

Potable Reuse: *Looking Back, Moving Forward*



**DPR Advisory Panel Meeting
February 20, 2015**

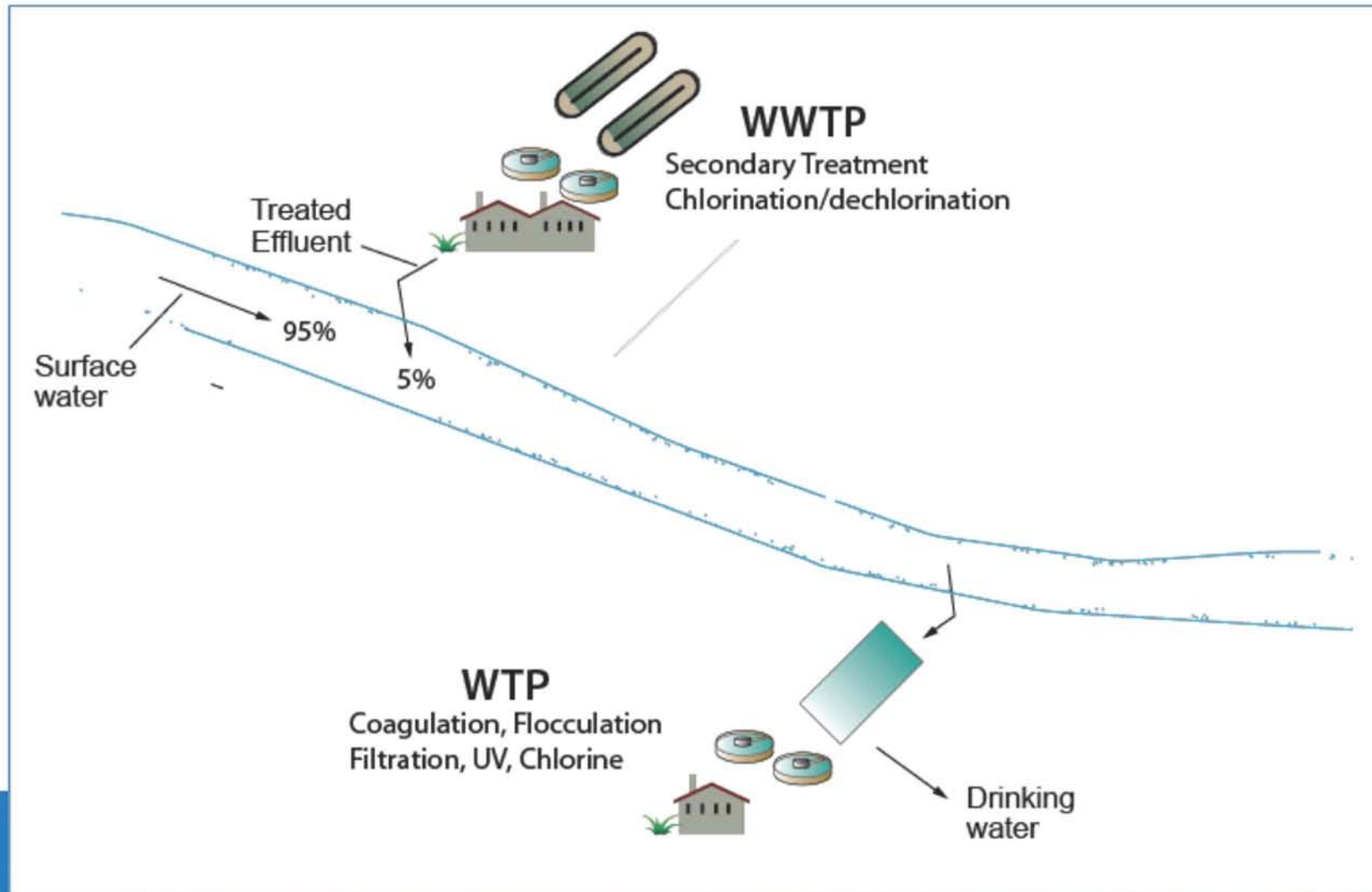
Brian Pecson, Ph.D., P.E.

Trussell
TECHNOLOGIES INC

Why Water Reuse?



