



AQUIFER STORAGE AND RECOVERY RECHARGE SOURCE PERMITTING CITY OF OTHELLO - CASE STUDY

PNW AWWA

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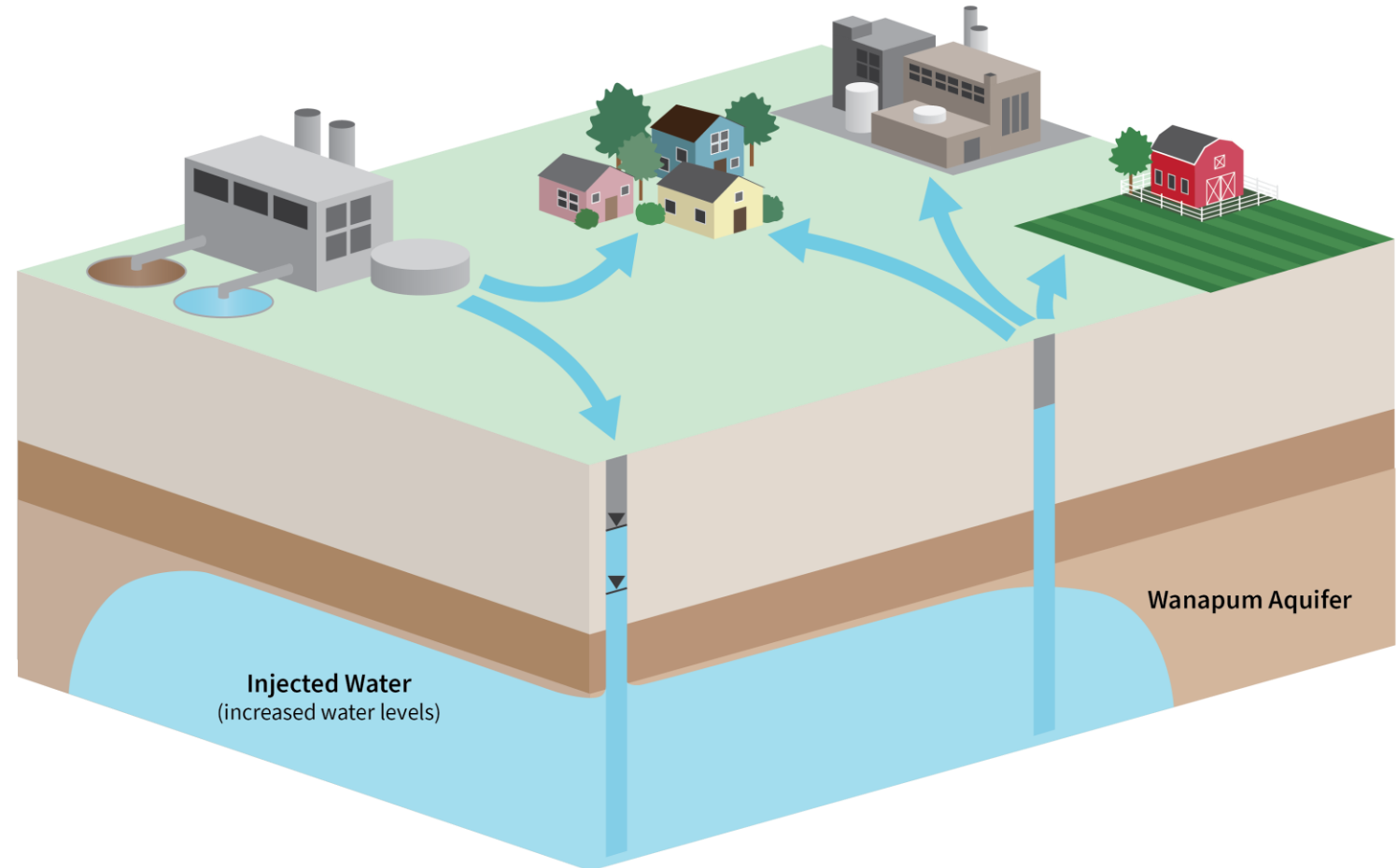
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2024

