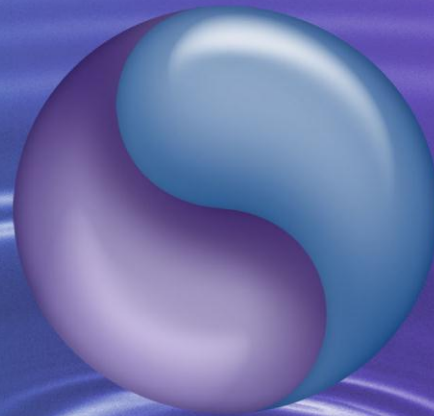




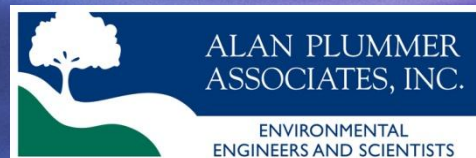
2013 Annual Salinity Summit

Direct Potable Reuse: Texas Perspectives



February 15, 2013

Alan H. Plummer, Jr., P.E., BCEE
Alan Plummer Associates, Inc.



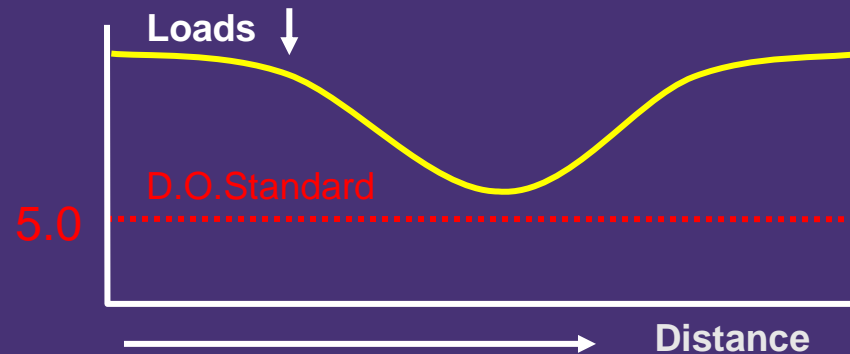
Water Reuse Drivers

- Recognizing that water is precious
- Increasing water demands
- Reoccurring droughts
- Reducing opportunities for additional traditional water sources



Water Reuse Drivers

- Clean Water Act Regulations (assimilative capacity, nutrient criteria, etc.)



- Invasive Species



Water Reuse Drivers

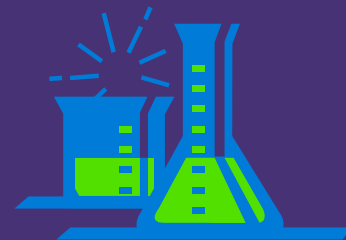
(continued)