De facto Potable Reuse



Indirect Potable Reuse (IPR)



Source Control



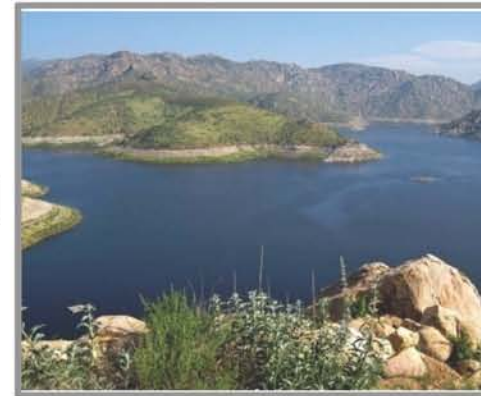
WWTP



Advanced Water Treatment



Aquifer Injection / Spreading



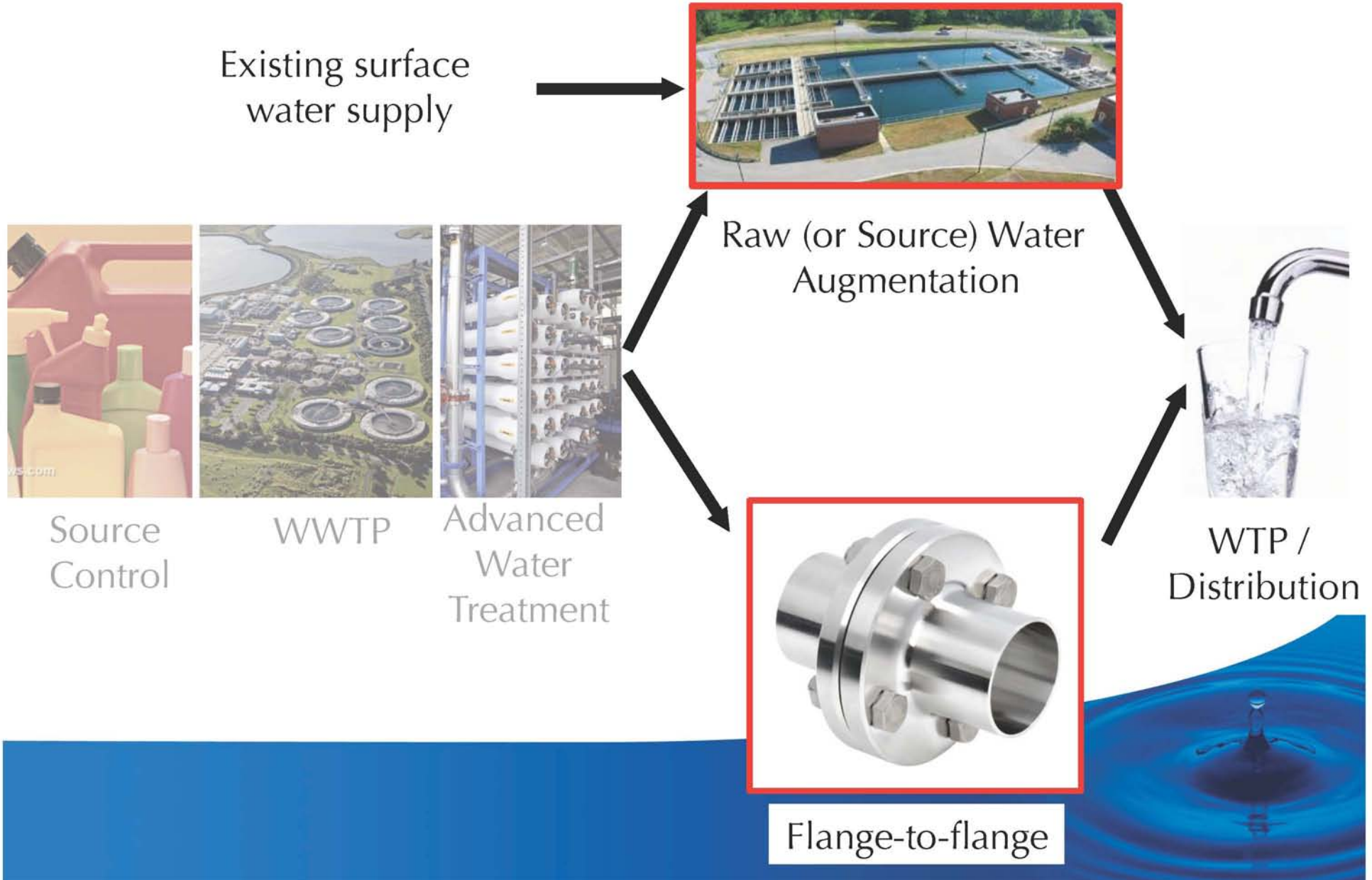
Surface Water Augmentation



WTP / Distribution



Direct Potable Reuse (DPR)