- ✓ Overview Aquifer Storage and Recovery (ASR)
- ✓ Regulatory Permitting Framework
- ✓ ASR Recharge Source Water
- ✓ Othello Case Study
- ✓ Navigating ASR Permitting & Ideas to Streamline the Process

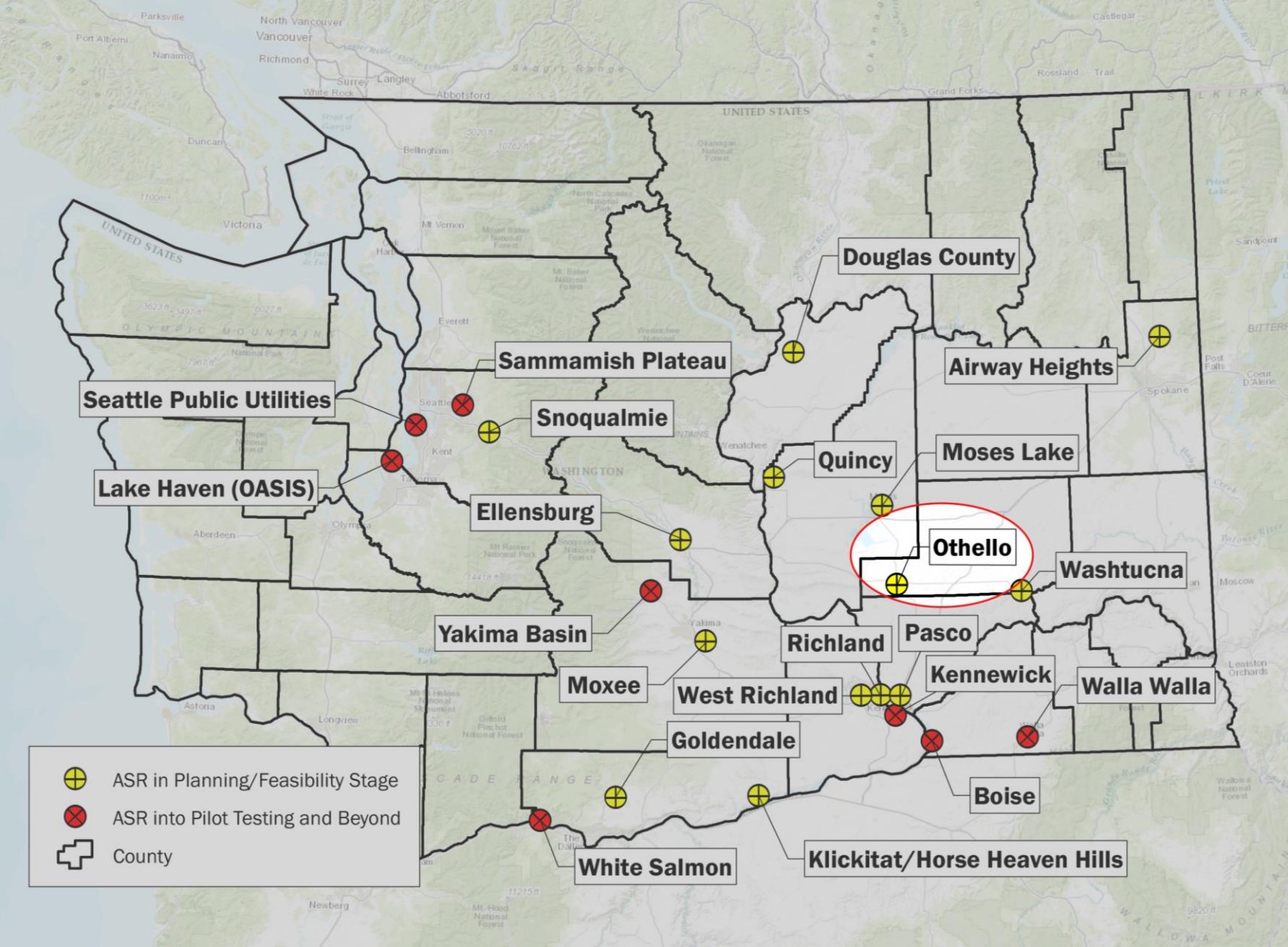


WHAT IS ASR?

