

Water Reuse Task Force



Task Force Meeting No. 3
April 8, 2026

Welcome and Keynote Remarks

- Welcome to the third and final Water Reuse Task Force meeting
- Enabling direct potable reuse is an important effort for Tennessee due to the growing interest in the state
- Could be the fifth state to draft direct potable reuse regulations
- Thank you for your contributions

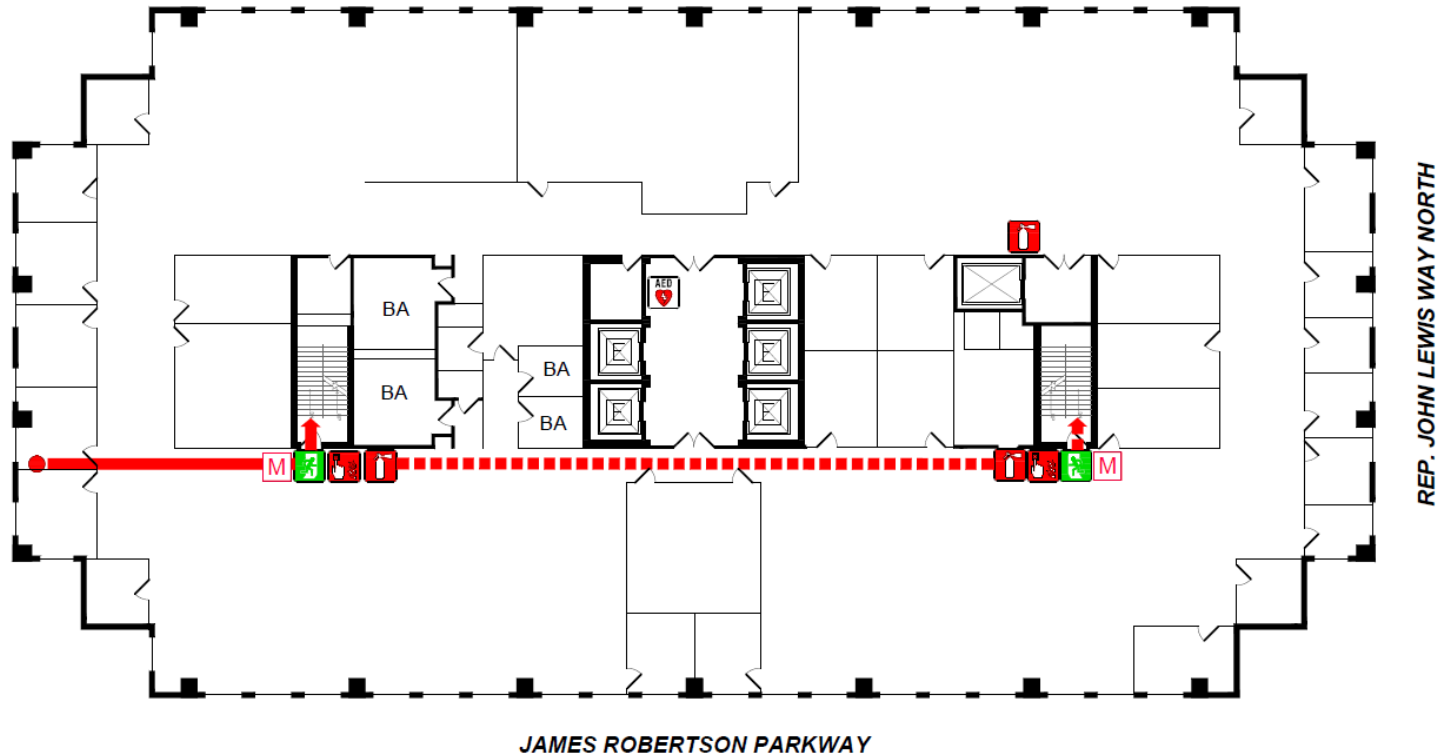


Meeting Overview

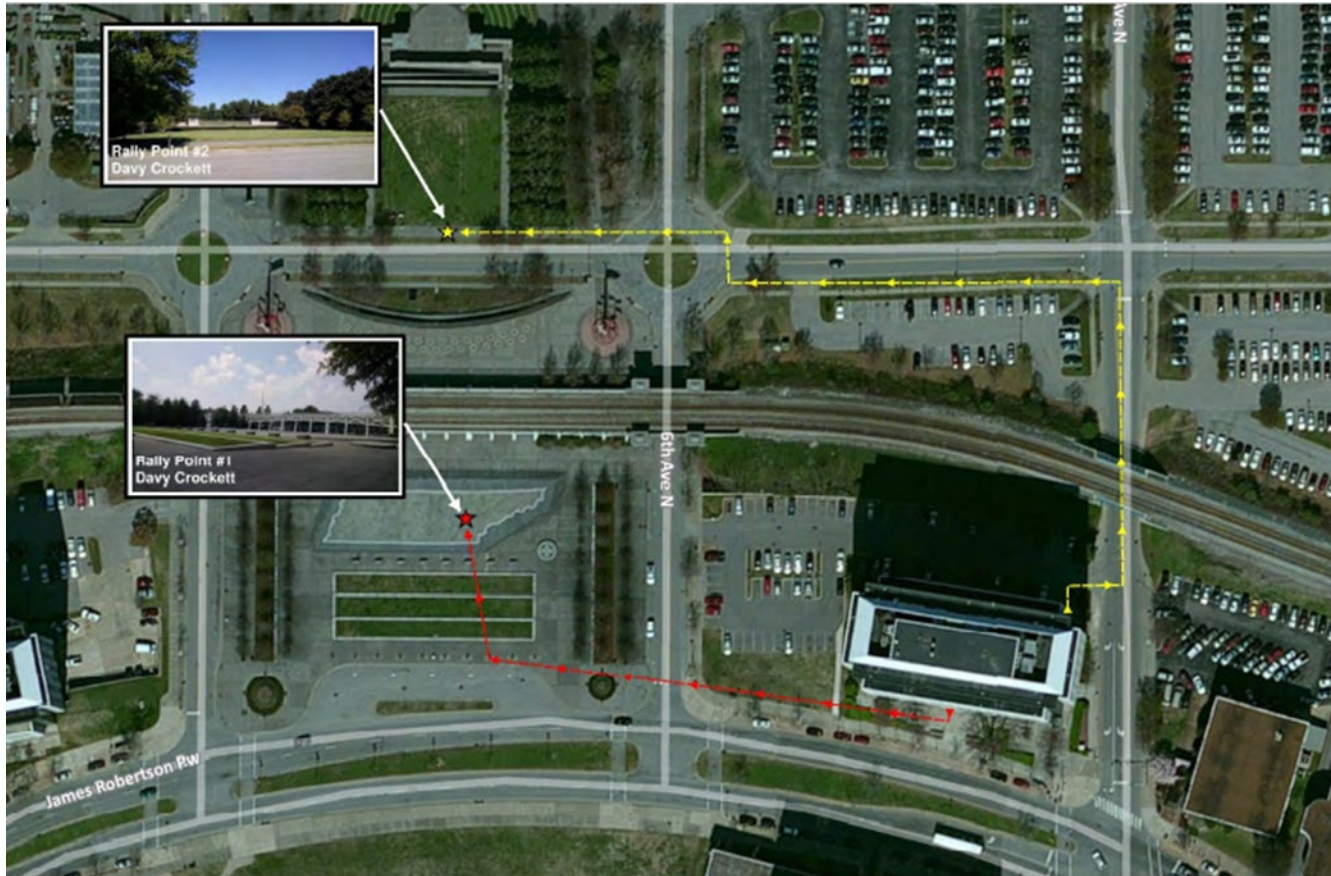
- One-day hybrid event
- Opportunity to provide updates from all working groups
- One group throughout
- This meeting will be recorded for notetaking purposes



Davy Crockett Emergency Exits

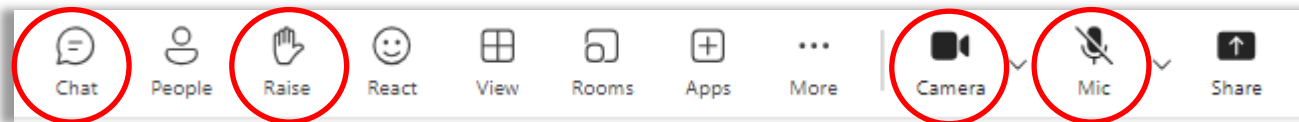


Rally Points



Virtual Participation Best Practices

- Mute your mic when not speaking.
- Use “raise hand” button to indicate you would like to speak.
- Use the “chat” function to share a comment, information, or question.
- Turn on your camera when speaking if you are willing and able to do so.
- In the room: Raise your hand or name tent to indicate you’d like to speak



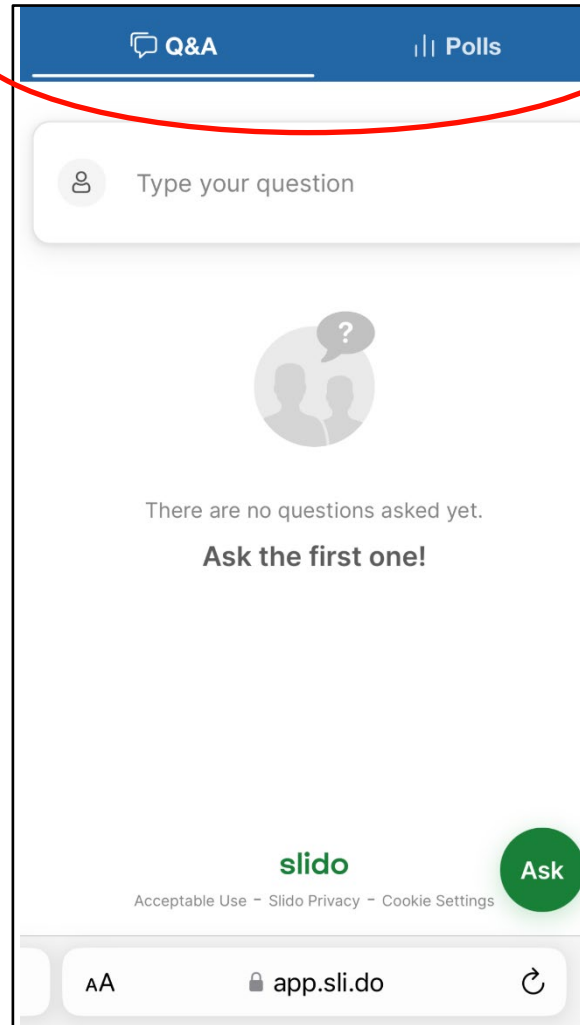
Slido Polling

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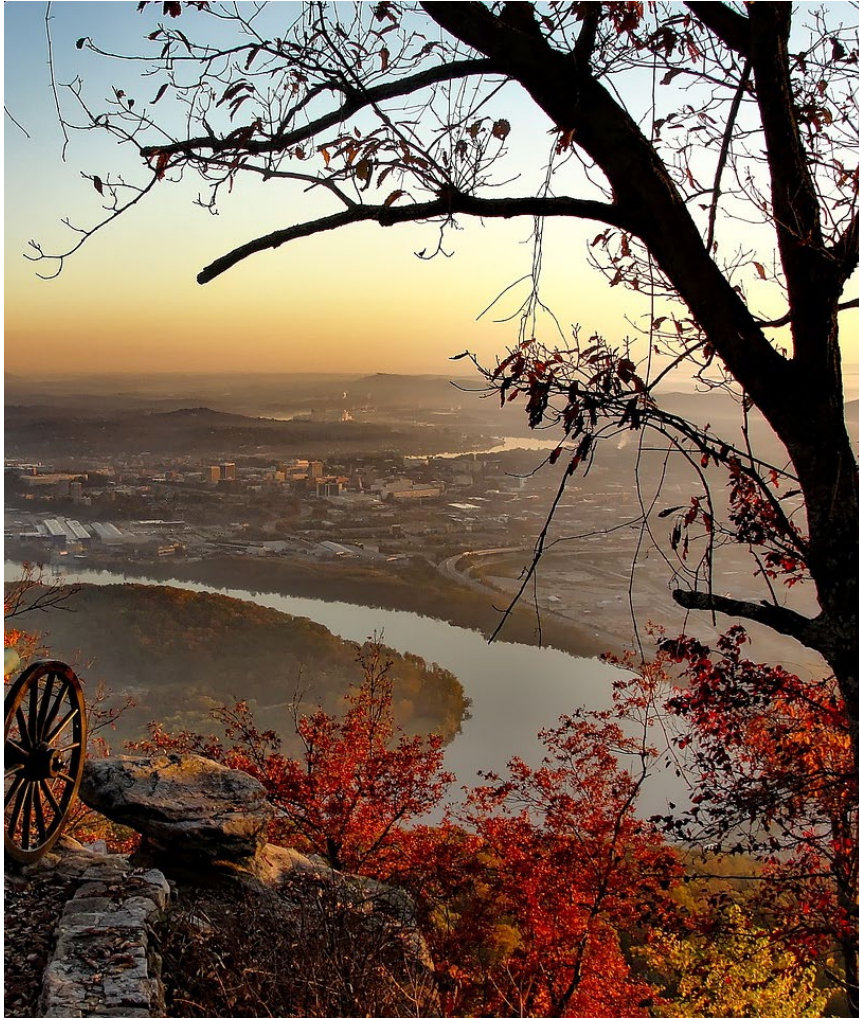
Slido Polling



Use Q&A tab as a **parking lot** for questions and comments throughout the day!

Go to poll tab when prompted after the workgroup presentations.