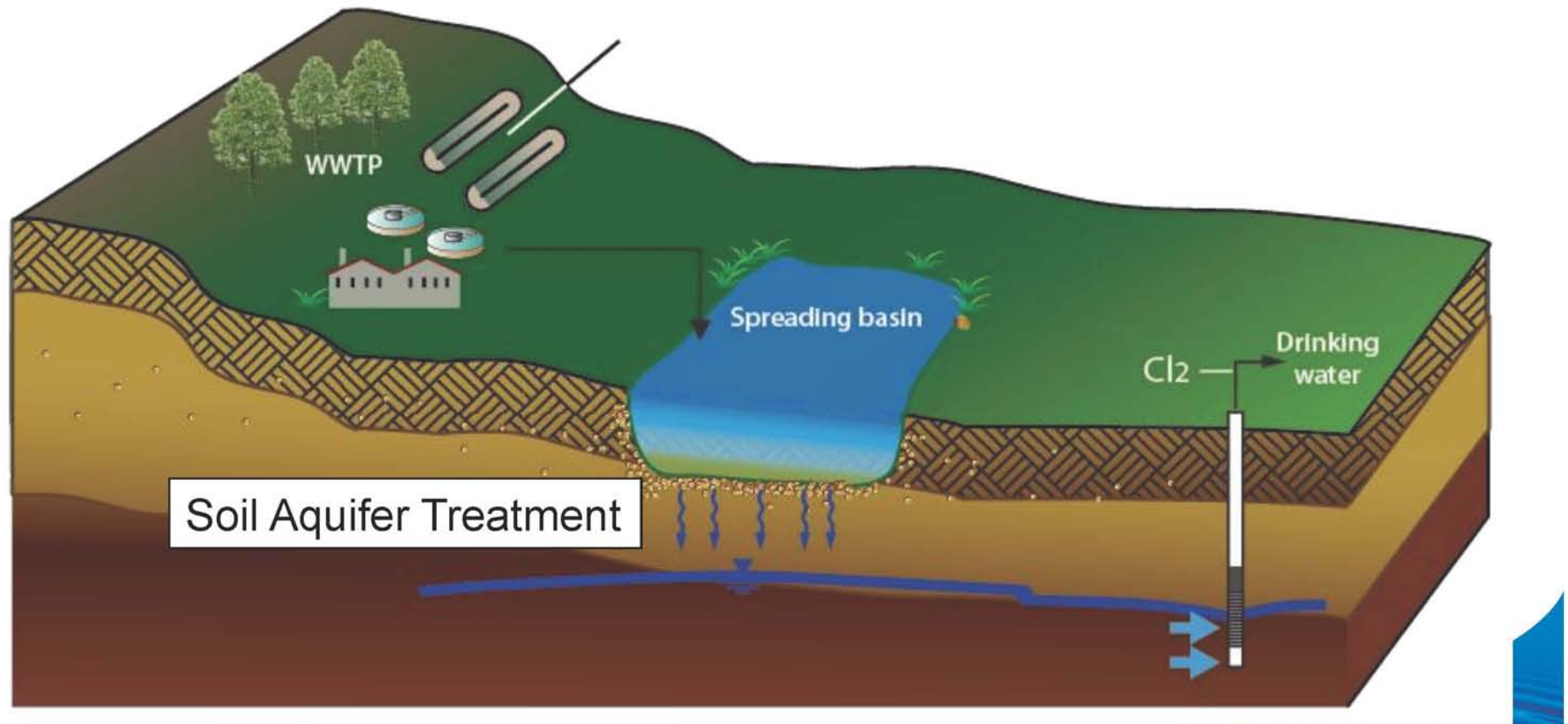
Current CA Potable Reuse Projects

- All are **IPR projects** doing **groundwater recharge**