- Wastewater Treatment Technologies

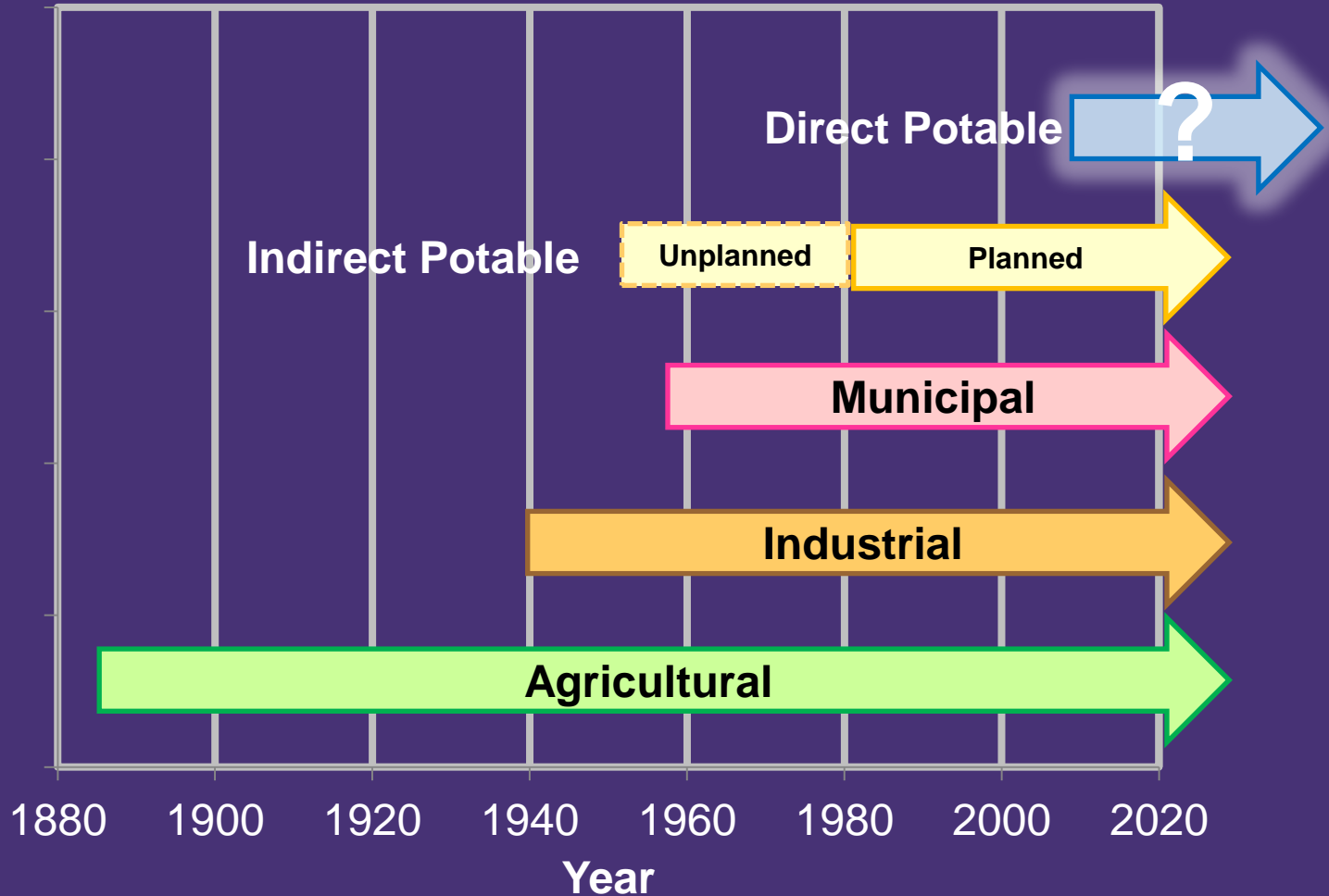
- Drinking Water Treatment Technologies



- Advanced Testing Techniques



Evolution of Reuse in Texas



Texas Reuse Water Right Permits

- Permitted Quantity is greater than 1,500,000 acre-feet/year



Direct Reuse

Important Considerations

- Former Surgeon General C. Everett Koop credited improvements in sanitary conditions of drinking water supplies in U.S. for doing more than any other thing to improve life expectancy.
- Water utility industry has gained confidence and credibility with general public that a safe drinking water is being provided.



Path Forward Considerations

- Identify unregulated constituents and establish MCLs.
- Confirm treatment effectiveness to produce reclaimed water that meets MCL goals.
- Assess the need for and criteria for environmental barrier (dilution and detention time).



Path Forward Considerations (continued)

- Develop appropriate real time monitoring techniques and determine how they should be applied.
- Determine action required to enhance reliability of treatment systems
 - Treatment operations redundancy
 - Operator training/certification



Path Forward Considerations (continued)

- Research efforts to further develop science and technology
 - Texas Water Development Board Direct Reuse Research
 - Water Environment Research Foundation, Water Research Foundation, WaterReuse Research Foundation



TWDB Direct Reuse Research Project Goals

- Develop a resource document for DPR that can be used by
 - Utilities
 - Agencies
 - Consultants
- Provide information that is technically sound and promotes safe and practical implementation of DPR in Texas



TWDB Direct Reuse Research Primary Tasks

- Review relevance of COCs in Texas
- Define water quality performance goals
- Characterize stakeholders' source water quality
- Source control evaluation



TWDB Direct Reuse Research Primary Tasks (continued)

- Evaluation of treatment technologies
- Quantitative relative risk assessment
- Develop sample pilot protocols
- Summarize regulatory/legal considerations
- Prepare resource document



Path Forward Considerations (continued)

- Continue collaboration between professional organizations
- TCEQ development of technical and regulatory requirements
- Provide potable reuse education to public and policymakers
- Gain State reuse funding support (current Legislature considering)



Reuse water for augmenting drinking water supply is critical to Texas, and it is important that we continue to develop sound science and technology to provide a safe supply.