Morning Agenda



- **Check-in & Networking**
- **Welcome and Keynote Remarks**
- **Overview and Background**
- **Source Water Nexus Focus**
- **Advanced Treatment Focus**
- **Operations Focus**
- **Outreach and Comms Focus**
- **Regulatory Framework Focus**
- **What's Next**
- **Discussion / Wrap Up**

Lunch will be at 11:30am

Task Force – Workgroup Structure



ERG Team

- Bobby Jacobsen
- Emily Isaacs
- James Phillips
- Kellie DuBay
- Adriane Garnreiter
- Elaine Whetstine

Task Force – Approach, Structure and Function

Water Reuse Task Force



Big Picture Objectives

Evaluate and compile information for a regulatory framework to enable direct potable reuse in Tennessee

- Leverage expertise and work collaboratively
- Evaluate adopted and draft rules from other states
- Compile information that may contribute to the potential future draft rule



Today's Meeting Objectives

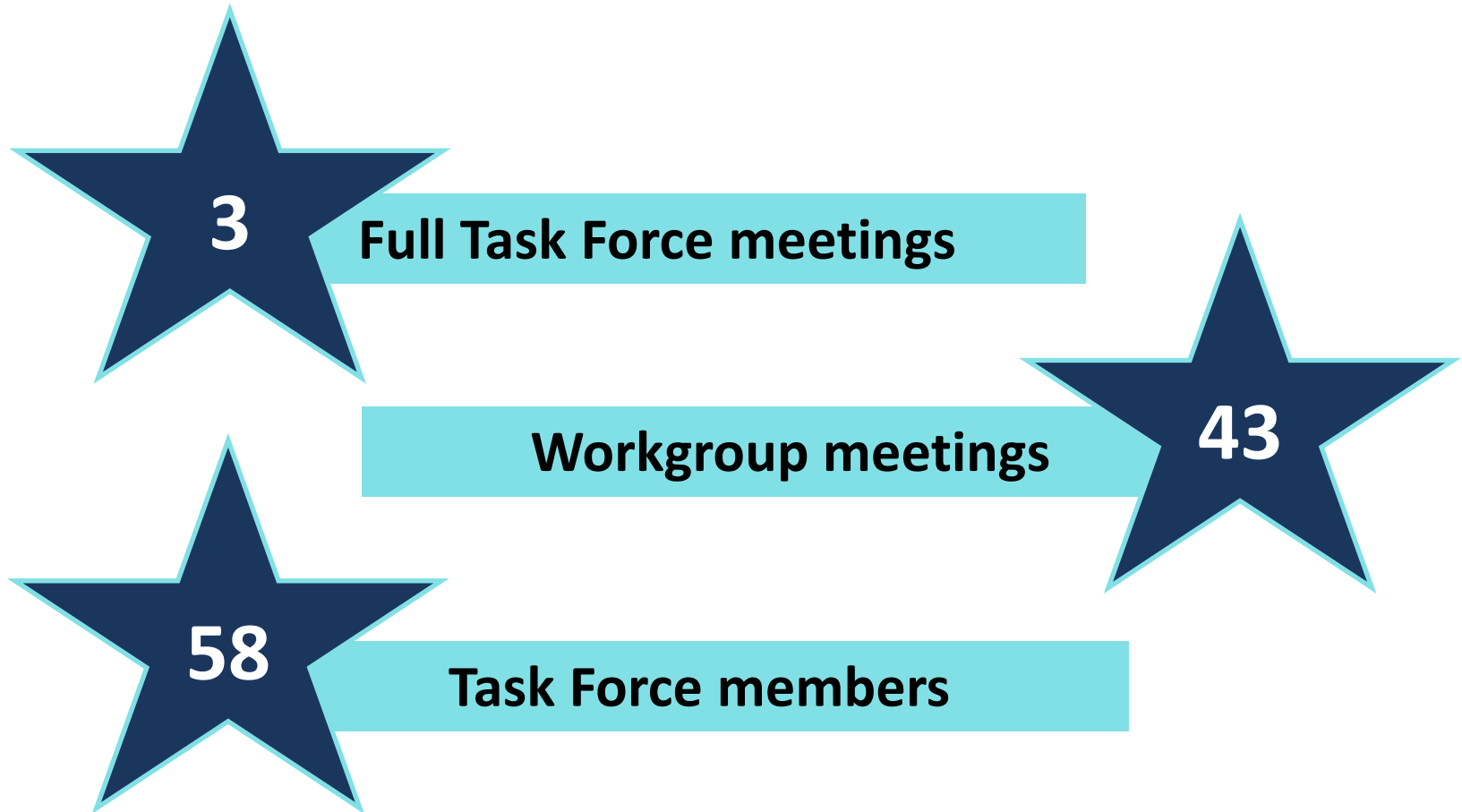
- Share workgroup progress and insights
- Outline next steps



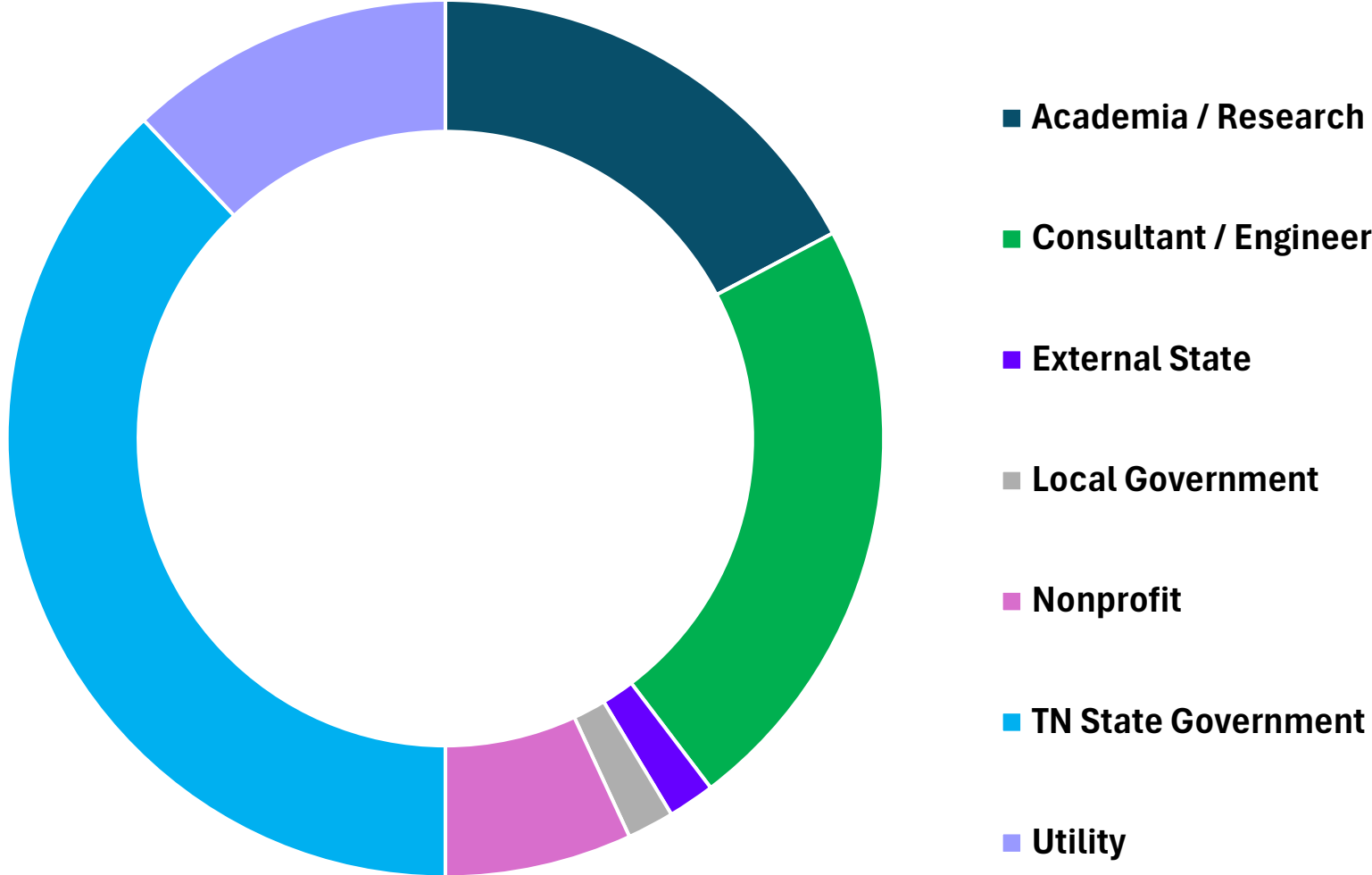
Disclaimer

- Collaborative direct potable reuse program development process
- These slides capture observations and opinions of members shared during workgroup meetings
- The views expressed do not necessarily represent the views of TDEC or proposed rule language
- TDEC will lead the development of any future rules or revisions to related rules or policies

Task Force and Workgroup Activity



TN Water Reuse Task Force Members



Existing Direct Potable Reuse Rules

- **Colorado** – 1/14/2023 (final rule published)
- **California** – 10/1/2024 (rule effective date)
- **Florida** – 12/13/2024 (rule approved)
- **Arizona** – 3/5/2025 (rule effective date)





Scope of Reuse

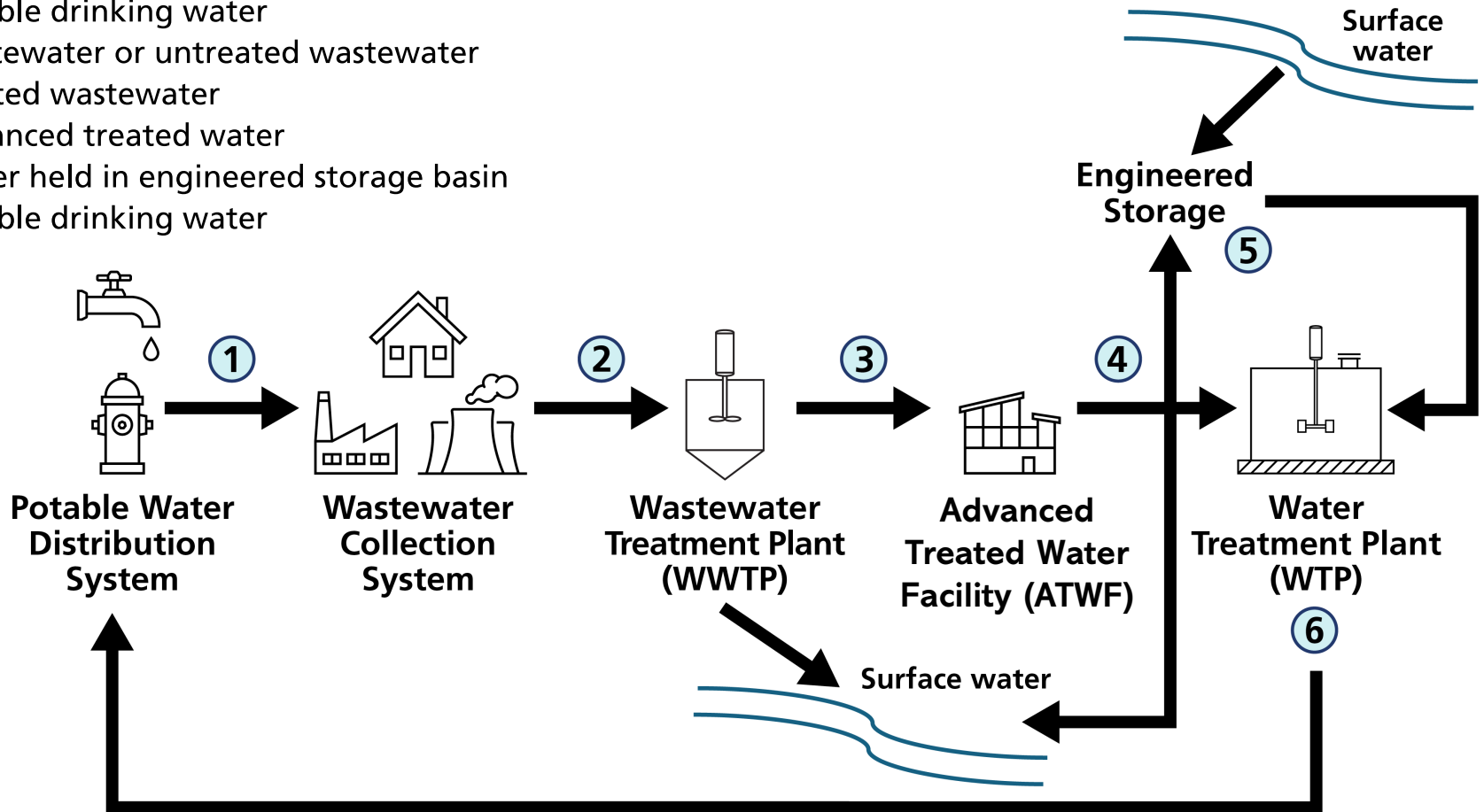
Scope of Reuse in Tennessee

- Tennessee has non-potable water reuse regulations for applications such as landscape irrigation, toilet flushing, and industrial use
- Task Force was tasked with exploring direct potable water reuse for human consumption
- Out of scope
 - De facto reuse
 - Agricultural reuse for food crops
- It is anticipated the potential future direct potable reuse rules would not enable “direct to distribution” DPR approach

Potential Scope of Direct Potable Reuse in TN

Process Streams:

- ① Potable drinking water
- ② Wastewater or untreated wastewater
- ③ Treated wastewater
- ④ Advanced treated water
- ⑤ Water held in engineered storage basin
- ⑥ Potable drinking water





Definitions

Task Force Working Definitions

Water Reuse

- The use of treated wastewater (reclaimed water) for a beneficial purpose

Task Force Working Definitions

Reclaimed Water

- Treated effluent from a wastewater treatment system which, as a result of treatment, is suitable for a beneficial purpose