- 7 existing projects



Groundwater Recharge: Surface Spreading

WWTP

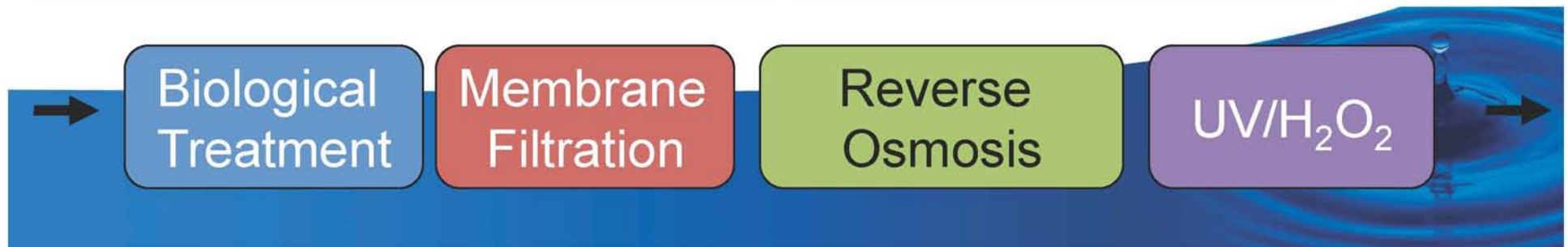
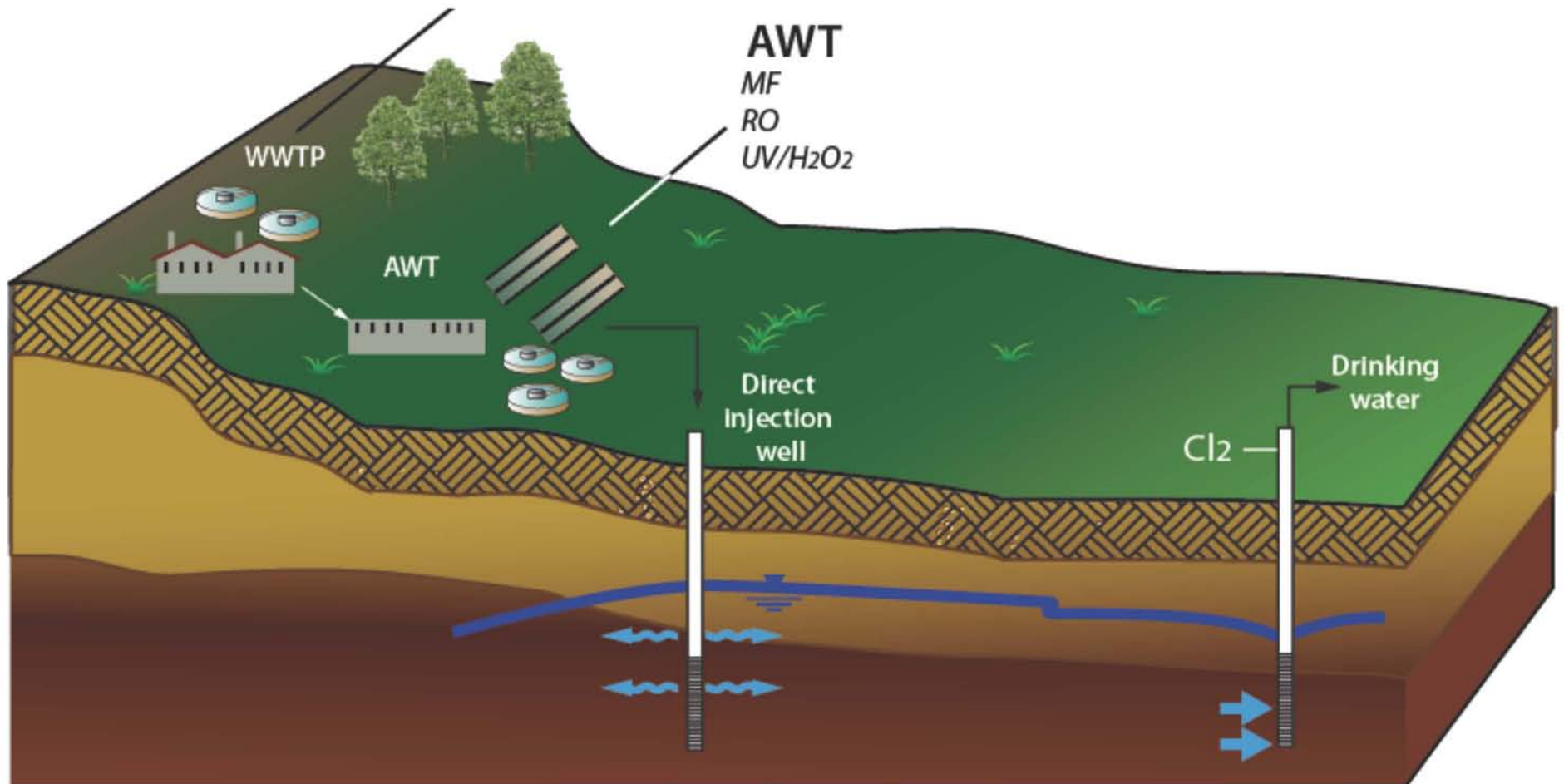




