Reuse Regulation Roundup: The Standards for Reuse

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Agenda

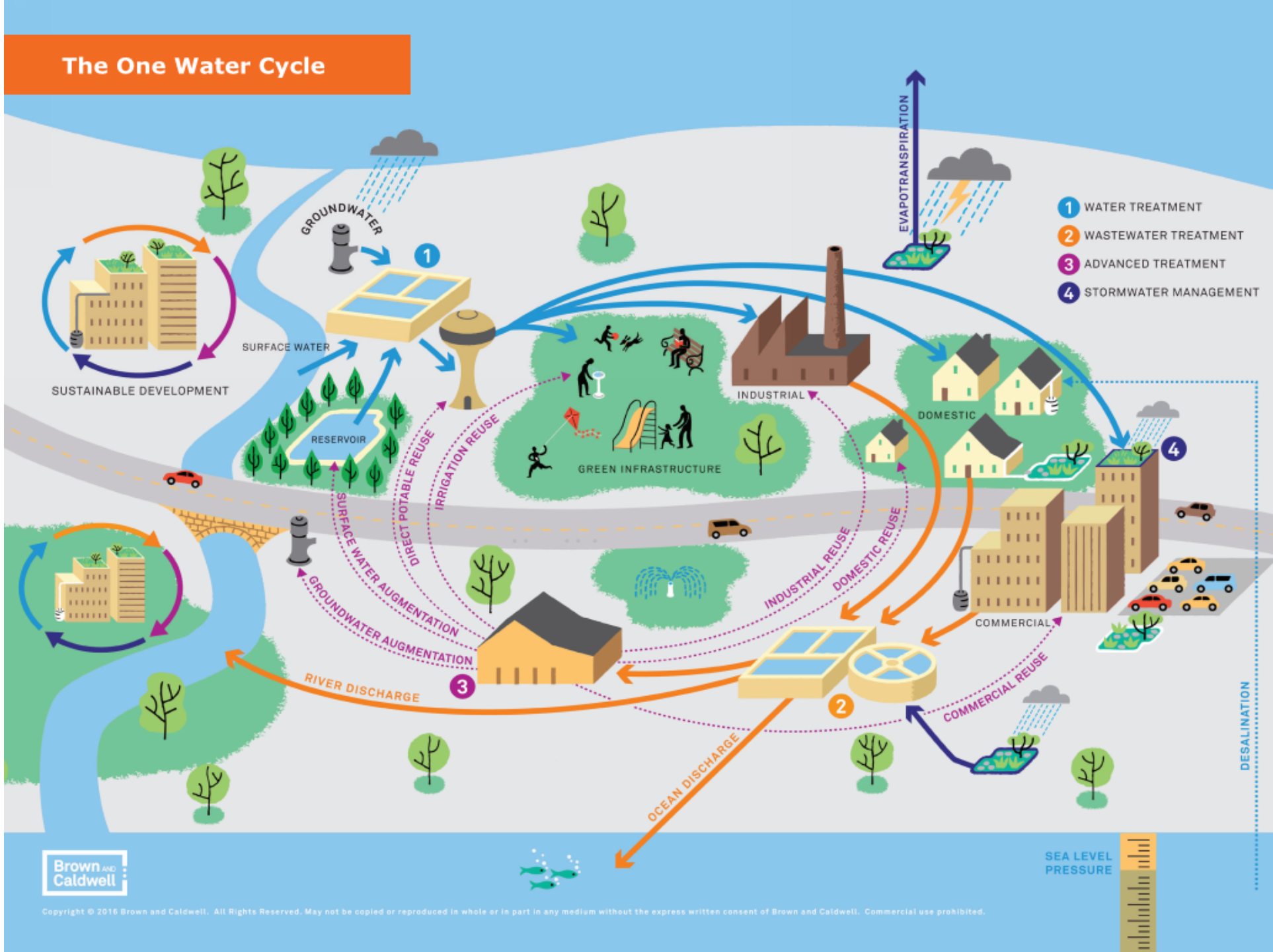
- Introduction
- Types of water reuse
- Standards for reuse
- Reuse regulatory outlook

Reuse – it's not just for golf courses anymore

Drivers for water reuse:

- extreme weather (drought)
- nutrient/permit limits
- seawater intrusion
- industrial water supply
- agricultural water supply
- Water supply diversity
- Water supply reliability
- **NEED MORE WATER!**

Increasing **reliability**, **resiliency** and **diversity** in the water supply portfolio



Non-potable reuse

Uses that are not intended for eventual human consumption.