Task Force Working Definitions

Advanced Treated Water

- Water produced from an advanced treated water facility (ATWF) suitable for direct potable reuse applications

Task Force Working Definitions

Direct Potable Reuse (DPR)

- The introduction of advanced treated water (with or without retention in an engineered storage buffer) directly into a drinking water treatment plant

Task Force Working Definitions

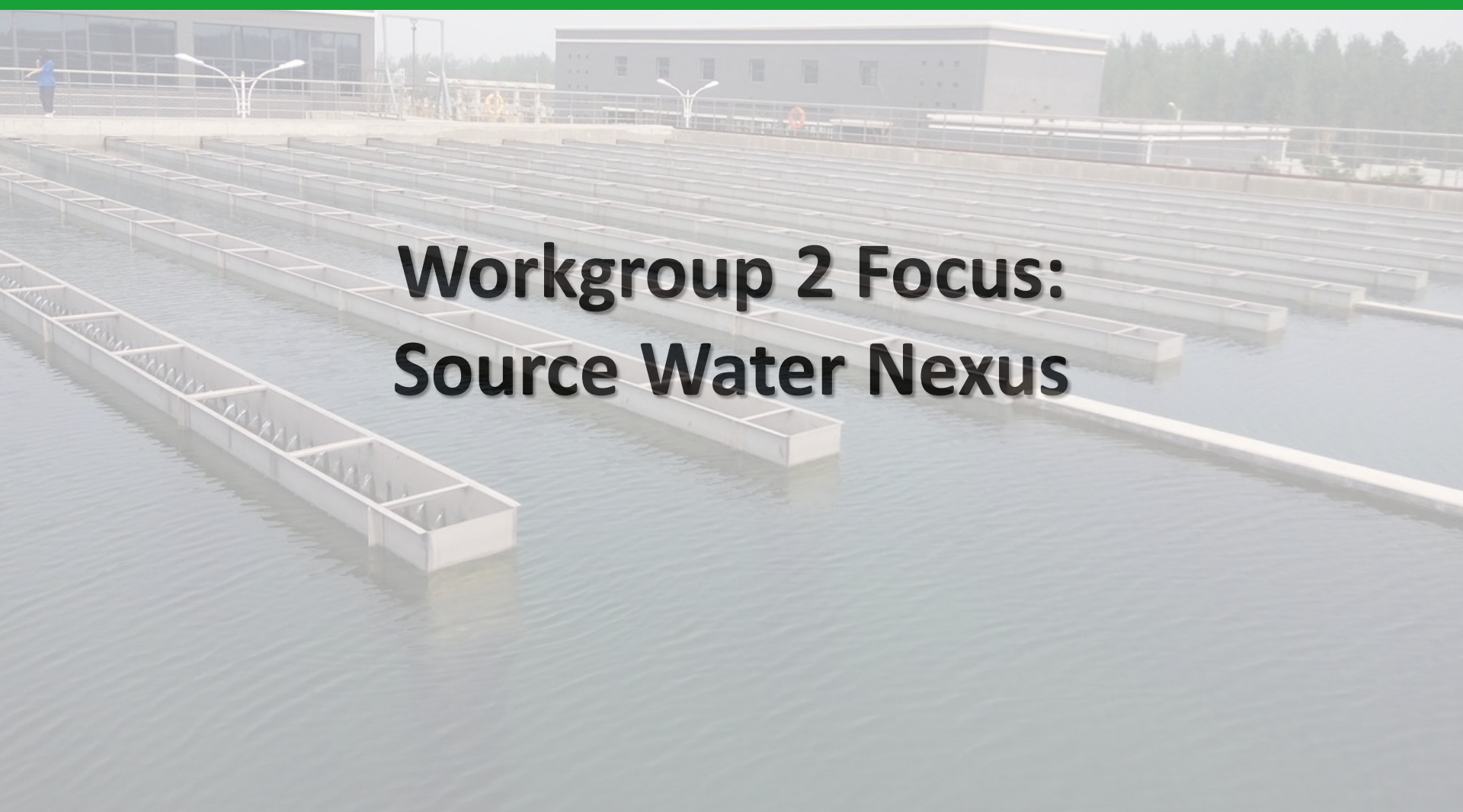
Engineered Storage Buffer

- A storage facility used to provide retention time – before advanced treated water is introduced into the water treatment plant or distribution system – to conduct testing to evaluate water quality and hold or divert the water in the event that it does not meet specifications; it may also be used to store water to ensure an adequate water supply or allow for blending with surface water

Task Force Working Definitions

Advanced Treated Water Responsible Agency (ATWRA)

- The entity responsible for compliance with Direct Potable Reuse rules and permitting



Workgroup 2 Focus: Source Water Nexus

Topics Discussed Through Previous Task Force Meeting (Kickoff—April 2025)

- TN's Pretreatment Rule and its applicability for DPR
 - Likely no changes needed to TN's Pretreatment Rule to align with potential DPR rule
- Enhanced Source Water Control Program (ESWCP)
 - Program components (next slide)
 - ATWRA to form ESWC committee
 - ATWRA to submit annual ESWCP report to the Division



Topics Discussed Through Previous Task Force Meeting (Kickoff—April 2025)

Components of the Enhanced Source Water Control Program

Legal/regulatory authority	Recordkeeping requirements
Joint agreement between entities	Permitting process and authorities
Communication protocols	Non-domestic discharger notifications about new pollutants/discharges
Septage hauler control program	Enforcement response plan
Non-domestic dischargers inventory	Early warning program for chemical peaks
Emerging contaminants inventory	Cooperation with local health departments
Protection from pass-through/interference	Pollutant reduction/elimination program
Prohibitions, monitoring, and local limits for non-domestic dischargers	

Existing pretreatment requirements

Enhanced source water control requirements

Topics Discussed Since Previous Task Force Meeting (April 2025—present)

- Wastewater treatment
- Initial (and ongoing) source water characterization
- Monitoring
- Roles and communications (particularly between the WWTP and ATWF)



Key Definitions

- **Critical Control Point (CCP):** A point in potable reuse water treatment where control can be applied at the influent and effluent of an individual unit process to reduce, prevent, or eliminate process failure and where monitoring is conducted to confirm that the treatment process unit is functioning correctly. The goal is to reduce the risk from pathogen and chemical constituents.
- **Initial Source Water Characterization (ISWC):** Pre-pilot baseline chemical and pathogen sampling, monitoring, and reporting of the influent to and effluent from a wastewater treatment plant.

Wastewater Treatment

- Minimum Wastewater Treatment Considerations
 - Assessed the following for applicability:
 - TN's anti-degradation rule
 - 0400-40-05-.10 Water Quality-Based Permitting
 - 0400-40-05-.09 Technology-Based Effluent Limitations
 - TN's non-potable reuse effluent limitations
 - At a minimum, require secondary treatment standards outlined in TN Rule 0400-40-05-.09:
 - 30 mg/L BOD₅ (30-day average)
 - 25 mg/L CBOD₅ (30-day average)
 - 30 mg/L TSS (30-day average)

Wastewater Treatment

- Response to Violations
 - WWTP to notify the ATWF and the WTP following a violation (or loss/failure of equipment) to trigger additional redundancy and/or diversion
 - Ensure that lines of communication are appropriately triggered
 - Notify ATWF within 24 hours of a violation



Initial Source Water Characterization (ISWC) & Monitoring

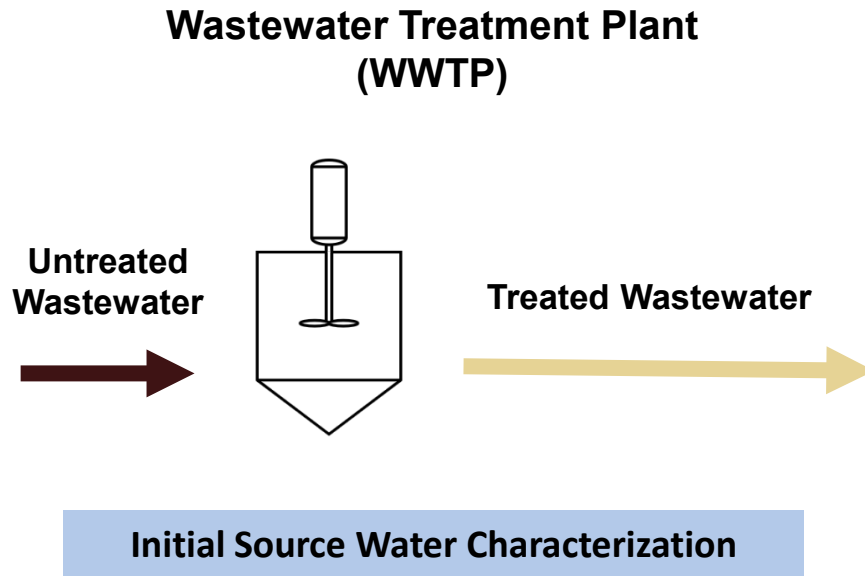
- Helps establish the baseline conditions of treated wastewater effluent as a source water for DPR and better define a window within which an advanced treatment system must operate
- Informs pilot system and full-scale system design
- If a DPR system is trying to establish site-specific pathogen log removal targets (LRTs), ISWC monitoring is used to determine pathogen levels in the source water



ISWC: Overall Approach

- WWTP needs to have an approved, effective pretreatment program for at least one year prior to ISWC
- Submit an ISWC plan for review prior to monitoring
- ISWC occurs for a minimum period of 12 consecutive months
 - Additional monitoring could be needed based upon data review
 - Quarterly reporting
 - Submit report at the end of the ISWC
- Monitoring for required parameters at untreated and treated wastewater monitoring locations:
 - List locations in the ISWC plan
 - Locations must be approved by the state prior to monitoring
- Workgroup discussed ISWC being concurrent with piloting
 - Recommend a minimum of 3 months of ISWC be required prior to piloting

ISWC Monitoring Locations



ISWC Monitoring Summary

Stage	Monitoring Locations	Continuous Monitoring	Monthly Monitoring ¹	Other Monitoring
ISWC	Untreated WW		Tier I	
	Treated WW	WW parameters (flow, pH, temperature, NH ₄ , NO ₃ , NO ₂ , turbidity, conductivity, TOC, TP)	Tier I, Tier II, Tier III (overall ATWF indicators)	Pathogens (if electing to do site-specific pathogen log reductions) ⁴
	Finished drinking water		TOC (if not using RO)	



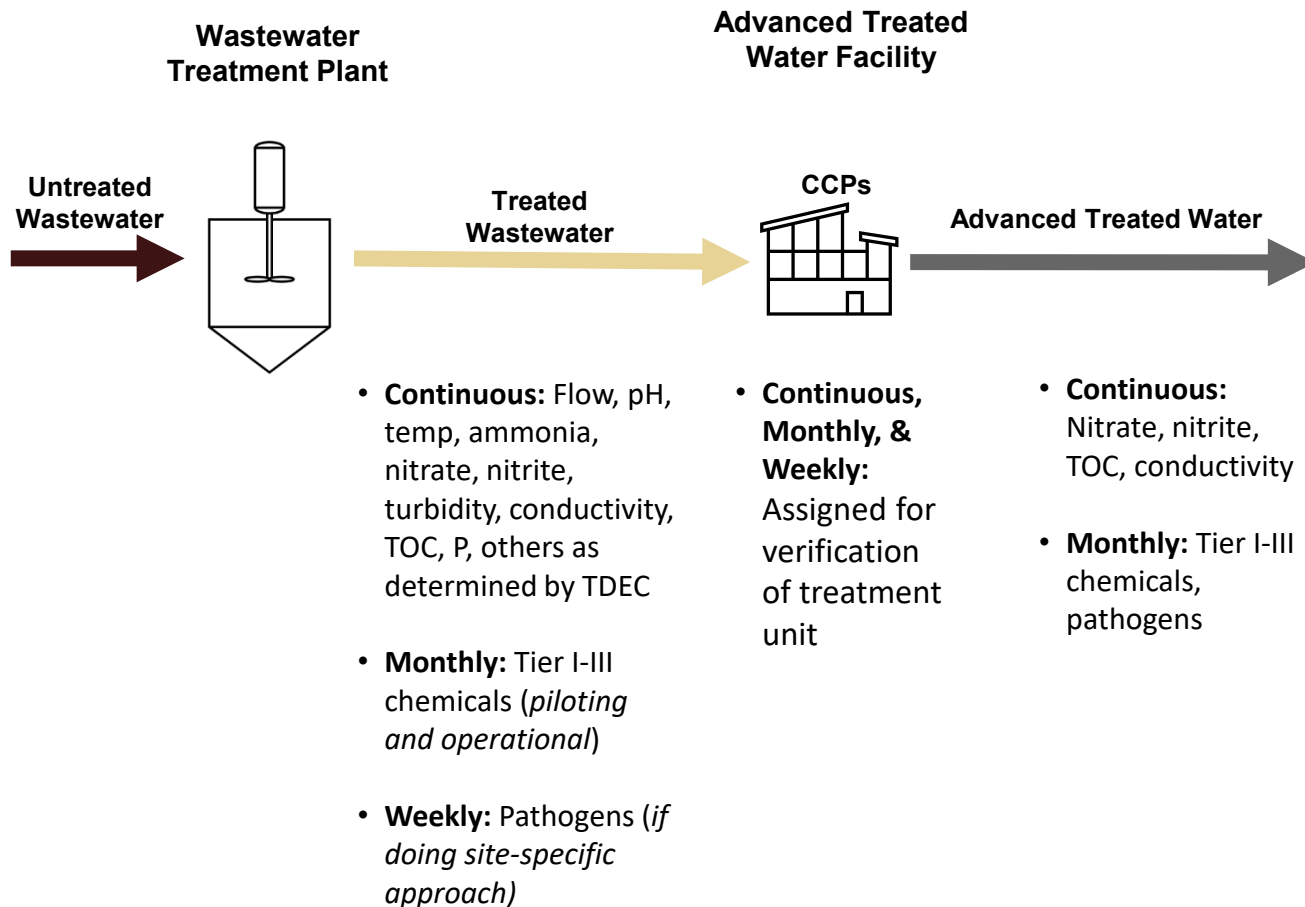
- Tier I** SDWA primary and secondary MCLs
- Tier II** emerging contaminants
- Tier III** performance-based indicators