Montebello Forebay



Groundwater Recharge: Subsurface Injection



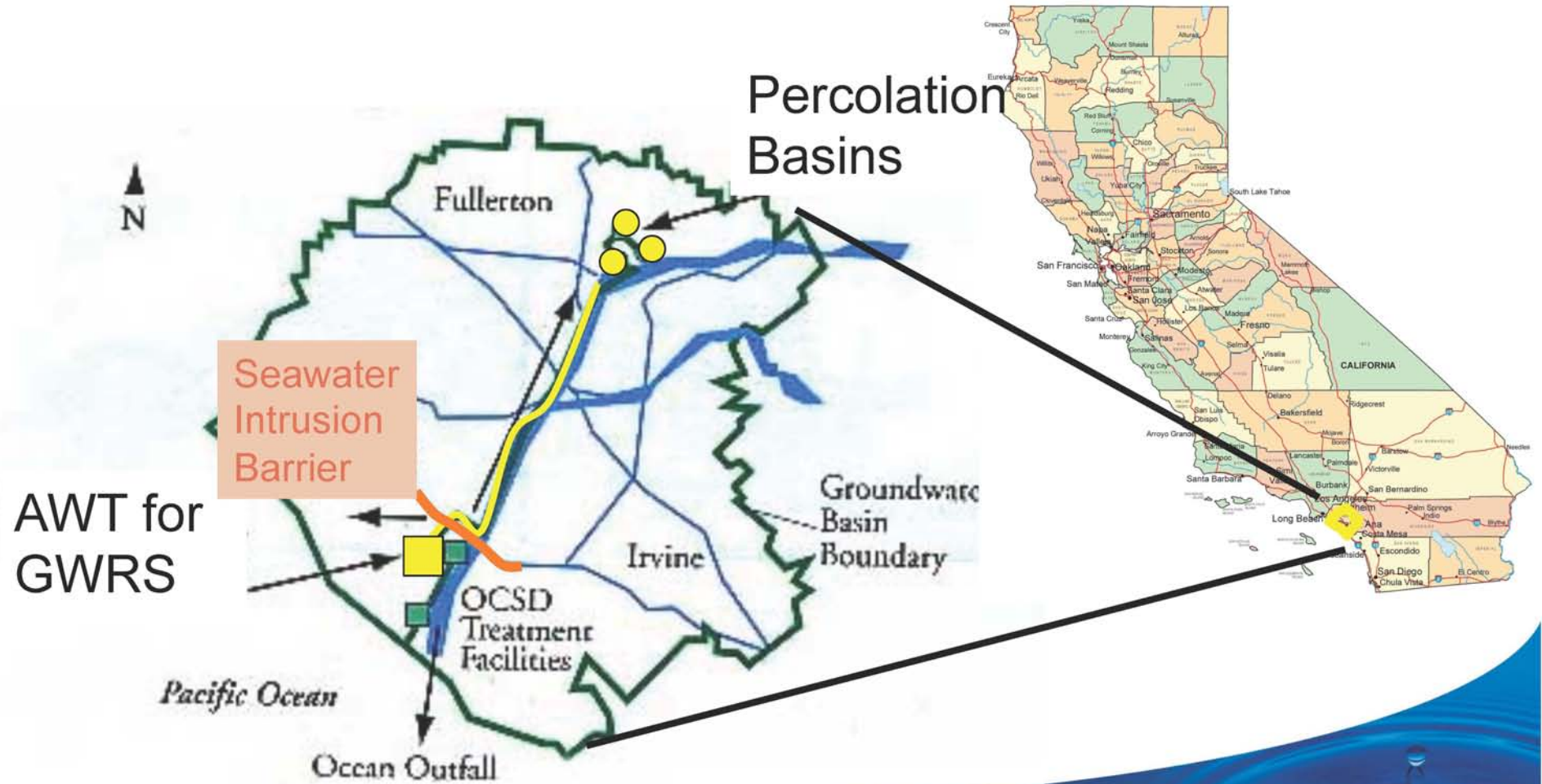


GROUNDWATER REPLENISHMENT SYSTEM

Ground Water Replenishment
System

Orange Co., CA

GWRS



Other Groundwater Recharge Projects

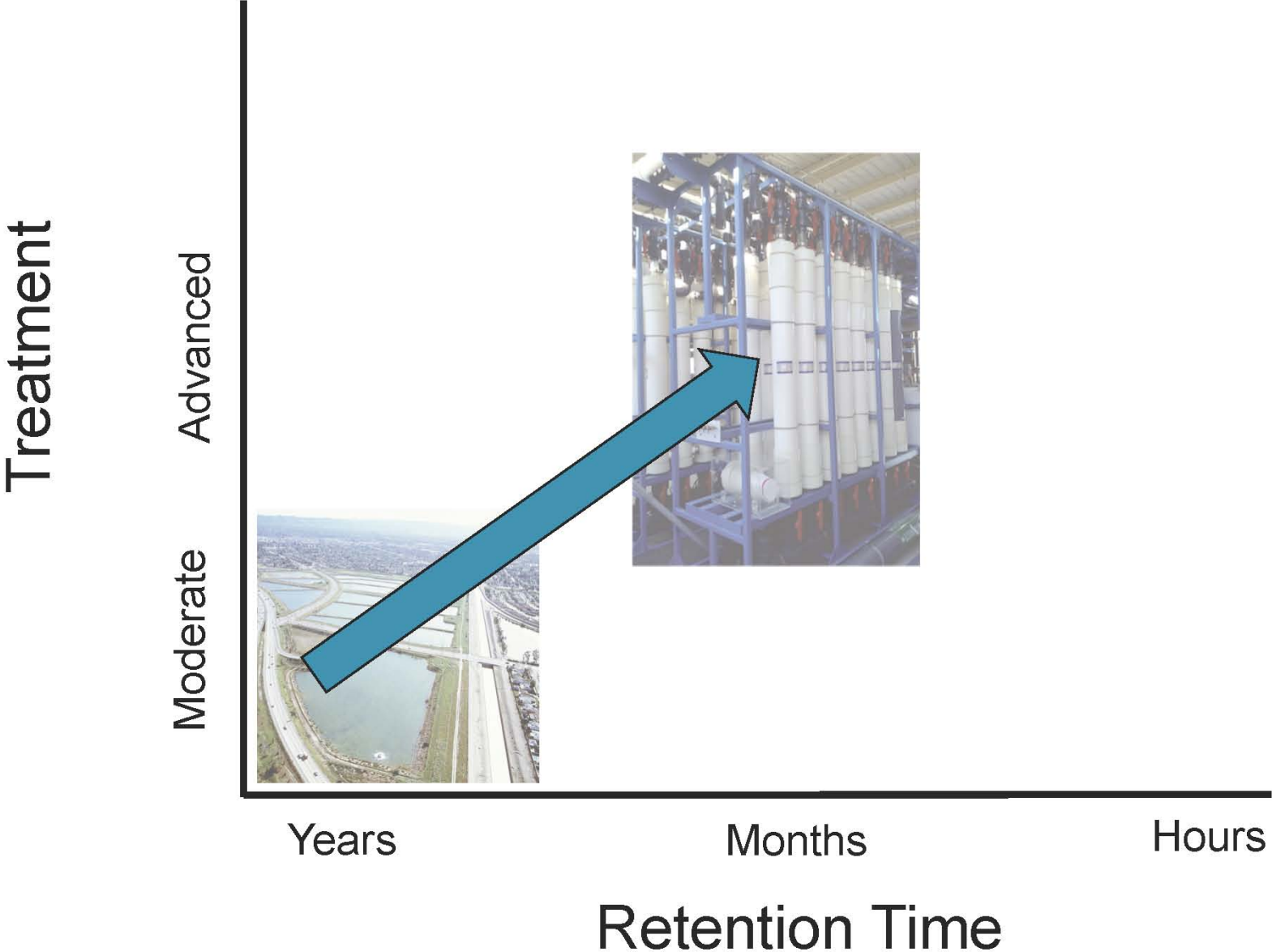




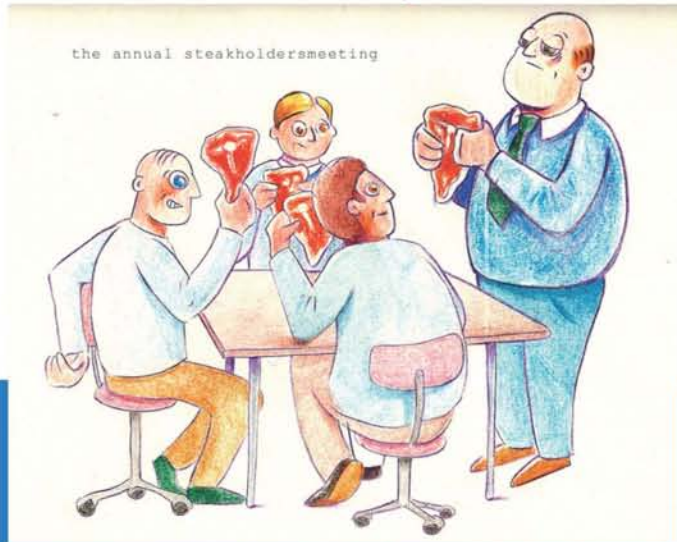
Tertiary Treatment
Long retention times