Potable reuse

- Reclaimed and purified wastewater that is intended for human consumption.
- Potable reuse can be:
  - Indirect.
  - Direct.

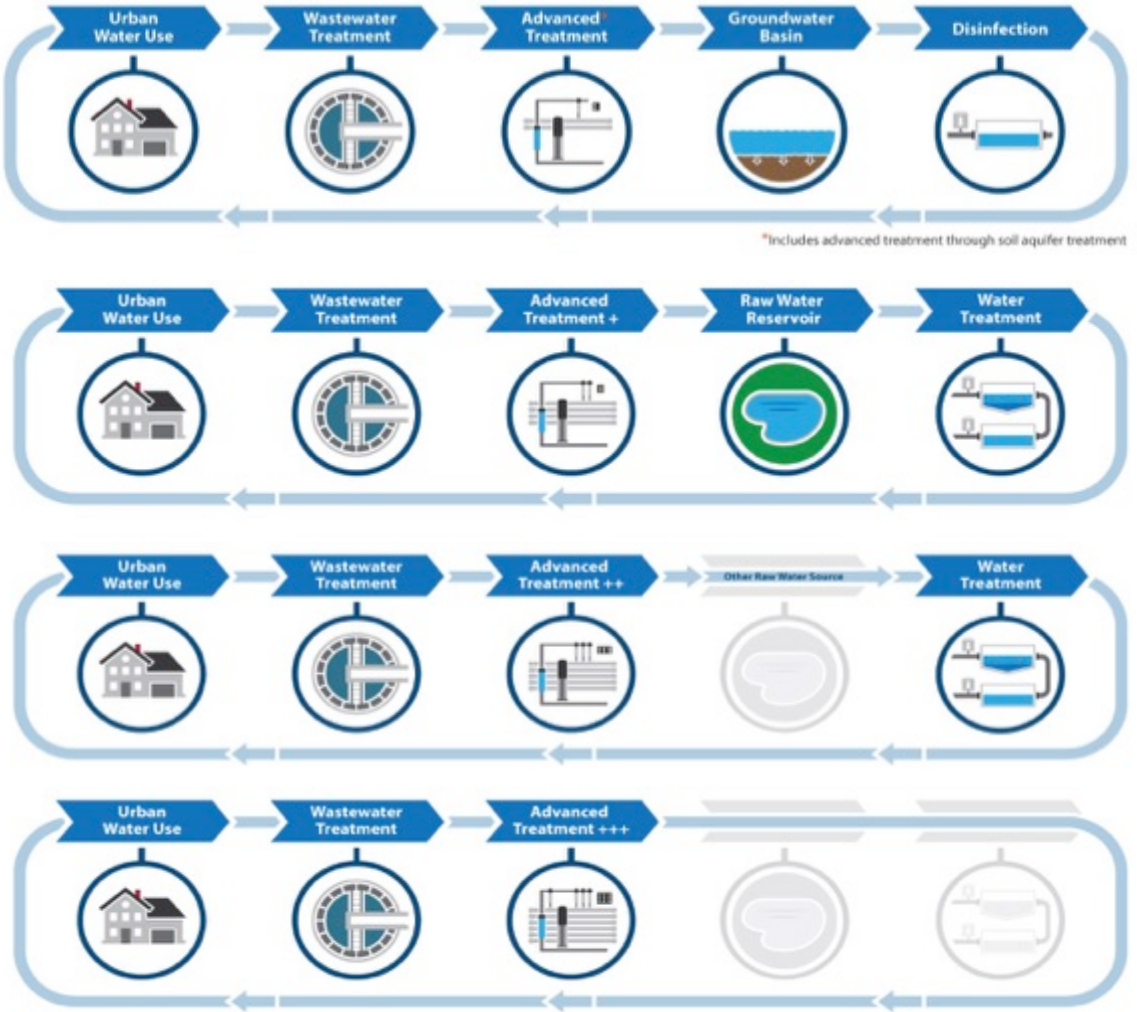
The continuum of Potable Reuse

Groundwater Augmentation

Reservoir Water Augmentation

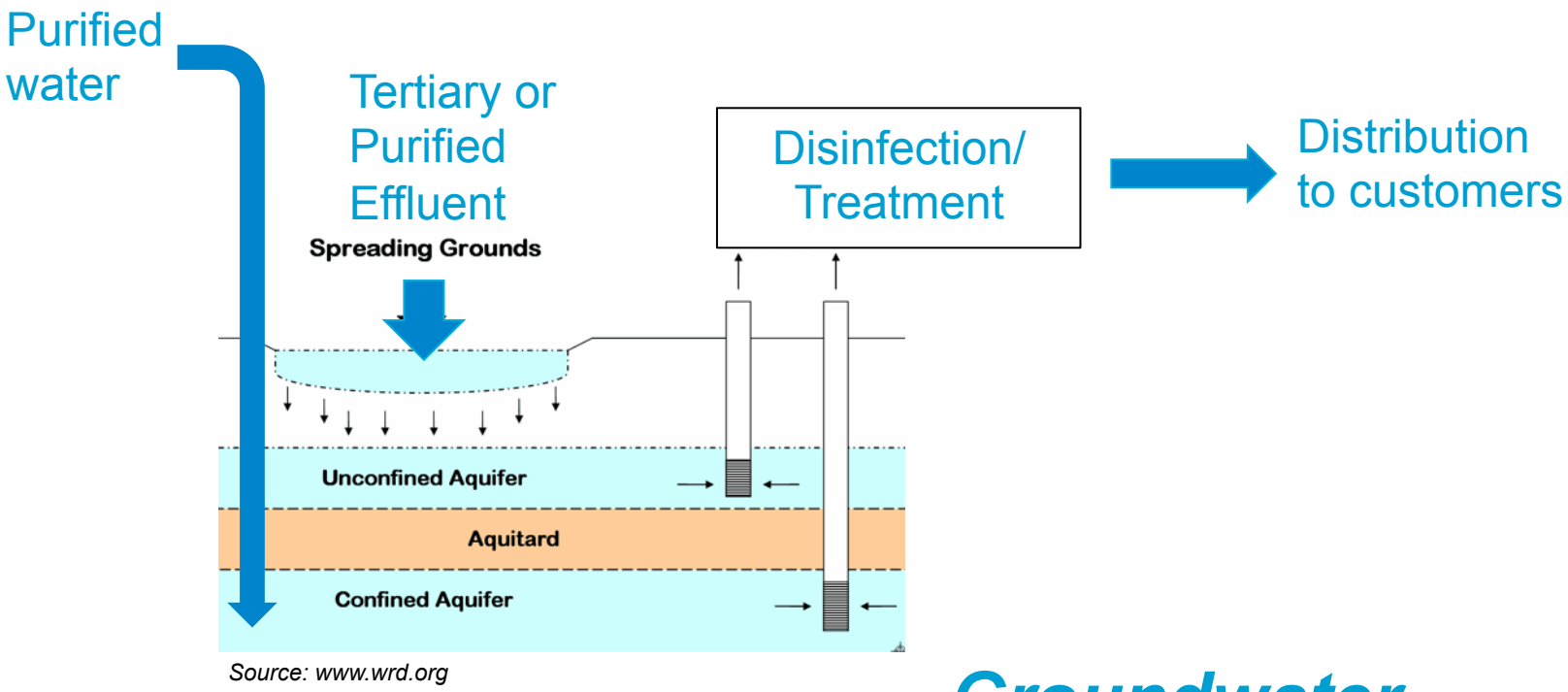
Raw Water Augmentation

Treated Water Augmentation



WateReuse

Indirect Potable Reuse



Source: www.wrd.org

Groundwater augmentation

Indirect Potable Reuse

Reservoir water augmentation

Purified water

Drinking WTP

Distribution to customers

Direct Potable Reuse

Purified water

Drinking WTP

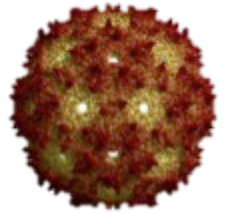
Distribution to customers

Raw water augmentation

Direct Potable Reuse

What’s the underlying logic behind reuse treatment and distribution regulations?

Goals for Reuse Regulations



- **Acute risk** is the primary target. Seek to protect against exposure from outbreaks.

- **Chronic risk** is also important, but not viewed as significant. More emphasis in potable reuse applications.
  - Regulated organic and inorganic species.