⁴ Giardia, crypto, norovirus (weekly monitoring during ISWC)

Piloting – Overall Monitoring Approach

- Must develop and submit a piloting plan
- Minimum period of 12 consecutive months
 - Additional monitoring could be required based upon data review
- Locations must be listed in the piloting plan and approved by the state
- Monitoring for all parameters required for:
 - (1) treated wastewater
 - (2) before and after each critical control point (CCP), and
 - (3) advanced treated water (ATWF effluent)

Piloting Monitoring Summary



Piloting

Monitoring Summary

Stage	Monitoring Locations	Continuous Monitoring	Monthly Monitoring ¹	Other Monitoring
ISWC	Untreated WW	-	Tier I	
	Treated WW	WW parameters ²	Tier I, Tier II, Tier III (overall ATWF indicators)	Pathogens (optional) ⁴
	Finished drinking water	-	TOC (if not using RO)	
Piloting	Treated WW	WW parameters ²	Tier I, Tier II ³ , Tier III (overall ATWF indicators)	
	CCPs	Assigned for verification of treatment unit & technology specific Indicators		
	Advanced treated water	Nitrate, nitrite, TOC, conductivity	Tier I, Tier II ³ , Tier III (overall ATWF indicators)	
Full-Scale Verification and Operational	Treated WW	WW parameters ²	Tier I, Tier II ³ , Tier III (overall ATWF indicators)	
	CCPs	Tier III (technology-specific indicators)	-	
	Advanced treated water	Nitrate, nitrite, TOC, conductivity	Tier I, Tier II ³ , Tier III (overall ATWF indicators)	
	Finished drinking water	Disinfectant residual	Tier I	

¹ Monthly monitoring may be reduced in Operational stage based on results from Full-Scale Verification, Piloting, and ISWC stages

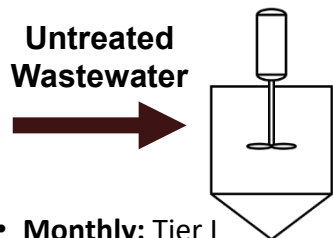
² Flow, pH, temperature, NH₄, NO₃, NO₂, turbidity, conductivity, TOC, TP

³ Tier II chemical list can potentially be reduced after review of ISWC results to exclude non-detected chemicals or chemicals not present in the sewershed

⁴ Monitoring for giardia, crypto, norovirus (**weekly monitoring during ISWC**) for site-specific LRT approach

Monitoring Summary

Wastewater Treatment Plant



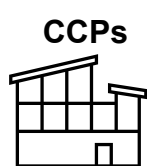
Untreated Wastewater

- **Monthly:** Tier I chemicals

Treated Wastewater

- **Continuous:** Flow, pH, temp, ammonia, nitrate, nitrite, turbidity, conductivity, TOC, P, others as determined by TDEC
- **Monthly:** Tier I-III chemicals (*piloting and operational*)
- **Weekly:** Pathogens (*if doing site-specific approach*)

Advanced Treated Water Facility



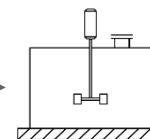
CCPs

- **PILOT: Continuous, Monthly, & Weekly:** technology-specific indicators
- **FULL-SCALE Continuous:** Tier III (technology-specific indicators)

Advanced Treated Water

- **Continuous:** Nitrate, nitrite, TOC, conductivity
- **Monthly:** Tier I-III chemicals (*piloting and operational*)

Water Treatment Plant



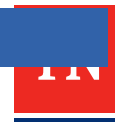
Finished Water

- **Continuous:** Disinfectant residual
- **Monthly:** Tier I chemicals, TOC (*during ISWC if not using RO*)

Initial Source Water Characterization

Piloting

Full-Scale Verification and Operational



Reduced Monitoring Frequency

- If the applicant proves non-detect or low-detect limits over a minimum of a two-year period, consider reducing monitoring frequency with Division approval.



Roles and Communications

- The Operations workgroup discussed utility-to-utility communications.
- Joint agreement between the facilities part of the DPR system and ensure emergency contact information is available and updated.
- Consider requiring a shared SCADA system that all involved treatment plants can see to ensure coordination on diversions/bypass if needed.





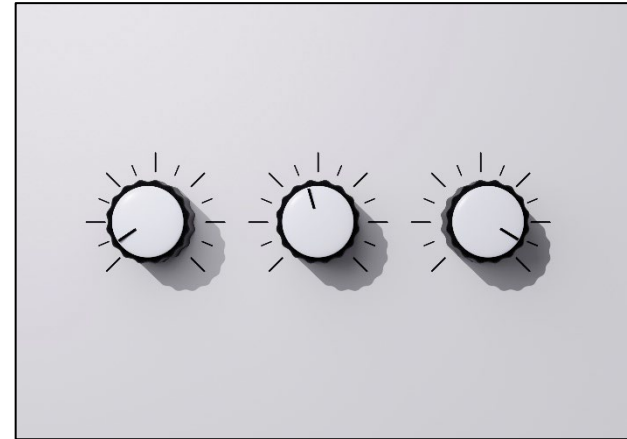
Workgroup 3 Focus: Advanced Water Treatment

Reminder of Topics from Previous Task Force Meeting (Kickoff—April 2025)

- Log reduction targets
- Quantitative microbial risk assessments (QMRA)
- Plant/operational failures
- Engineered storage buffers
- Chemical reduction and control
- Critical control points

Critical Control Points

- CCPs are used to control chemical/pathogen hazards in potable reuse systems
- Each CCP should have defined performance-based indicator monitoring to ensure the barrier is working as designed.
- Each CCP should have an alert and action limit



Alert and Critical Limits

Alert limit:

A limit at a CCP that, when exceeded, alerts the operator of a potential problem that requires a response.

Exceedance

Investigate and Remediate



Critical limit:

A limit at a CCP that, when exceeded, would necessitate taking immediate steps. Operation outside of a Critical Limit triggers a reporting event.

Exceedance

Immediate Action Needed



Alert and Critical Limits

- Workgroup discussed approach to setting alert and critical limits
- In favor of having alert limits that are determined through piloting
- In favor of having critical limits that align with **regulatory limits** (e.g., turbidity requirements for filtration) where possible

Reporting Summary for Operational Stage

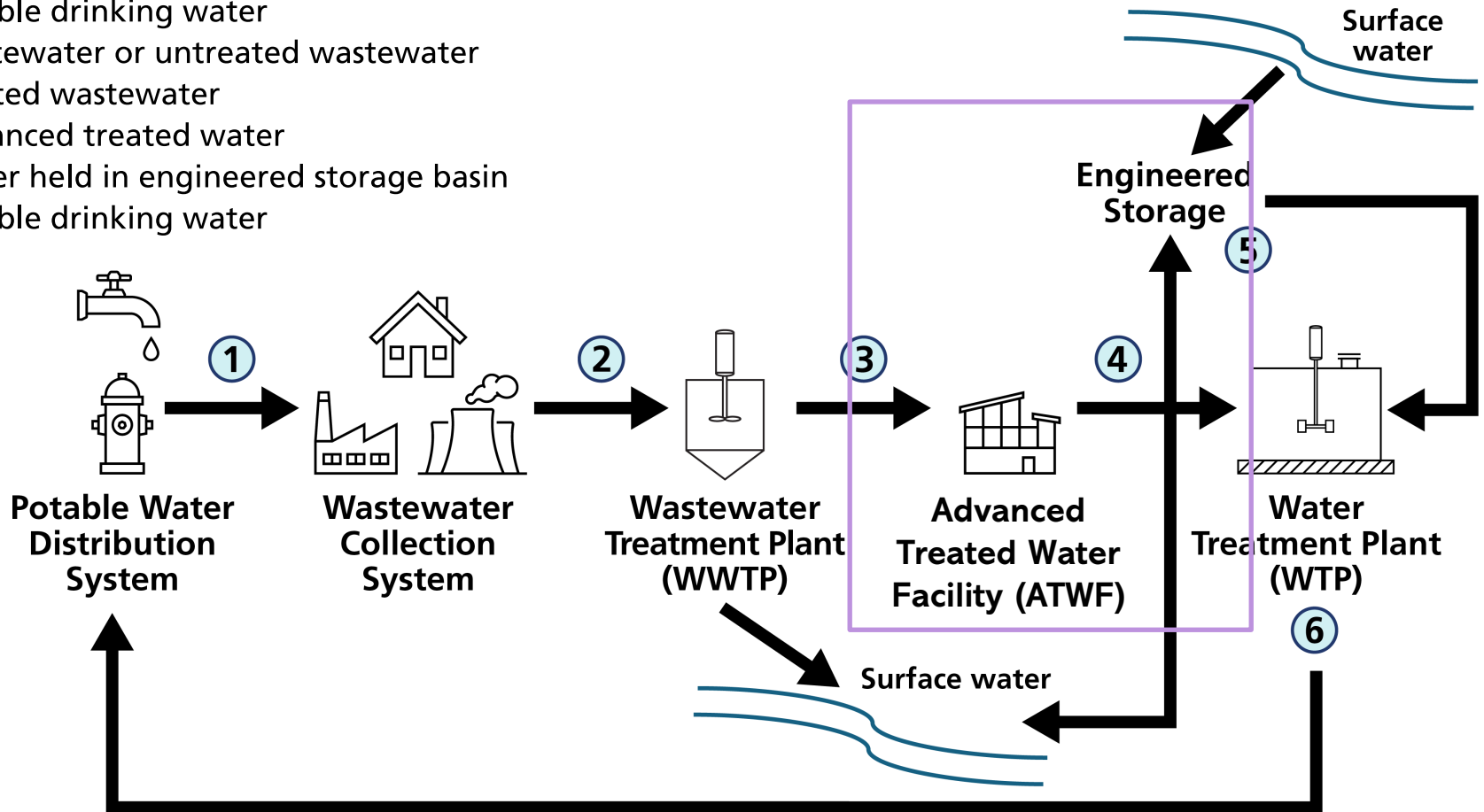
- Monthly reporting
 - Summary and results of continuous monitoring
 - Analytical results of monthly monitoring
 - Summary of overall chemical reduction performance
 - Summary of overall pathogen reduction performance
 - Alert and critical limit exceedances and responses



Advanced Water Treatment

Process Streams:

- ① Potable drinking water
- ② Wastewater or untreated wastewater
- ③ Treated wastewater
- ④ Advanced treated water
- ⑤ Water held in engineered storage basin
- ⑥ Potable drinking water



Topics Discussed Since Task Force Meeting (April 2025—present)

- Overall treatment requirements
- Pathogen reduction and control
 - Standard and site-specific log reduction targets (LRT)
 - Pathogen log reduction crediting
- Chemical reduction and control
 - Tiered chemical approach
- Critical control points (CCP)
 - Alert and action limits
- Monitoring
- Reporting

Treatment Requirements

Advanced Treatment Barriers / Critical Control Points

APPROACH DISCUSSED FOR TENNESSEE



Pathogen Reduction and Control

Filtration

Disinfection

Additional
pathogen
barrier



Chemical Reduction and Control

Advanced
Oxidation
Process

Physical
removal

Additional
chemical
barrier

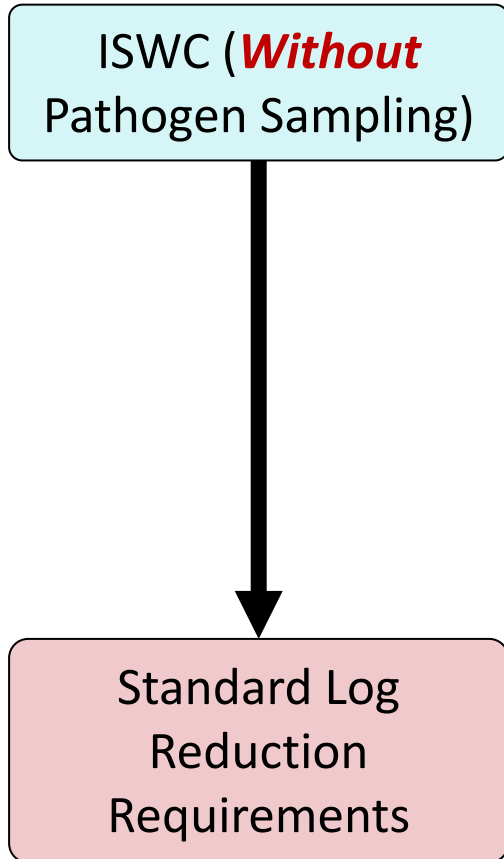
Standard LRTs

- Standard LRT – reduction in pathogens from **raw wastewater** to finished drinking water