Evolution of Potable Reuse



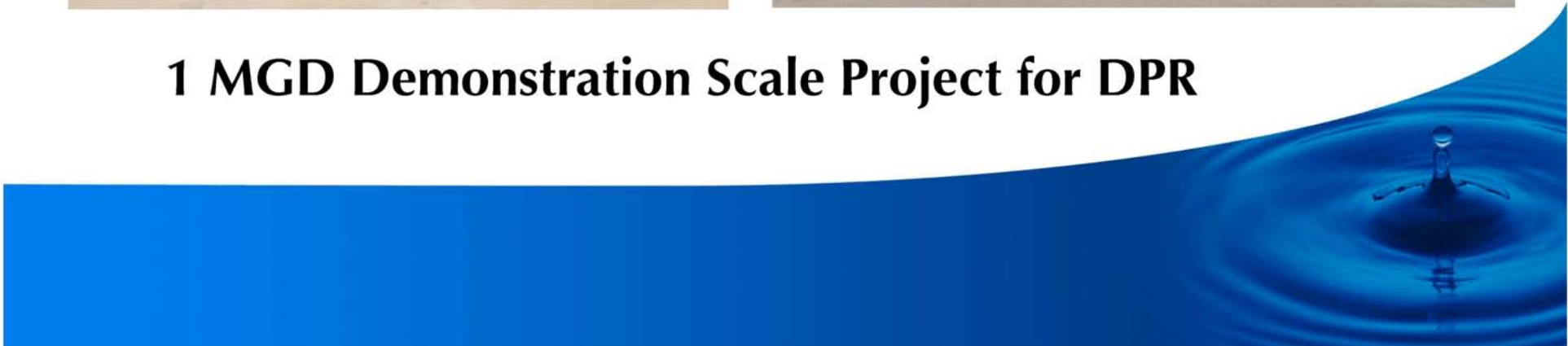
The Big Question



WRRF 14-12 Demonstrating Redundancy and Monitoring to Achieve Reliable Potable Reuse



1 MGD Demonstration Scale Project for DPR



Project Goal

Leverage industry experience and recent DPR research to demonstrate that we can safely implement potable reuse without an environmental buffer



Supporting Utilities



PADRE DAM
Municipal Water District



Helix Water District



Funding Entities



State of California
Dept. of Water Resources
Prop. 84 Grant
with Administrative Support from
SDCWA and WRRF \$2,113,000



Funding Match \$ 975,313
(WRRF 11-02, which included
contributions from 23 agencies,
utilities, and companies*)