- Water is injected directly through a well (vs MAR)
- Water recovered using the same or additional well(s)
- Recharge source typically from existing SW potable supply
- Predominant municipal treated drinking water supply



ASR IN WASHINGTON



ASR REGULATIONS IN WASHINGTON

ASR is governed by an amalgamation of existing rules and regulations with overlapping jurisdiction which creates uncertainty in the permitting process.

But there is hope!

- **Water Code/ Reservoir permits**
 - RCW 90.03.370
- **Aquifer Storage and Recovery regulation**
 - Chapter 173-157 WAC
- **Groundwater Quality Standards**
 - Chapter 173-200 WAC
- **Groundwater appropriation**
 - RCW 90.44
- **Reclaimed water use authorization**
 - RCW 90.46 (Chapter 173-219 WAC)
- **State Waste Discharge permit program**
 - Chapter 173-216 WAC
- **Underground Injection Control (UIC) Regulation**
 - Chapter 173-218 WAC
- **Drinking Water Regulations**
 - Chapter 246-290

CITY OF OTHELLO ASR PERMITTING CASE STUDY



OTHELLO'S WATER SUPPLY ISSUES AND OBJECTIVES

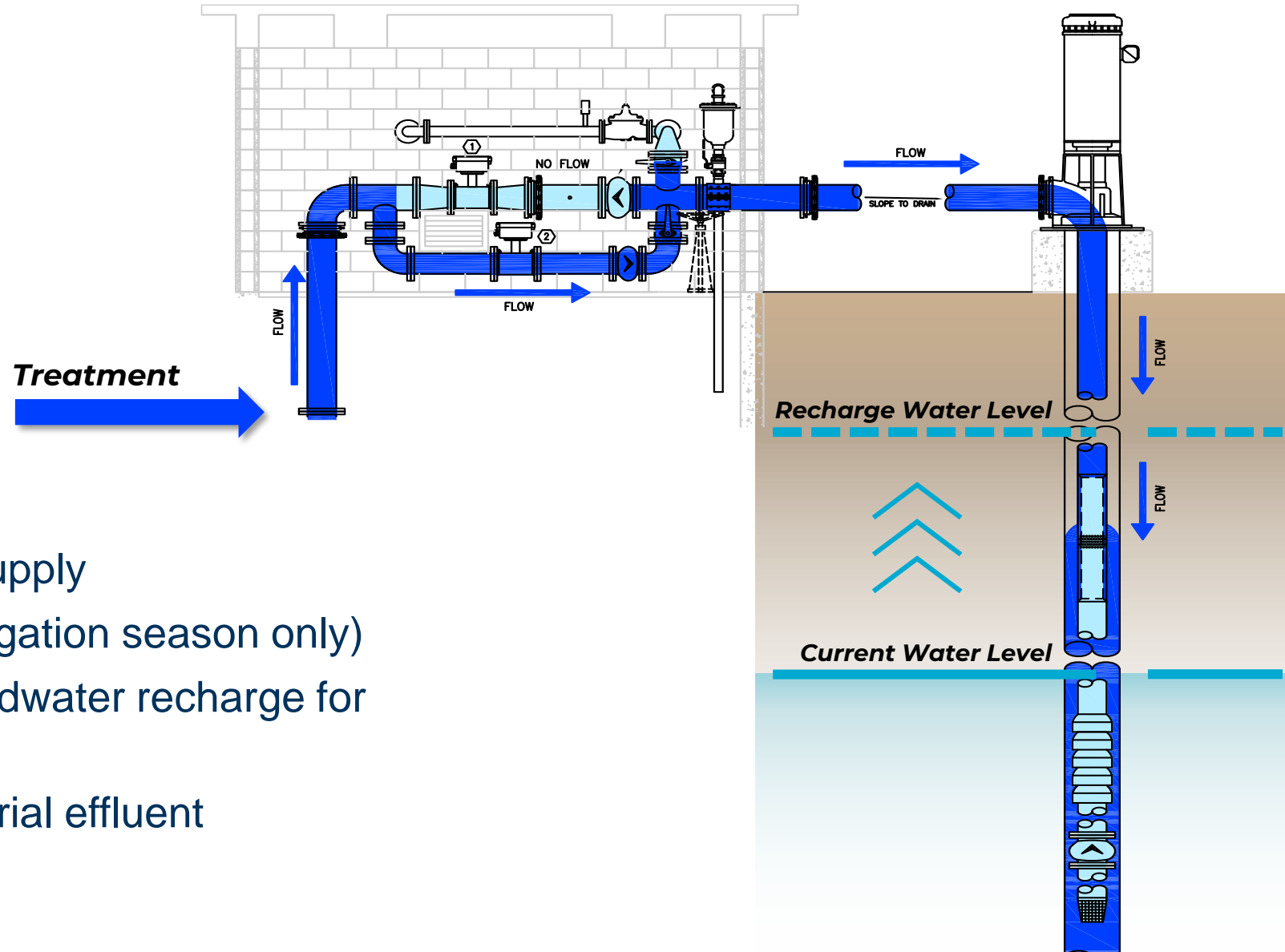
- 100% reliant on **depleting** groundwater supply
- Ensure community has access to **reliable** clean water supply
- Provide for economic **vitality**
- Diversify sources of supply for reliability and drought resiliency



