/REGULATIONS

- Emerging Contaminants
- Drinking Water Standards



SUMMARY OF LEGAL CHALLENGES

ISSUE	DIRECT REUSE	INDIRECT REUSE
Ownership of return flows		X
Downstream consumptive uses		X
Environmental flows		X
Emerging contaminants	X	X
Drinking water standards	X	

STATUTORY AND REGULATORY TOOLS

- “Bed and Banks” Permitting
- Texas Land Disposal Permits (TLAP)
- Administrative authorization for direct non-potable reuse
- *Need for technical standards for direct potable reuse*

REUSE PROJECTS

INDIRECT REUSE -- EAST FORK REUSE PROJECT (NORTH TEXAS MUN. WATER DIST.)



- The largest project in Texas using reclaimed water to augment surface water supply
- Provides over 102,000 acre-feet of water supply per year

REUSE PROJECTS

INDIRECT REUSE -- EAST FORK REUSE PROJECT (NORTH TEXAS MUN. WATER DIST.)



- Diverts effluent dominated water from East Fork of Trinity River; passes water through constructed wetland (1,840 acres).
- Water then pumped 43 miles to Lavon Lake.

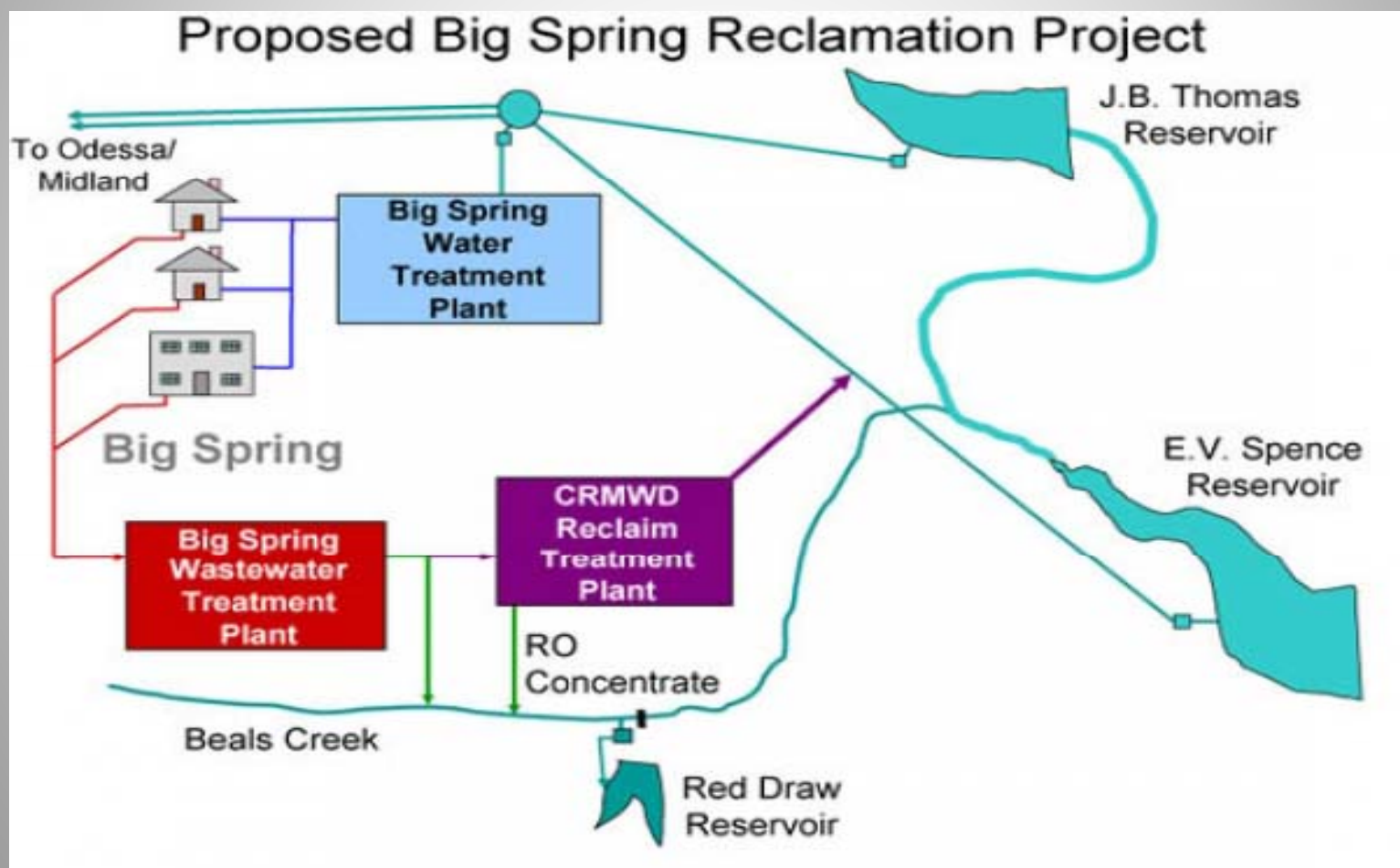
PERMITTED IRRIGATION DISPOSAL— HIGHLAND LAKES

- Texas Land
Application Permit



REUSE PROJECTS

Direct Potable Blending



WHY REUSE?

10 Million Dogs
Can't Be Wrong



Thank you.

Questions?

Lauren Kalisek

lkalisek@lglawfirm.com