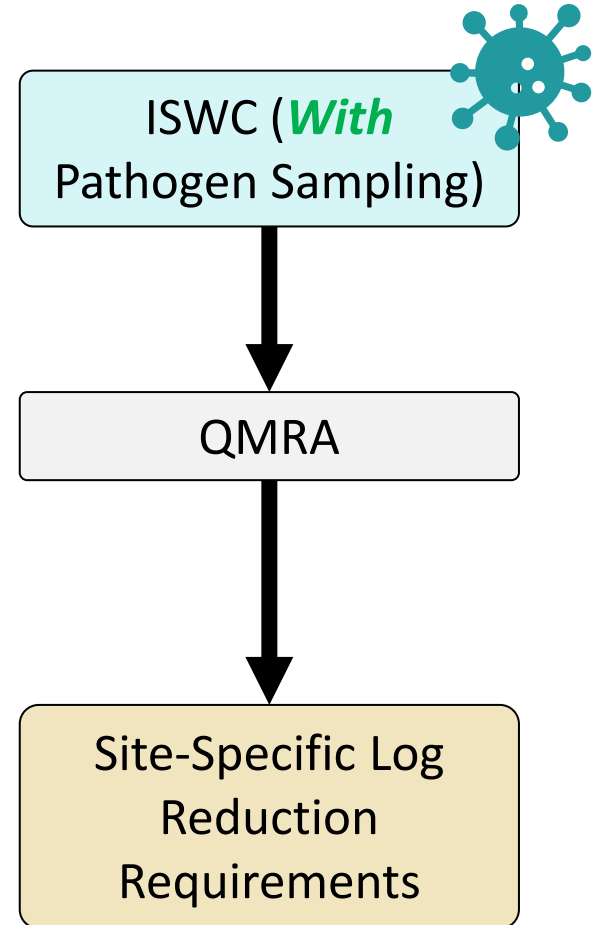
Pathogen LRTs (virus/giardia/cryptosporidium)				
California	Colorado	Arizona	Texas	Workgroup Supported
20/14/15	12/10/10	13/10/10	8/6/5.5 (from treated WW)	15/10/11

- Workgroup supported LRTs are based on EPA's 2025 "Risk-Based Framework for Developing Microbial Treatment Targets for Water Reuse"

ISWC – Pathogen Sampling for Optional Site-Specific Log Reductions

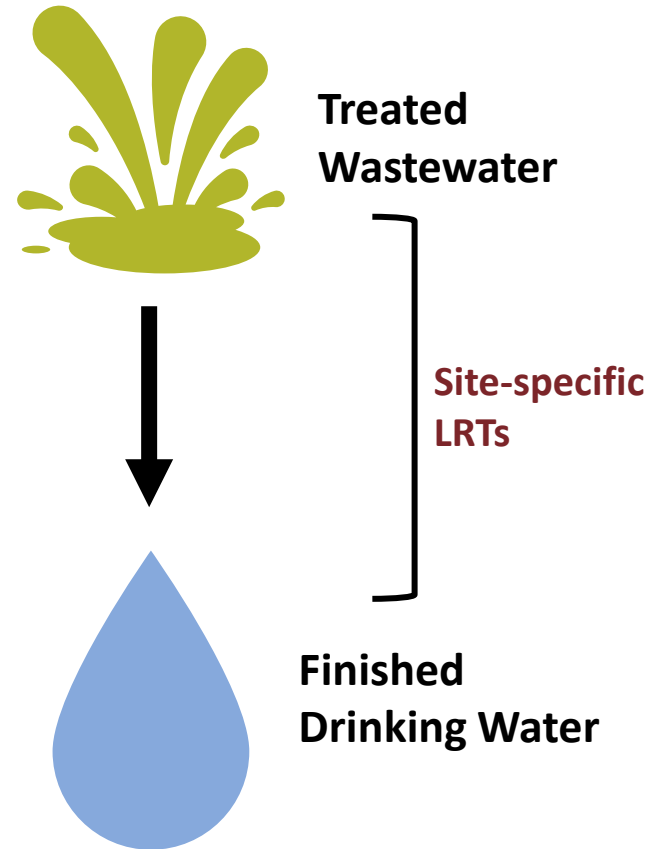


OR



Site-Specific LRTs

- Site-specific LRT: reduction in pathogens from **treated wastewater** to finished drinking water
- ATWRA to conduct sampling for pathogens during initial source water characterization to determine pathogen concentrations in **treated wastewater**



Site-Specific LRT Approach

Determining site-specific LRTs is conducted in 3 steps:

1. TDEC to establish acceptable concentrations of pathogens in finished drinking water, utilizing accepted values from EPA (2025)
2. ATWRA to conduct site-specific pathogen sampling campaign during ISWC
3. TDEC and ATWRA to calculate the site-specific LRTs using data from Step 1 and 2

Site-Specific LRT Approach

- **Step 1:** Establish acceptable concentrations of pathogens in finished drinking water.
 - Use pathogen dose-response relationships and other methodology in EPA (2025) to calculate acceptable pathogen concentrations in finished drinking water
 - Acceptable pathogen concentrations correlate to 1 in 10,000 annual risk of infection per person

Pathogen	Acceptable Concentration			
	EPA (2025)*	California	Colorado	Texas
Norovirus GI (gc/L)	8.88×10^{-8}	3.3×10^{-7}	2.2×10^{-7}	2.2×10^{-7}
Giardia (cysts/L)	5.74×10^{-6}	6.8×10^{-6}	6.8×10^{-6}	7.0×10^{-7}
Cryptosporidium (oocysts/L)	1.55×10^{-7}	1.4×10^{-7}	3.0×10^{-5}	3.0×10^{-5}

Site-Specific LRT Approach

- **Step 2:** ATWRA to conduct site-specific pathogen sampling campaign during the ISWC
- Sampling approach:
 - Treated wastewater location
 - Pathogens: giardia, cryptosporidium
 - 1 year (52 weeks) of sampling
 - Consideration should be given to bi-weekly samples
 - Collected on same day/time of week
 - EPA 1623.1 (giardia/cryptosporidium)



¹ Consistent with LT2 Enhanced Surface Water Testing

Site-Specific LRT Approach

- Limitations with analytical methodology for norovirus
 - Genome-copies
 - Does not measure infectivity
 - Potential for surrogates
 - More research is needed
- Site-specific approach may be adjusted based on limitations of norovirus analysis



Site-Specific LRT Approach

- **Step 3:** TDEC and ATWRA calculate site-specific LRTs
- Equation to use:

$$LRT_{ss} = \log(C_{eff,95}) - \log(C_{Target})$$

LRT_{ss} = site-specific LRT

$C_{eff,95}$ = 95th percentile concentration of pathogen (step 2)

C_{Target} = acceptable concentration of pathogen (step 1)

Minimum Site-Specific LRTs

- Originally stem from TX's approach to DPR
- CO and AZ approach both adopt TX's LRTs for treated wastewater as site-specific minimum LRTs (8/6/5.5)
- Since the Workgroup supported **higher** standard LRTs (15/10/11 vs. 12/10/10), new minimum site-specific LRTs were considered.

Minimum Site-Specific LRTs Approach

- Using the pathogen treatment barrier requirements and crediting assumptions to obtain new minimum site-specific LRTs
 - Correlate minimum treatment requirements to proposed minimum site-specific LRTs
- Assume the following specific treatment technologies:
 - Conventional Filtration
 - UV Disinfection
 - Chlorine Disinfection

**Minimum
Treatment Barriers**



Conservative Crediting
Assumptions from **TN PWS Rule**

**Workgroup
Supported Minimum
Site-Specific LRTs**

Minimum Site-Specific LRTs Approach

Treatment Barrier	LRVs (V/G/C)*	Specific Technology	Notes*
Filtration	2 / 2.5 / 3	Conventional filtration	Maximum LRVs for conventional filtration (assume 1.0-log additional credit for enhanced cryptosporidium treatment; i.e., 0.15 NTU CFE and IFE turbidity)
Disinfection	4 / 4 / 4	UV disinfection	Maximum LRVs for UV disinfection (UV dose = 186 mJ/cm ²)
Additional Pathogen Treatment Barrier	4 / 0 / 0	Chlorine disinfection	Maximum LRV for viruses and minimum LRV for giardia to meet 3-log SWTR criteria assuming disinfection paired with conventional filtration (assume CT value = 10 mg-min/L at 20°C, pH of 7, and chlorine concentration of 1.4 mg/L).
Total	10 / 6.5 / 7		

*Source: TN PWS Rule

V/G/C = Virus/giardia/cryptosporidium

Pathogen Crediting

- Pathogen log credits for filtration/disinfection to be assigned according to TN PWS Rule (0400-45-01)

	Treatment Technology	Log Reduction Credits		
		Virus	Giardia	Crypto
Filtration	Conventional	2.0	2.5	2.0*
	Direct	1.0	2.0	2.0*
	Slow sand	2.0	2.0	2.0*
	Diatomaceous earth	1.0	2.0	2.0*
	Membranes (MF/UF/NF, RO)**	+	+	+
	Bag/cartridge filters**	0	0	Up to 2.0
Disinfection	Chlorine*	Up to 4.0	Up to 3.0	0
	Chlorine dioxide*	Up to 4.0	Up to 3.0	Up to 3.0
	Ozone*	Up to 4.0	Up to 3.0	Up to 3.0
	Chloramine*	Up to 4.0	Up to 3.0	0
	Ultraviolet (UV)*	Up to 4.0	Up to 4.0	Up to 4.0

Pathogen Crediting

- Pathogen log credits to be assigned according to TN PWS Rule (0400-45-01)
 - Exceptions include:
 - Up to 6.0-log virus credit for chlorine¹
 - Up to 5.0-log virus credit for ozone¹
 - Up to 6.0-log virus, giardia, and cryptosporidium credit for UV²
- Maximum pathogen credit is **6.0-log**
- Minimum pathogen credit is **0.5-log**
- Sum of pathogen log credits for each treatment process must **meet or exceed** overall LRTs

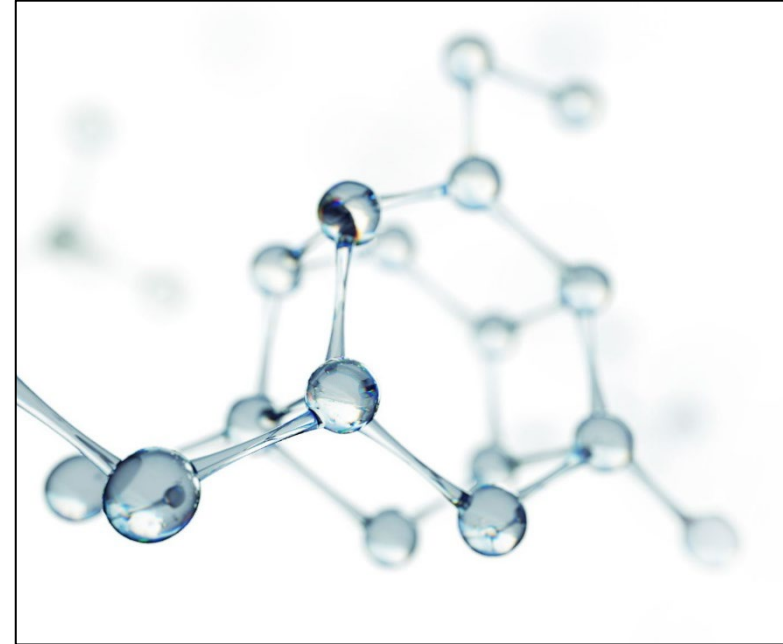
¹ *Disinfection Profiling and Benchmarking Technical Guidance Manual*, EPA, 2020

² *Innovative Approaches for Validation of Ultraviolet Disinfection Reactors for Drinking Water Systems*, EPA, 2020

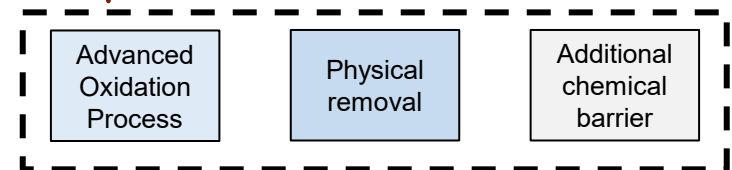
Chemical Reduction and Control

Treatment Examples:

- **Advanced oxidation process:**
 - UV-H₂O₂
 - UV-ozone
- **Physical removal:**
 - Membrane filtration
 - Adsorption (GAC/BAC)
 - Biofiltration
- **Additional chemical barrier:**
 - Filtration
 - Ion exchange



Chemical Reduction and Control



Tiered Chemical Approach

Tier I

- SDWA National Primary Drinking Water Regulated (**NPDWR**) Contaminants
- Maximum contaminant levels (**MCLs**)
- Enforceable

Tier II

- Emerging contaminants
- EPA health advisories
- Pharmaceuticals
- Personal care products
- **Unregulated**

Tier III

- Chemicals effective for evaluating treatment performance
- Turbidity (EPA SWTR)
- TOC, etc.
- Continuous monitoring

Slido Questions: Source Water Nexus and Advanced Water Treatment

- List of topics to potentially include in policy:
 - Enhanced Source Water Control (e.g., source investigations, inventory of contaminants of concern, public outreach, response plan)
 - Initial Source Water Characterization
 - Wastewater treatment requirements
 - Advanced treatment (acceptable technologies and process design)
 - Pathogen and chemical reduction and monitoring
 - Piloting
 - Full Scale Verification testing



Workgroup 3 Focus: Operations



Photo: Denver Water

TN

Department of
**Environment &
Conservation**

Meeting Topics

Kick-off to April 2025 topics (Meetings 1-5):

- Operator certification requirements
- Utility-to-utility communications
- Standard operating procedures (SOPs) for the operations plan



Meeting Topics

April 2025 – present topics (Meetings 6-10):

- Critical control points (CCPs), action/alert limits, and monitoring (with AWT workgroup)
- Corrective actions for action/alert limits
- Monitoring approaches (with AWT and SW workgroups)
- Technical and managerial capacity to pursue DPR

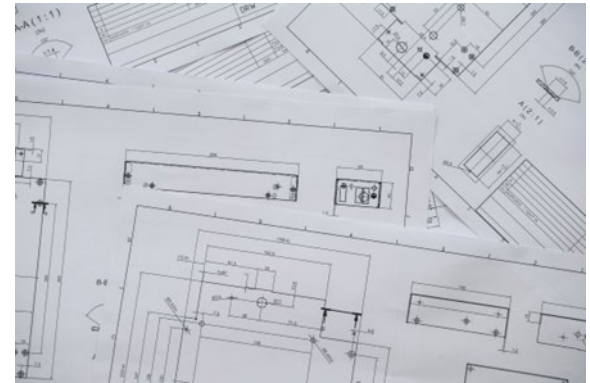
Assessment process for each topic:

- Review potable reuse requirements in AZ, CA, CO, and FL
- Discuss potential applicability to TN



Critical Control Points, Alert Limit, Critical Limit

- Operations Workgroup members participated in joint meeting with AWT Workgroup and provided input
- Opportunity to provide more feedback on these definitions as a workgroup



Corrective Actions for Action/Alert Limits

- Workgroup favored the CO approach with system-specific response
- Also liked some “basic minimums” from AZ and CA
 - Confirmation monitoring and SCADA/alarms
 - Language on pathogen and chemical response about diversion/shutoff protocol

Corrective Actions for Action/Alert Limits

- Critical limit exceedance notification
 - Suggested requirement for notification of state within 24 hours.
 - AZ also includes in annual consumer confidence report.
 - Investigation into the cause if critical limit is exceeded should be required; however, it is acceptable if the specific issue is not identified as long as the system returns to compliance.
- Alert limit exceedance does not require notification to state but must be recorded.