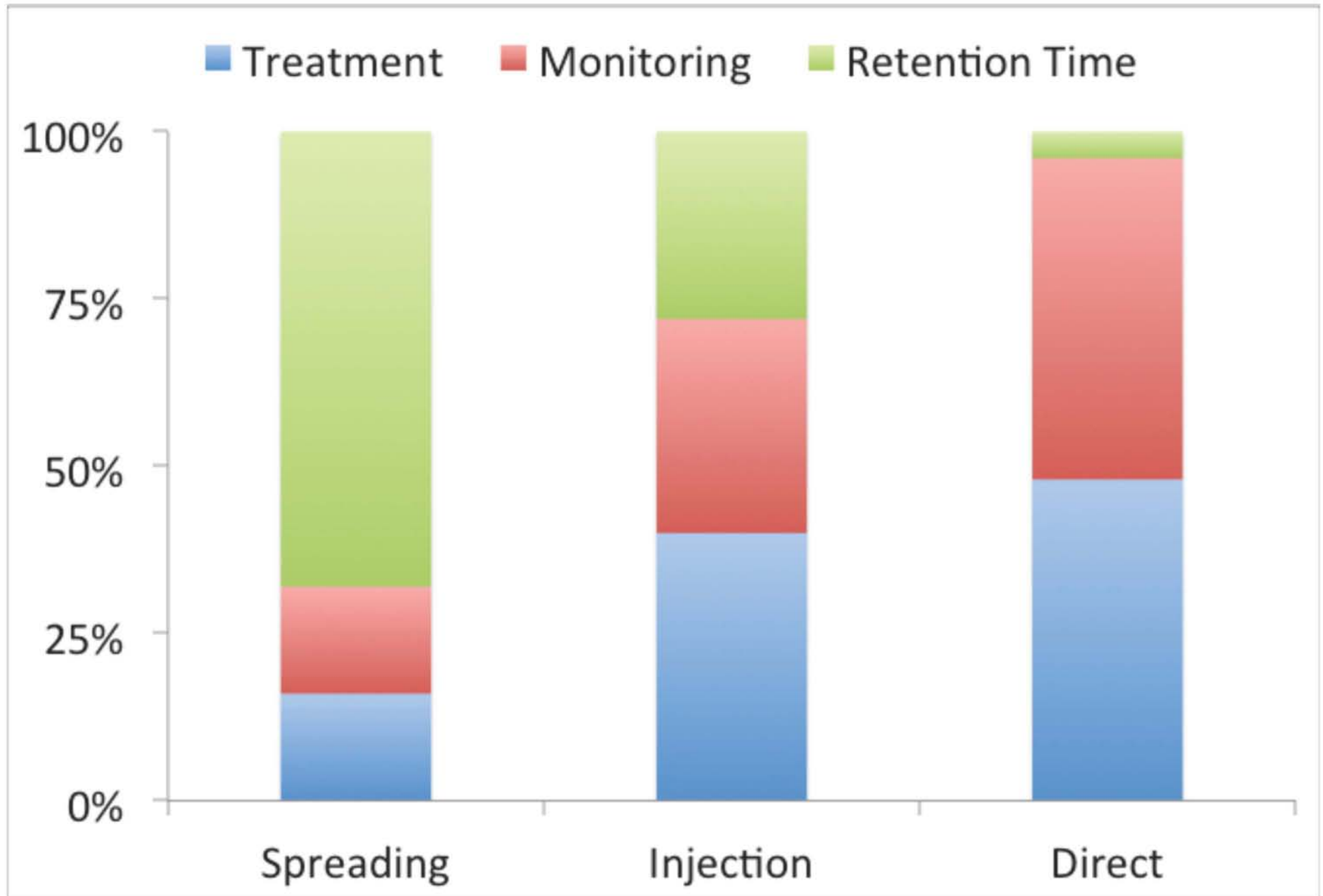


Total Project Cost \$3,088,313

*California DDW, Carollo, City of SD, Econity, El Paso Water Utilities, GE Water, H2O Engineering, Helix WD, IBL Solutions, Xylem, LACSD, LADWP, MRWPCA, OCWD, Padre Dam MWD, Pinellas County Utilities, Trussell Tech, Univ. of Arizona, Upper Occoquan Service Authority, Upper San Gabriel Valley MWD, WaterReuse, West Basin MWD

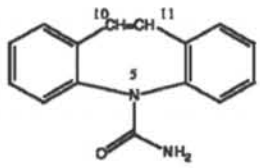


The Transition to DPR from Groundwater

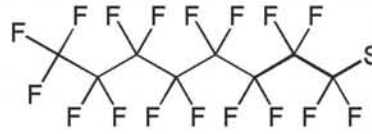


Treatment and Pathogens

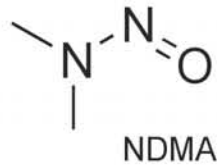
Toxic Chemicals



Carbamazepine



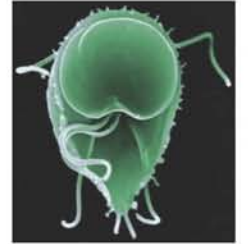
PFOS



NDMA



Pathogens



NWRI Expert Panel Meeting



Conclusions

- Potable reuse can be done safely
- Multiple solutions must be pursued
- Need to ensure public health protection
- Public acceptance is critical



Thank you for your attention