Critical Need to Diversify Water Supply for Future Sustainability

OTHELLO'S WATER SUPPLY STRATEGY

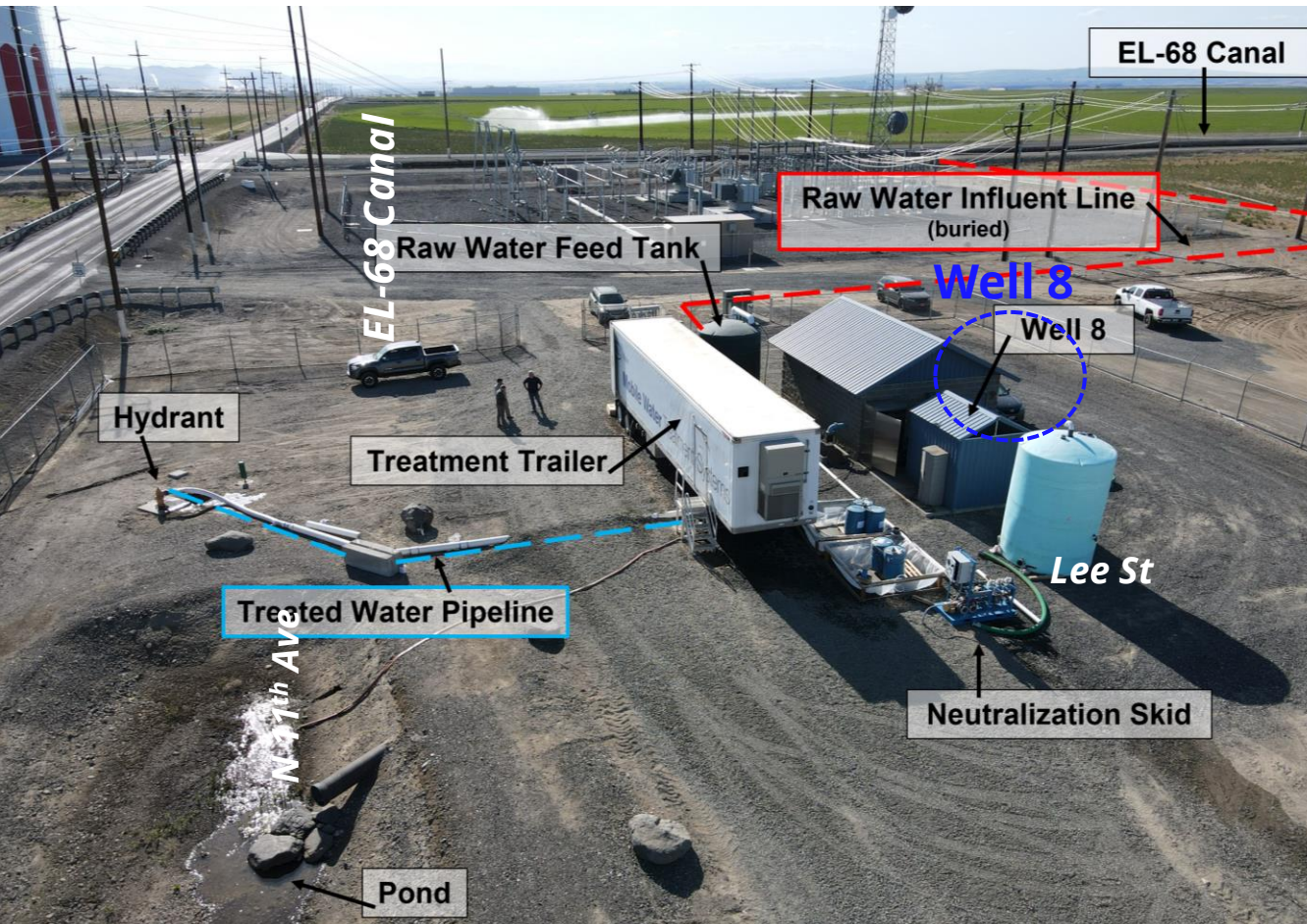
ASR Overview



- Provide for new year-round supply
- EL-68 canal source water (irrigation season only)
- Treat for direct use and groundwater recharge for later recovery
- Future reuse of treated industrial effluent

PHASE II ASR PILOT TESTING OVERVIEW

- Temporary BoR Supply Contract for 2021
- Lease 0.5 - 1 MGD Modular Treatment System
- Est. 600 gpm & 500 acre-feet at Well 8 (6 mo.)



OTHELLO – ASR SOURCE WATER PERMITTING ASSOCIATED WITH A PUBLIC WATER SYSTEM

Ecology - Preliminary ASR Reservoir Permit; Compliance with GWQS;

DOH – Compliance with Drinking Water Standards for PWS

- Where we started in 2021 prior to recharge:

Amend existing Well 8 DOH source approval; compliance with GWQS using membrane filtration; compliance with drinking water standards at recovery

- Approach in 2023 at time of (delayed) recovery:

Well 8 DOH source approval for pilot test recovery with chlorination treatment prior to first potable connection and compliance monitoring

- Going forward (i.e. full-scale ASR program):

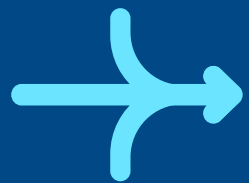
DOH approved source. For SW, compliance with SWTR prior to recharge

If Not An Existing DOH Approved Recharge Source:

- Agency concurrence on permitting requirements
- Pre-treatment cost (if SW, compliance with SWTR)
- Alternatives to chlorination for virus deactivation (to avoid disinfection by-products)
- Opportunity to demonstrate virus deactivation in-situ (treatment credit)
- Tradeoff of permitting certainty versus cost

STREAMLINING ASR PERMITTING

- Point of Compliance and In-situ Treatment Credits
- Alternative to Use of OPI to Comply with GWQS (SB5018)
- Water Budget Approach
- Utilizing Carry-Over in Permitting (wet water banking)



*Need to **clarify and streamline** permitting to promote ASR in State of Washington*



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