Technical and Managerial Capacity Demonstration

- Workgroup feels T&M capacity demonstration should apply to all DPR project applicants (currently T&M is only for new or problematic drinking water plants).
- Liked AZ's approach to T&M for DPR.
- Crosswalked AZ's requirements with TN's existing T&M requirements for drinking treatment plants to develop a list of enhanced T&M requirements for DPR projects.



Enhanced Technical Capacity Demonstration (TN and AZ Crosswalk)

Items for DPR Technical Capacity Demonstration*

Operations plan	Information on storage and distribution processes
Availability of an existing water source or contingency plans for an alternative approved source	A cross-connection control plan
Design and treatment capacity	A corrosion control plan
Demonstration of adequate source water quantity and quality	Comprehensive technical and engineering specifications for the ATWF, including manufacturer specifications showing the life span of ATWF components
Demonstration of technical capability to implement an enhanced source control program	Documentation that the ATWF will be operated by a certified operator

*Technical capacity demonstration items identified by workgroup from AZ's DPR regulation are similar to items TN requests for technical capacity demonstration.

Enhanced Managerial Capacity Demonstration (TN and AZ Crosswalk)

Items for DPR Managerial Capacity Demonstration

Documentation of ownership, management, and organization information (org chart, job descriptions, etc.)

Outline of tools and procedures employed in the management of the facility (asset management and maintenance plan, digital maintenance log, etc.)

Documentation of contractual agreements between ATWRA partners or any other entity associated with a DPR project

Documentation of the monitoring plan

Documentation of any surface water discharge permits and non-potable reuse permits, including permits to address off-spec water disposal

Documentation of the emergency operations plan

Operational info (**staff training plan**, operations policies public notification approach)

Existing TN managerial capacity demonstration requirement

Additional managerial capacity demonstration item for DPR (based on crosswalk)

Technical and Managerial Capacity Demonstration (cont.)

- Consider a T&M checklist/template to help streamline TN review
- Regular updates of T&M capacity demonstration should occur



Slido Questions: Operations

- List of topics to potentially include in policy:
 - Operations Program and operator requirements
 - Off-spec water disposal/response plan
 - Response procedure for advanced treated water violations
 - Utility-to-utility communications plan
 - Corrosion control
 - Engineered storage



A group of six people (three women and three men) are seated around a light-colored wooden conference table in a bright, modern office space. They appear to be in a meeting, with some looking at laptops and others engaged in conversation. The room features large windows in the background, a whiteboard on the right, and a potted plant on the left. The overall atmosphere is professional and collaborative.

Workgroup 4 Focus: Communications and Outreach

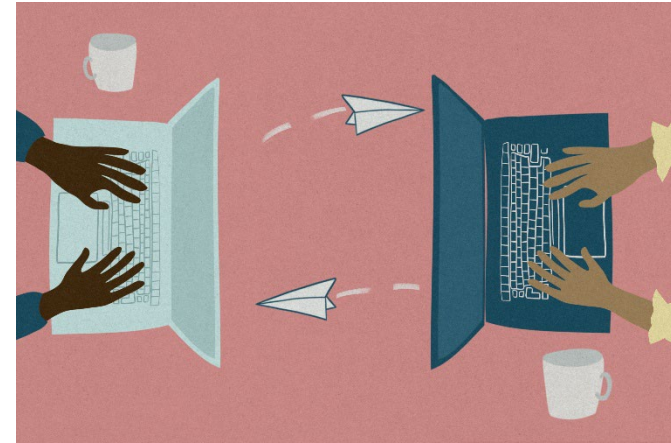
Reminder of Topics from Previous Task Force Meeting (Kickoff—April 2025)

- **External communications** needs, goals, and audiences to introduce water reuse to the public, including through TDEC's website
- **Effectiveness and limitations of messaging** through review of water reuse articles and case studies
- **Real-world experience** from CO's water reuse regulation communications workgroup lead on decision-making process and communication requirements



Reminder of Topics from Previous Task Force Meeting (Kickoff—April 2025)

- Assessed the **applicability of states' potable water reuse regulations** communication plan requirements to TN
- **General communications and public outreach program requirements**
 - Stakeholder identification
 - Topics for communications
 - Acceptable methods of communication
- **Specific requirements**
 - Pre-application
 - Piloting
 - Project application



Topics Discussed Since Task Force Meeting (April 2025—present)

- Notification requirements
 - During project application
 - Violations
- Accessibility



Applicability Findings: Public Notification (During Project Application)

- ATWRA to hold at least 1 public meeting during project application **no less than 6 months prior to distribution** of finished water.
- In notifications about the public meeting, include:
 - Date
 - Time
 - Location
 - Purpose
- Notification should go out **at least 30 days before the public meeting** by mail or another method of communication, as specified under the general communications requirements.



Applicability Findings: Public Notification (Violations)



- TN's Notification of Customers rule (0400-45-01.19) in the PWS chapter is sufficient for DPR.
 - Requires public water systems to notify the public whenever they violate national primary drinking water regulations or experience other conditions listed in the rule.
 - Tier 1 notices (significant potential to have serious adverse effects as a result of short-term exposure) must be issued within 24 hours.
 - Tier 2 notices (potential to have serious adverse effects) within 30 days.
 - Tier 3 notices (all other violations not included in Tier 1 and Tier 2) within 12 months.
- Incorporate and reference 0400-45-01-.19 in the DPR rule.

Applicability Findings: Accessibility

- Align with TN's existing PWS Chapter (0400-45-01-.19):
 - For public water systems serving a large proportion of non-English speaking consumers, the public notice must contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate language.

Applicability Findings: Accessibility

- TN has its own accessibility requirements (Title VI) that are applicable to systems that receive state or federal funding.
- Title VI requirements will likely apply to any public comment / public hearings that TDEC conducts as part of the permitting process for DPR.

Title VI Program

Title VI ensures no person shall be excluded from participation in, or is denied the benefits of, or is subjected to discrimination under any program or activity receiving federal financial assistance from the Department of Transportation on the grounds of race, color, and national origin.



Slido Questions: Communications and Outreach

- List of topics to potentially include in policy:
 - Stakeholder identification/characterization
 - Communicating with key audiences
 - Customer notification
 - Documentation of pilot study communications plan outcomes





Workgroup 5 Focus: Regulatory Framework

Reminder of Topics from Previous Task Force Meeting (Kickoff—April 2025)

- Direct potable reuse definitions
- Scope of reuse in TN
- Evaluation of existing relevant TN rules
 - Non-Potable Water Reuse (0400-40-06-.10)
 - Public Water Systems (0400-45-01)
 - Individual NPDES Permits (0400-40-05)
- Direct potable reuse permitting & approval process
- Pilot testing requirements



Topics Discussed Since Task Force Meeting (April 2025—present)

- Policy document needs
- Financial capacity assessments
- Potential permitting approach



Policy Document Needs

- Workgroup reviewed other states' policy documents (AZ, CA, CO, FL, TX)
 - Assessed what policies may be needed to support potential DPR regulation
- Key takeaways:
 - One policy document is ideal, rather than multiple
 - Any technical details in policy must be tied back to regulation

Financial Capacity Assessment

- Workgroup reviewed other states' financial capacity assessment requirements (AZ, CA, CO, FL)
- Assessed what documentation may be necessary to demonstrate adequate financial capacity for DPR
- Two rounds of assessments:
 - Prior to piloting
 - At complete DPR application



Financial Capacity Demonstration

Potential Financial Capacity Assessment Requirements

Submitted Prior to Piloting	Submitted with DPR Application
Projected costs of piloting	-
Projected costs of full-scale DPR system (inc. 20-year lifecycle costs of equipment)	UPDATED Projected costs of full-scale DPR system (inc. 20-year lifecycle costs of equipment)
Description of funding sources for 20 years of DPR system operations	UPDATED Description of funding sources for 20 years of DPR system operations
Explanation of impact fees	UPDATED Explanation of impact fees
TN Ability to Pay Index value	UPDATED TN Ability to Pay Index value



Potential Permitting Process

Potential Approach for Direct Potable Reuse Permitting

- TN's potential coordinated permitting approach:
 - **State Operating Permit (SOP)** for non-discharging systems to authorize direct potable reuse
 - SOP authorizes flow of advanced treated water from ATWF to drinking water treatment plant
 - **NPDES permit** to authorize surface water discharge from advanced treatment
 - Includes SOP conditions to authorize non-potable reuse (if applicable)