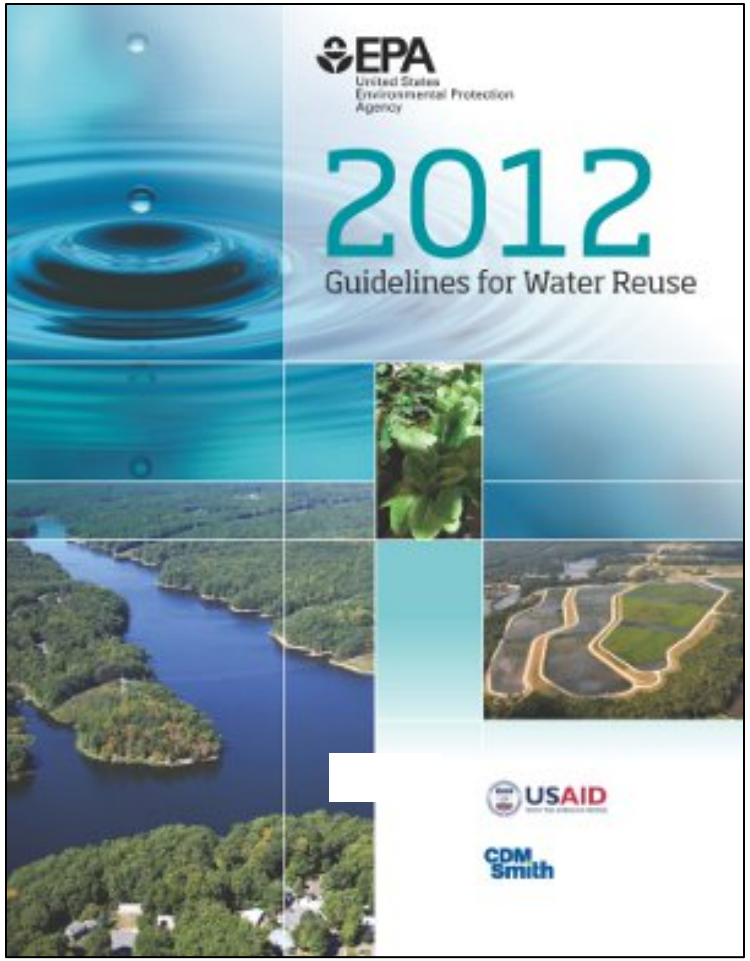
- **“No degradation”** of GW quality is a common, but not universal, third goal.

A National Guideline on Wastewater Plant Secondary Effluent Quality for Reclamation

- Start with well-treated secondary wastewater effluent
- EPA-suggested guidelines:
  - pH = 6-9
  - $BOD_5 \leq 10$ mg/L
  - Turbidity ≤ 2 NTU
  - *Escherichia coli* = NONE
  - Residual $Cl_2 \geq 1$ mg/L

Regulatory framework for reuse

- There are no federal reuse regulations
- EPA has relied on framework of the CWA and SDWA and reuse guidelines
- Reuse is implemented state-by-state; rules are set to be protective of end use