Direct Potable Reuse Regulatory Framework

0400-40-06

State
Operating
Permits

Proposed

0400-45-05

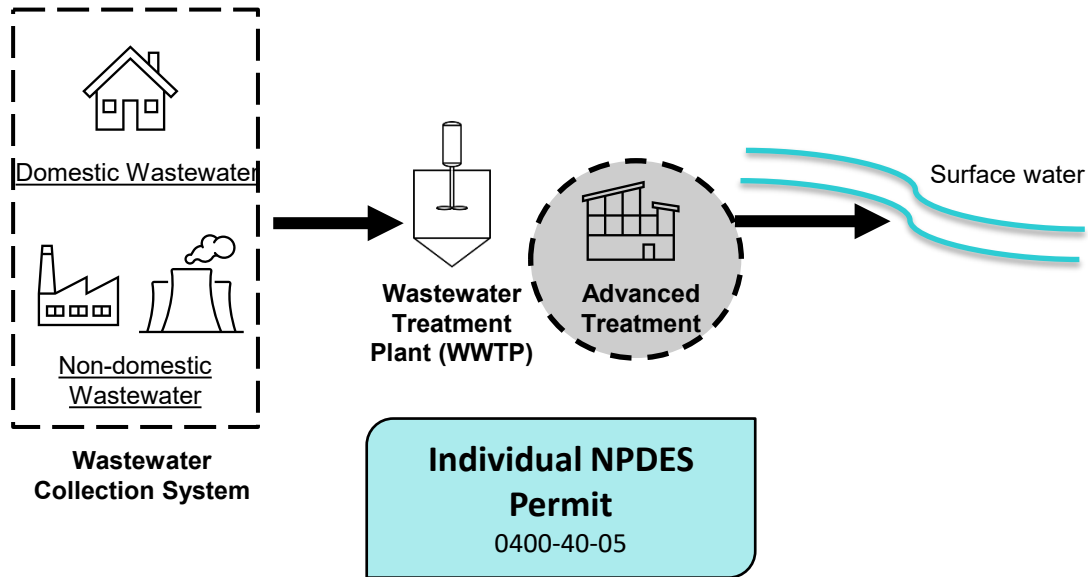
Direct
Potable
Reuse

0400-45-01

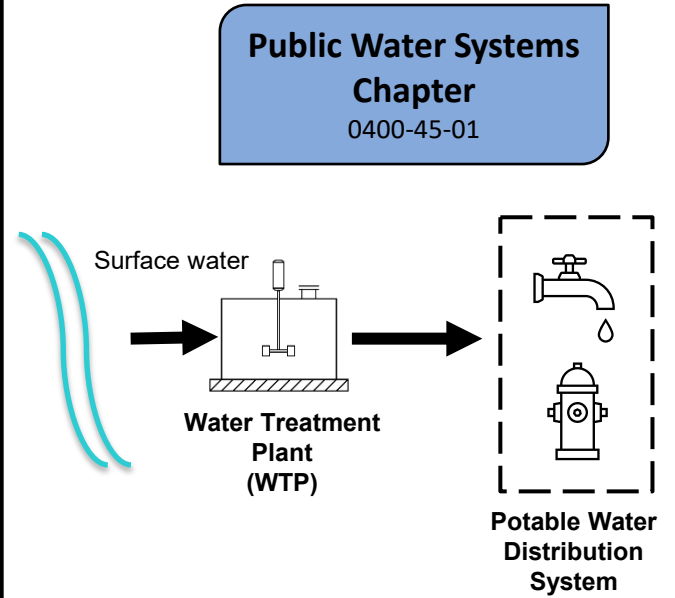
Public
Water
Systems

Standard Approach

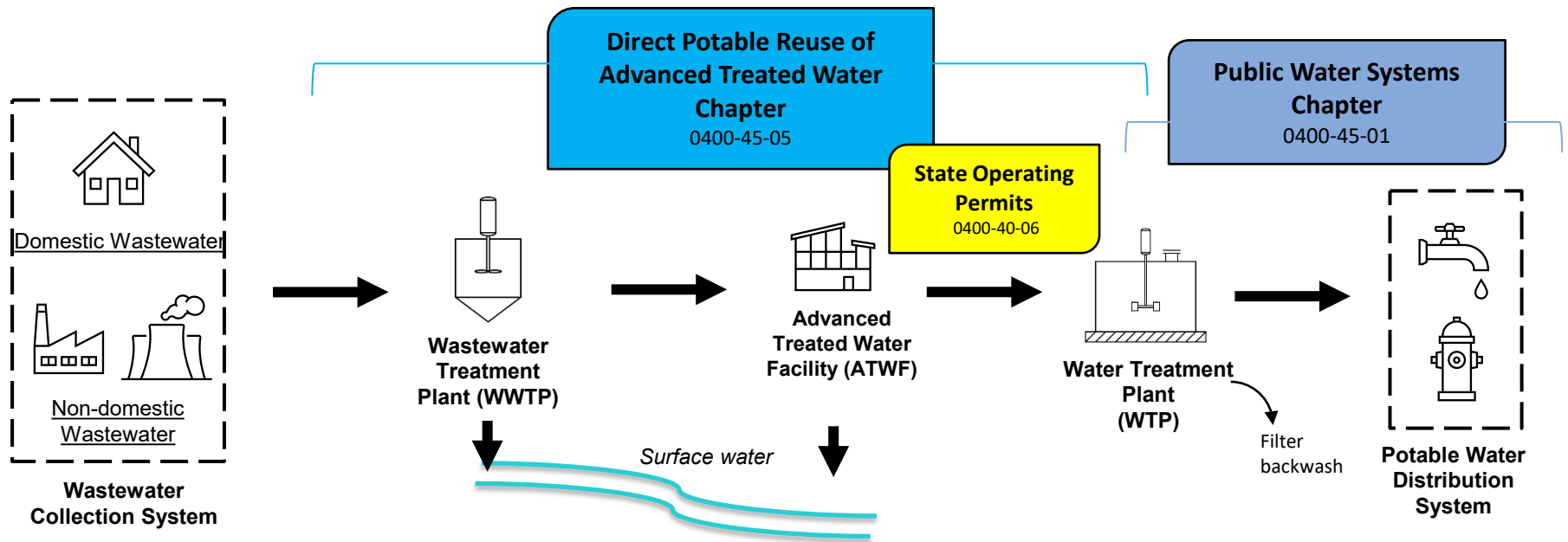
Wastewater Treatment



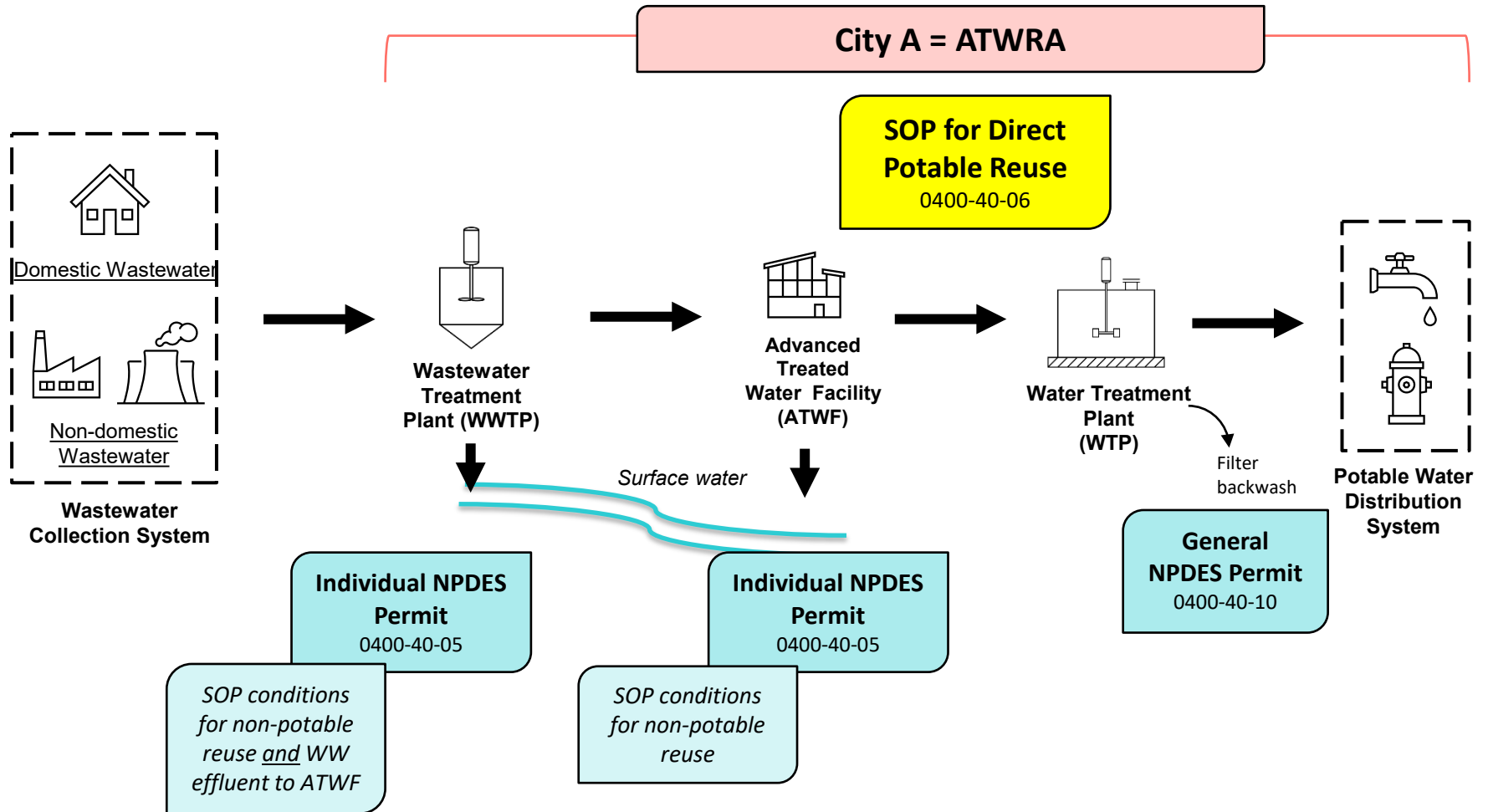
Drinking Water Treatment



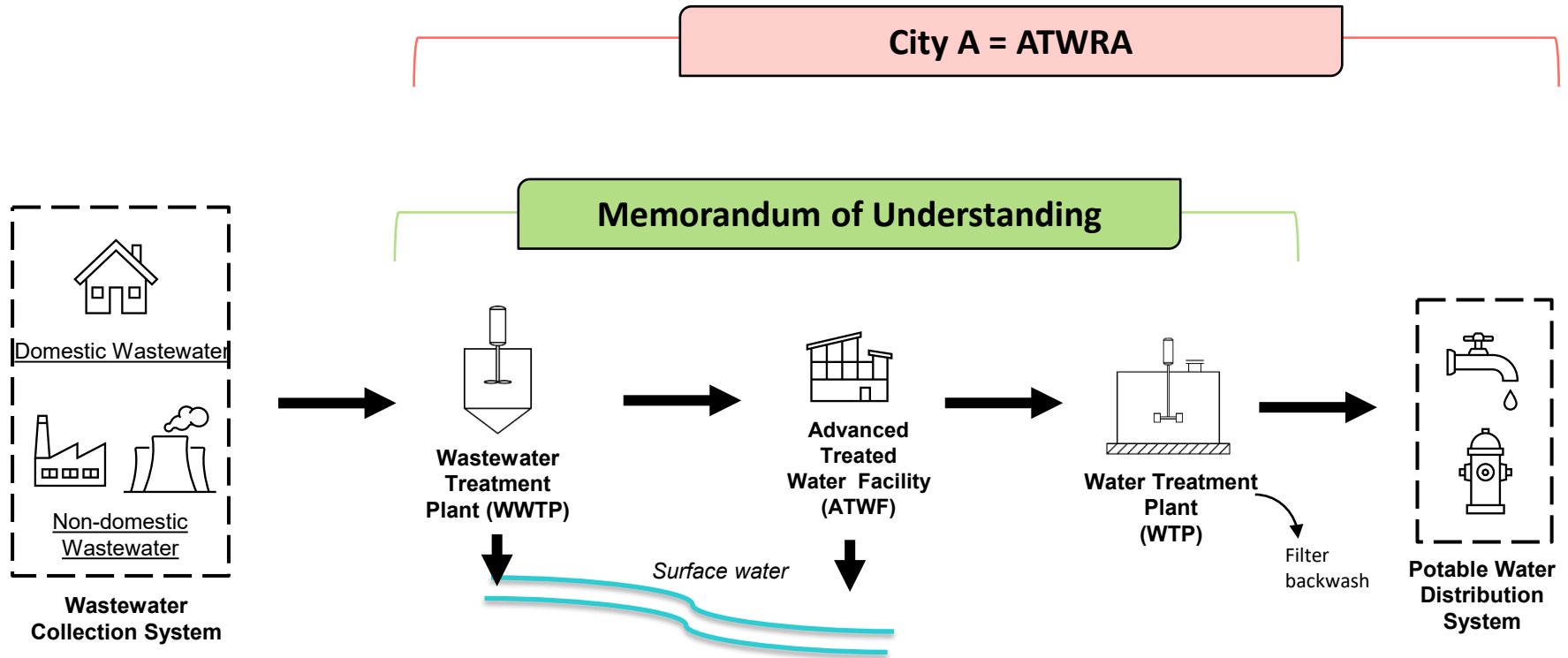
Direct Potable Reuse Regulatory Approach