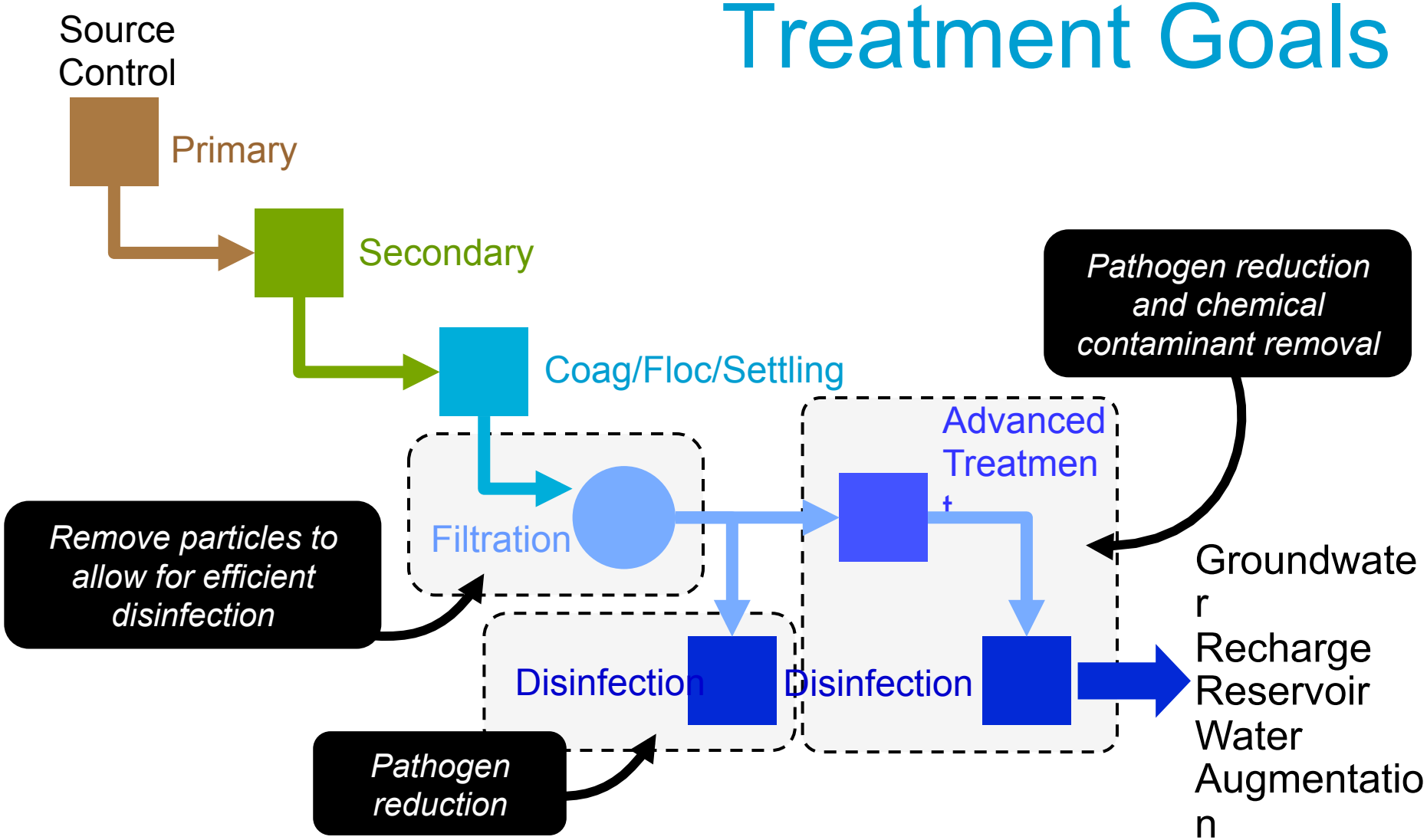


EPA Guidelines

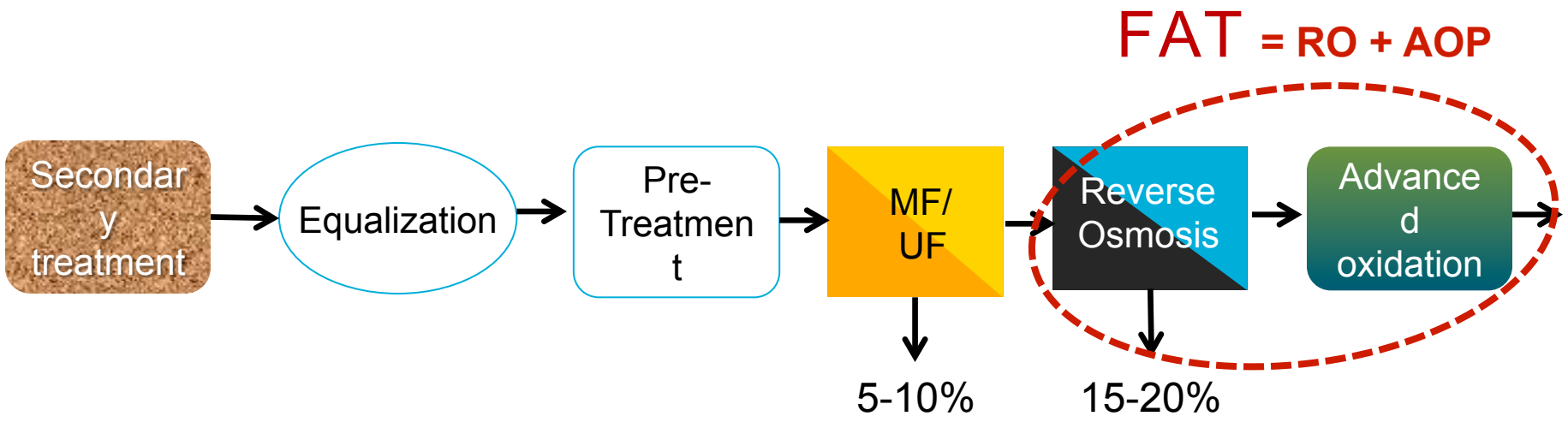
The 2017 *EPA Potable Reuse Compendium* informs current practice on potable reuse:

- Regulatory summary
- Current practices
- Case Studies
- Indirect Potable Reuse
- Direct Potable Reuse

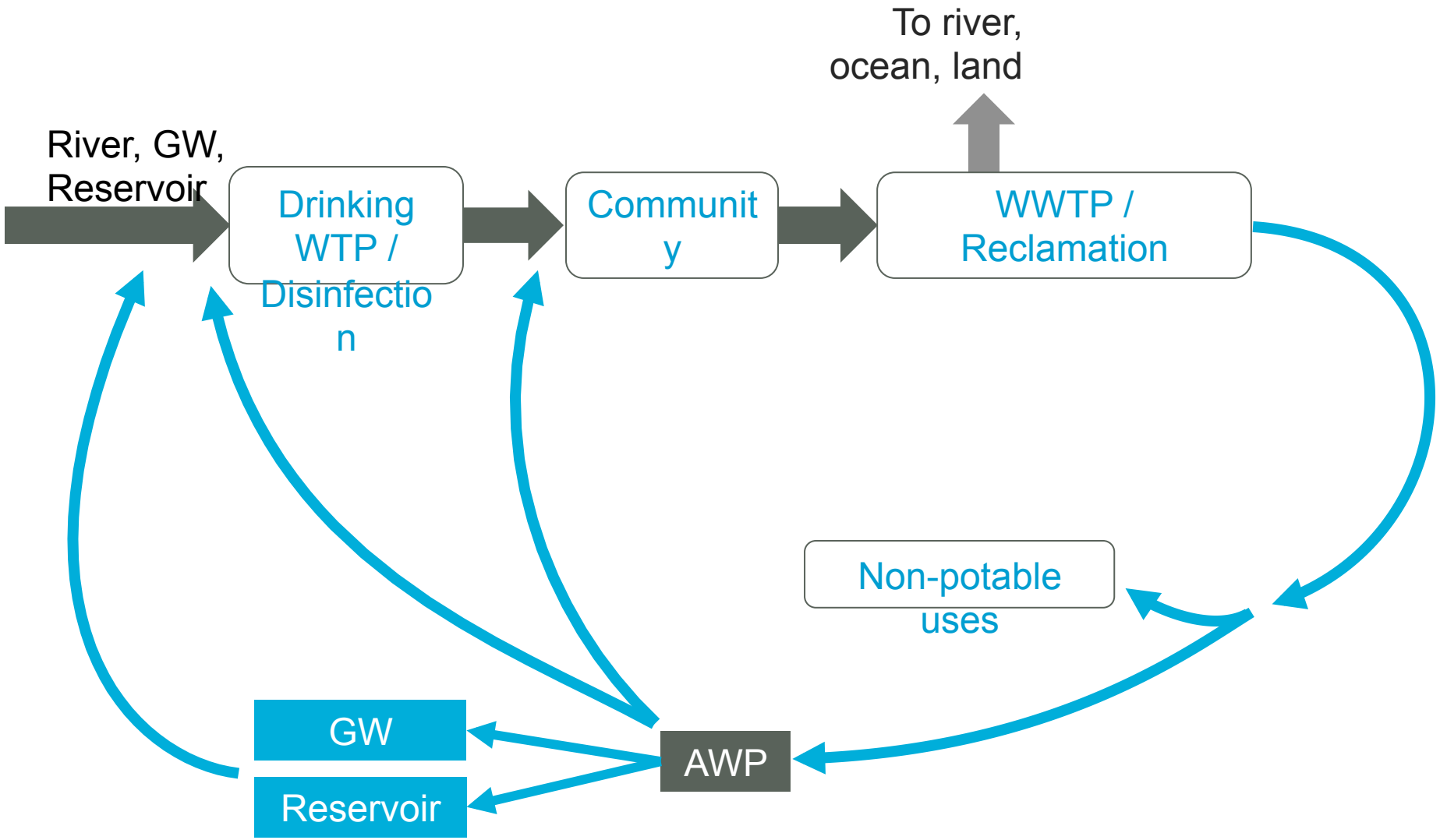
Treatment Goals

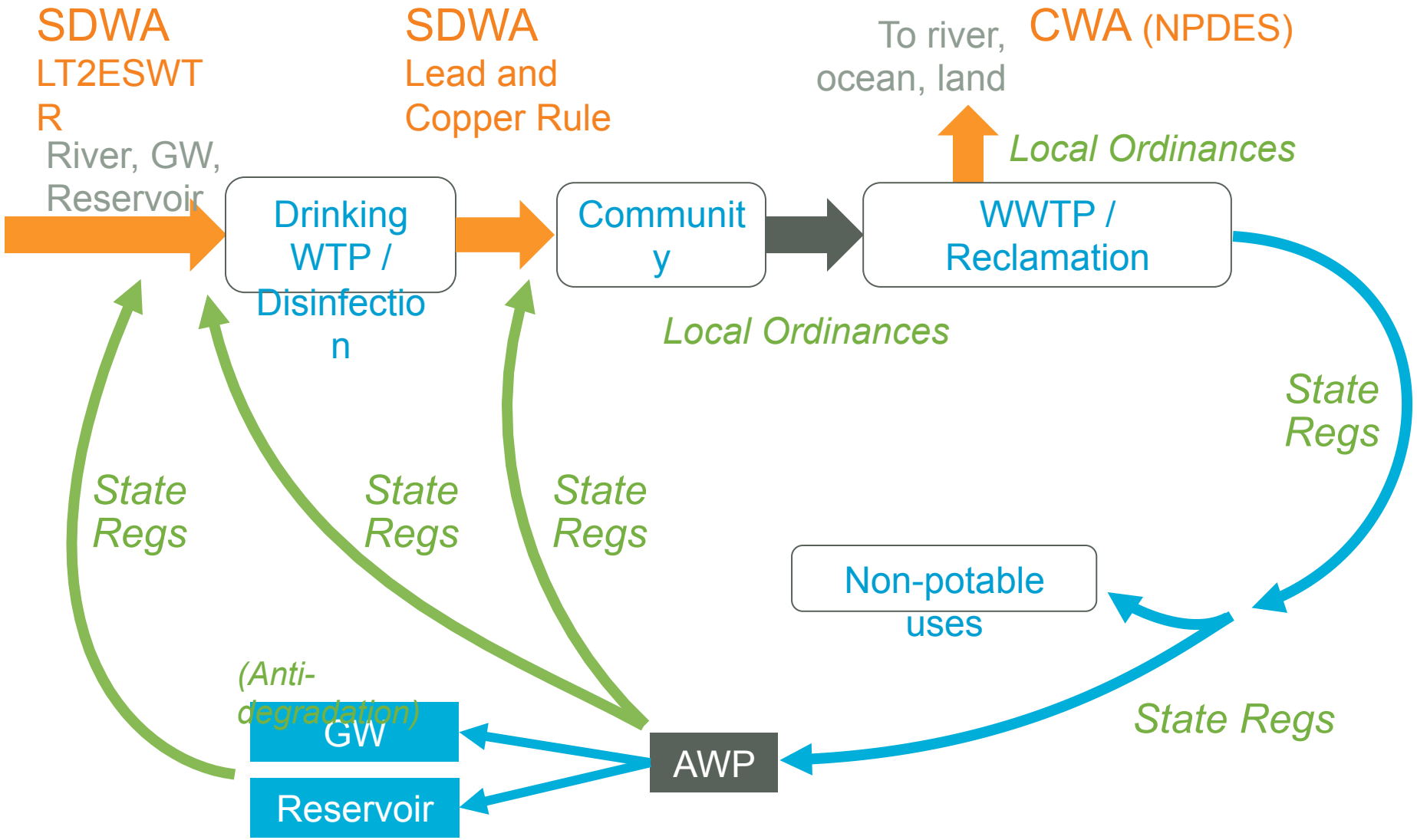


"Full Advanced Treatment" Train

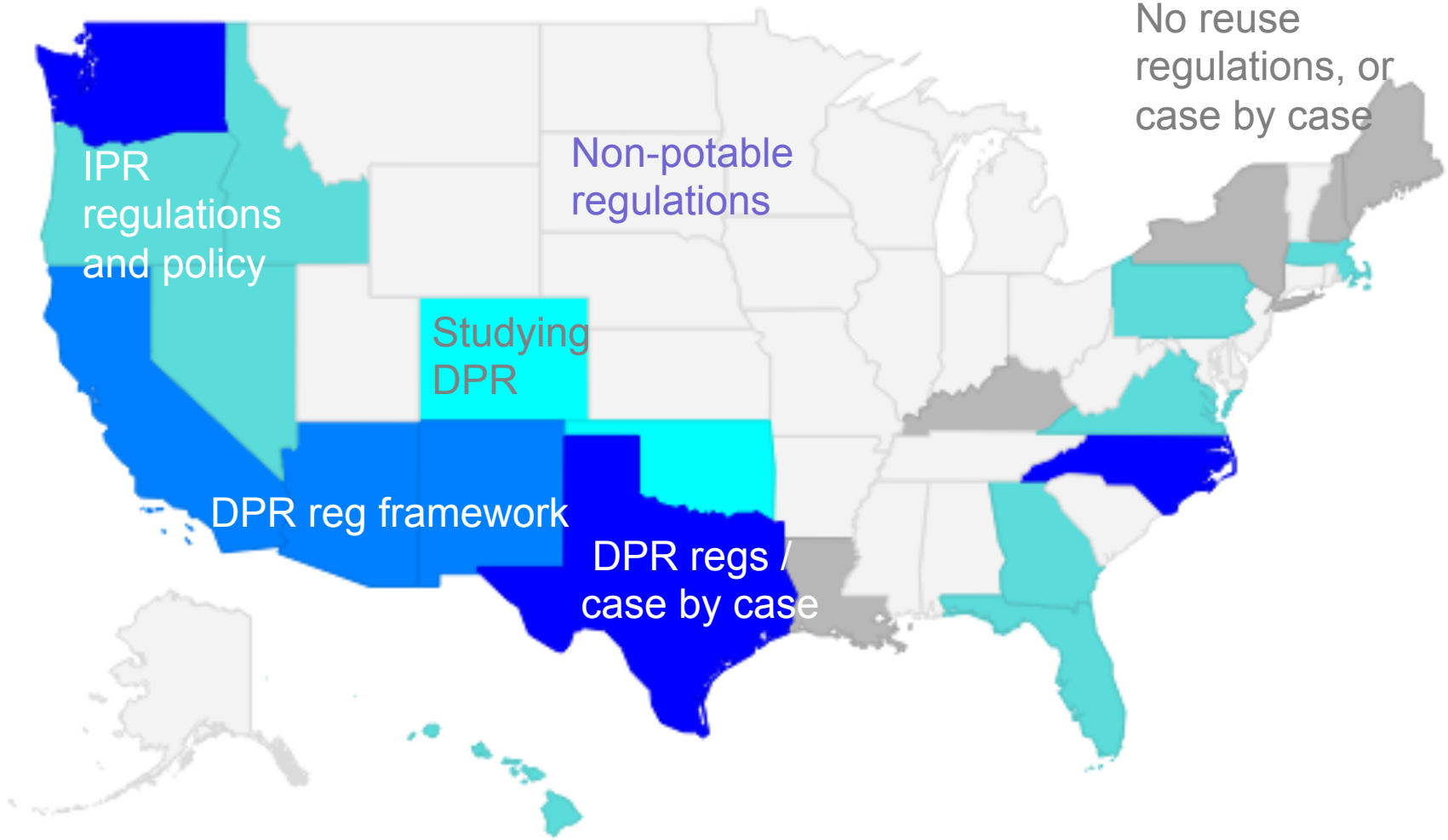


The Urban Water Cycle




SDWA
LT2ESWTR
River, GW, Reservoir
SDWA
Lead and Copper Rule
To river, ocean, land
CWA (NPDES)
Local Ordinances
Drinking WTP / Disinfection
Community
WWTP / Reclamation
Local Ordinances
State Regs
State Regs
State Regs
State Regs
Non-potable uses
State Regs
(Anti-degradation)
GW
Reservoir
AWP

Potable Reuse Framework/Regulations



Updated based on:
2012 EPA Guidelines for Water Reuse
2017 EPA Potable Reuse Compendium

What's Next?

Trends

- Water quality and/or technology-based requirements in regulations
- Increased agency partnering to develop reuse projects, sometimes on a regional basis
- Shifting public perception of potable reuse towards acceptance
- Advances in RO technology

Questions?

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