Scenario A: ATWRA without Partners



Scenario A: ATWRA without Partners

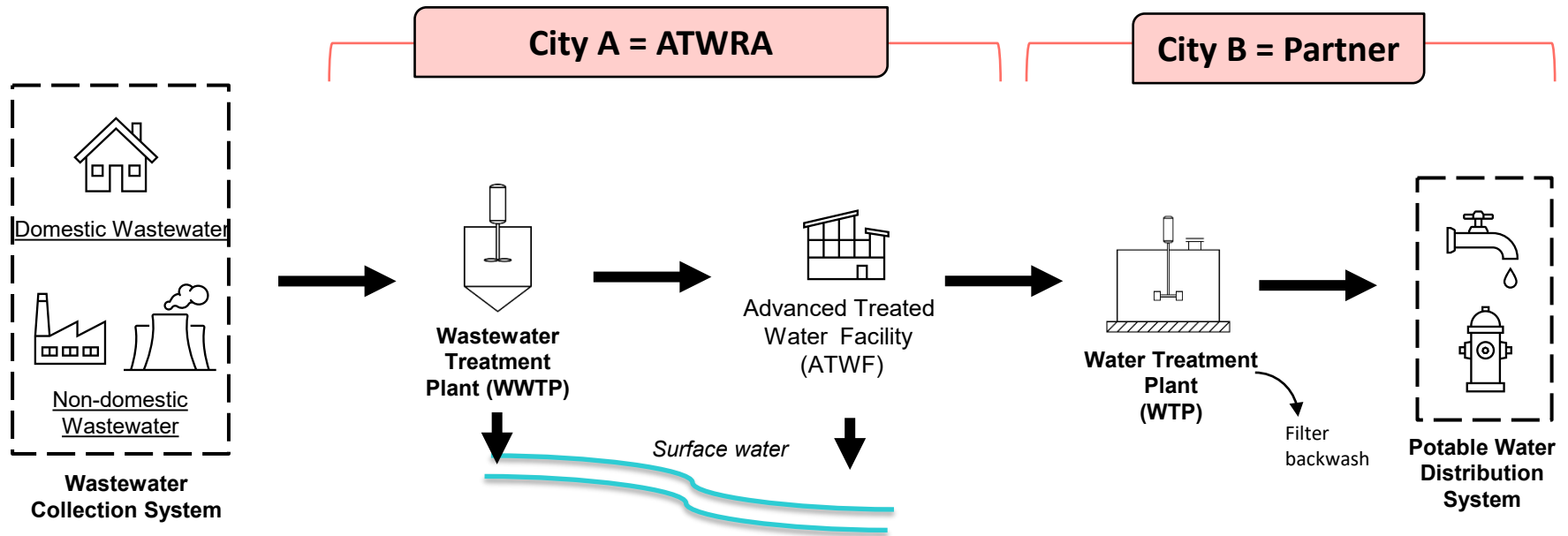


Memorandum of Understanding

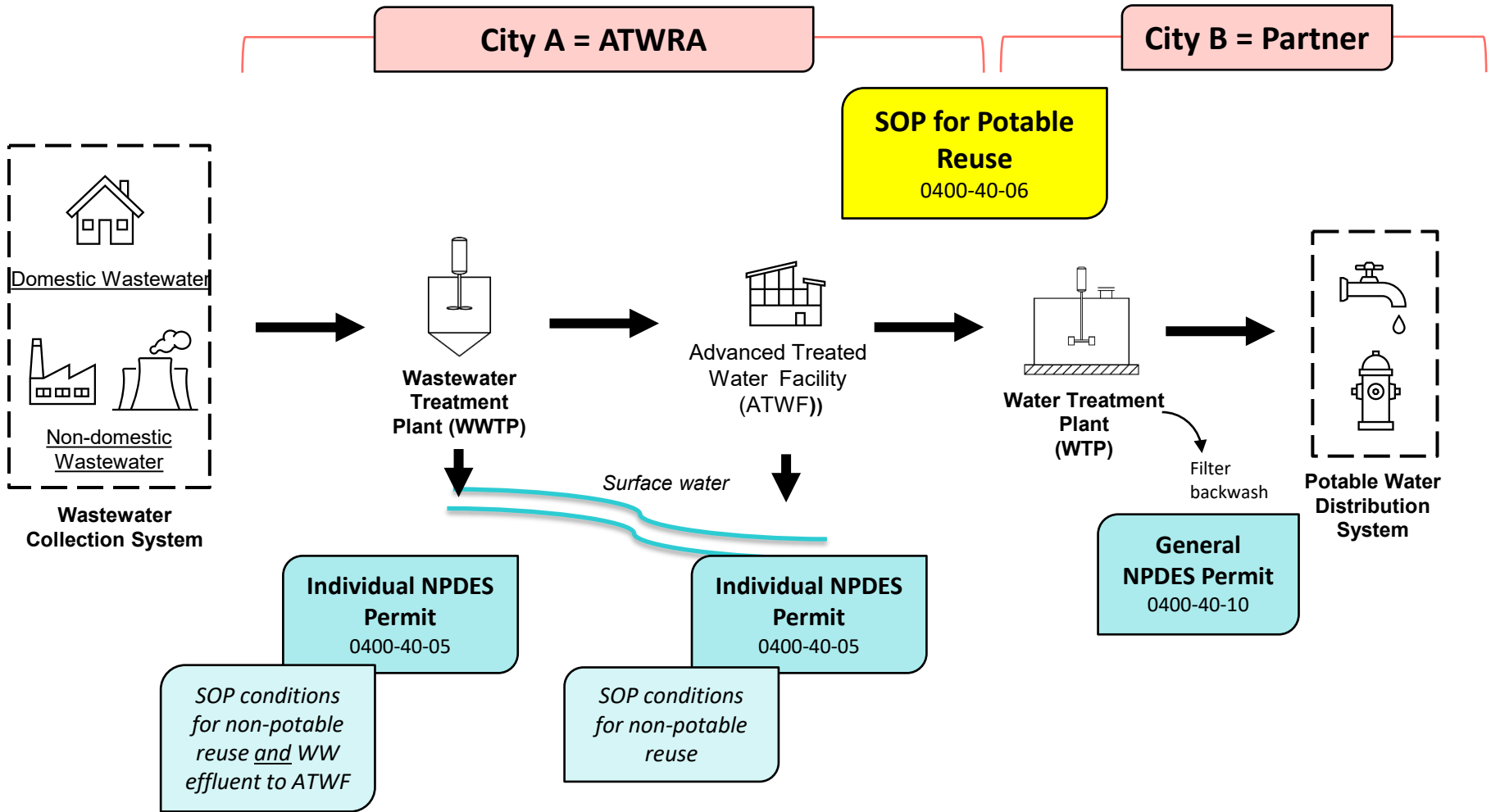
- Key Requirements:
 - Roles and responsibilities at each facility
 - Procedures to implement the Monitoring Plan, Enhanced Source Water Control Plan, and Operations Plan
 - Procedures to communicate treated wastewater and advanced treated water monitoring results among all facilities



Scenario B: ATWRA with Partners



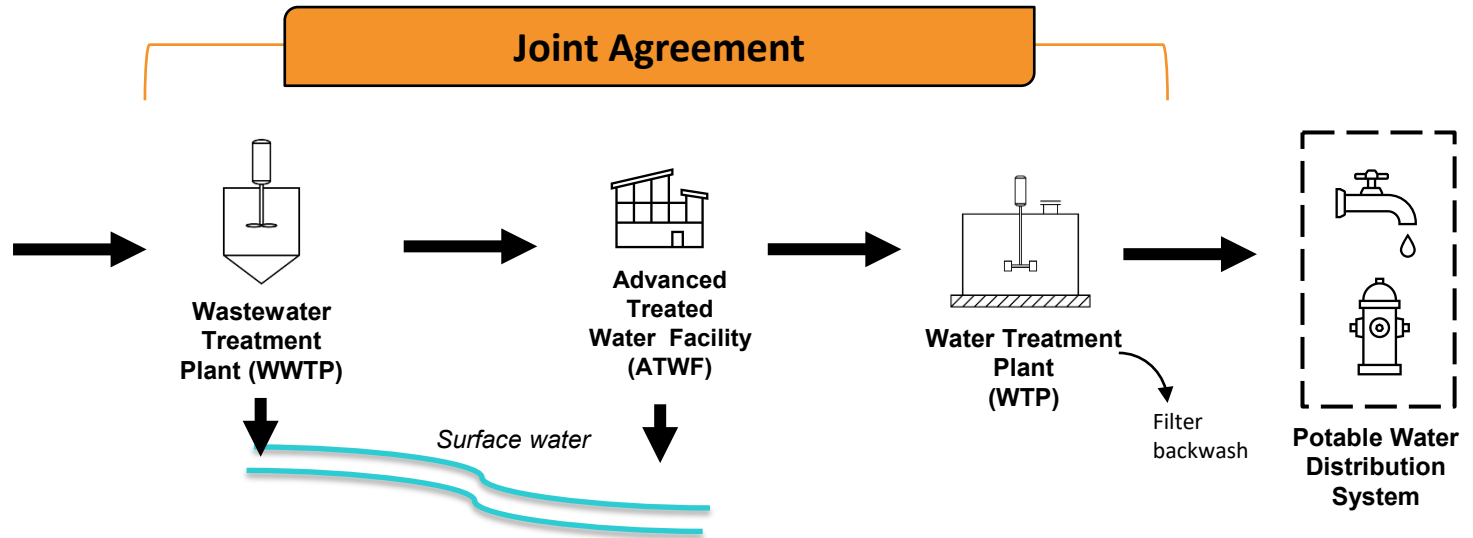
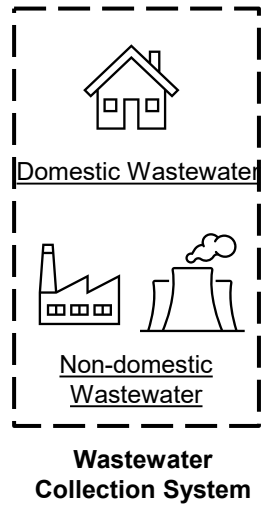
Scenario B: ATWRA with Partners



Scenario B: ATWRA with Partners

City B = Partner

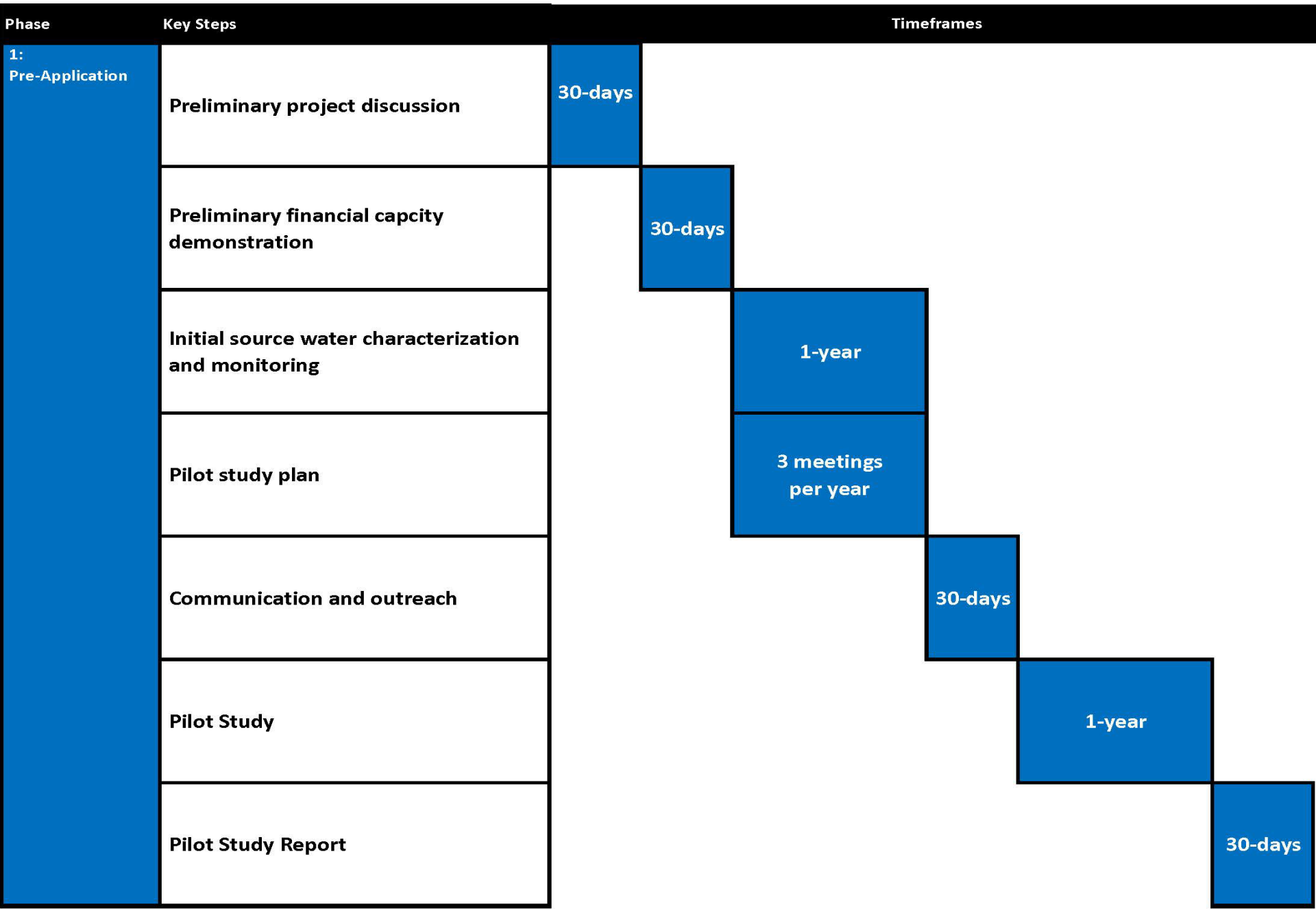
City A = ATWRA



Joint Agreement

- Key Requirements:
 - Roles and responsibilities of each partner
 - Legal authority of each partner to fulfill its roles and responsibilities
 - ATWRA's authority to enforce the Joint Agreement
 - Procedures to implement the Monitoring Plan, Enhanced Source Water Control Plan, and Operations Plan
 - Procedures to communicate treated wastewater and advanced treated water monitoring results among all facilities

Conceptual Phases/Key Steps for DPR Project Permitting



Conceptual Phases/Key Steps for DPR Project Permitting

Phase	Key Steps	Timeframes		
2: Project Permit Application	Permit application(s) and preliminary engineering report	30-days (TDEC application completeness review)		
	Engineering report and preliminary plans		30-days	
	Draft permit(s) and public comment			TBD
	Final design documents and full-scale verification plan			
	Final NPDES permit and non-potable SOP			
	Construction activities			
	Final record drawings			
				30-days

Conceptual Phases/Key Steps for DPR Project Permitting

Phase	Key Steps	Timeframes	
<p>3: Full-scale Verification</p>	<p>Conduct full-scale verification according to full-scale verification plan.</p>	<p>1-Year</p>	
<p>4: Full DPR SOP Permit Effective</p>	<p>Final full scale verification report</p>	<p>30-Days</p>	
	<p>SOP Effective</p>		
<p>5: Approved Operations</p>	<p>Operate DPR project according to permits</p>		

Slido Questions: Regulatory Framework

Potential Policy Document Topics

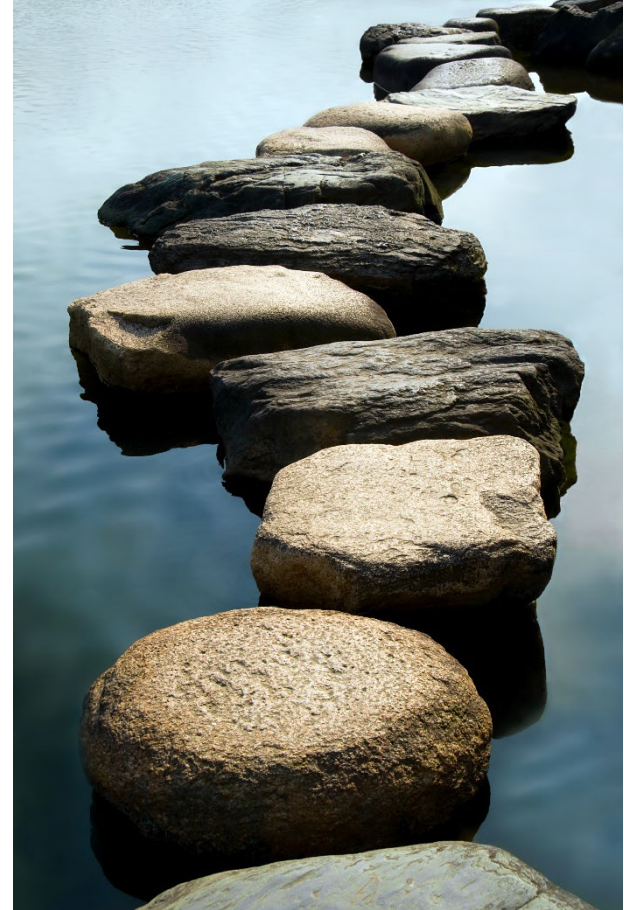
- Definitions
- Financial Capacity Demonstration
- Technical & Managerial Capacity Demonstration
- Permitting Information (Additional Scenarios)



What's Next:

Building the Regulatory Framework

- TDEC will draft the DPR rules, incorporating feedback from the workgroups
 - “Technical reviews” to be conducted by internal staff
 - Compile a draft rule, including amendments to existing rules
- Policy development or updates to be drafted



What does the State Process Look Like?

- Lengthy state review process
- Public comment on draft rule
 - TDEC will alert Task Force to comment opening
 - Encourage Task Force participation
- Revisions (if necessary)
- Rule approval by Tennessee Board of Water Quality, Oil & Gas

