



We work with local governments and other agencies in the areas of safe drinking water, food safety, shellfish protection, radiation safety, wastewater management, pesticide exposures, vector borne disease, general environmental health and safety issues, and health risk assessments.



ONWS RAC MEETING OCTOBER 12, 2021

Division of Environmental Public Health

Environmental Public Health



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Health and Safety

Steve Deem

Subject Matter Expert

Environmental Engineer

Office of
Drinking Water

Agenda

| | |
|---------------------------------|--|
| Introduction | <ul style="list-style-type: none">○ Rule Advisory Committee participants○ Meeting ground rules |
| Rulemaking context | <ul style="list-style-type: none">○ Onsite nonpotable water systems○ Legislative direction |
| RAC input on four issues | <ul style="list-style-type: none">○ Regulation implementation○ ONWS treatment reviews – who does this?○ Ongoing Performance/WQ monitoring – scope○ Reporting Scope and Timing |
| Next meeting | <ul style="list-style-type: none">○ New topics○ Scheduling |

Participants

Stoyan Bumbalov
(SBCC)

Dan Cole, Jed
Scheuermann
(IAPMO)

Angela Zeigenfuse
(Ecology)

Lynn Schneider,
Steve Hart, Julie
Horowitz (PHSKC)

Steve Main
(SRHD)

Michelle Harris
(TPCHD)

Mark Jaeger (SPU)

Jess Harris
(Seattle)

Jonathan
Franzese
(McKinstry)

Doug Piehl
(Northwest Water
Systems)

David Mark Lowe
(Lowridge Onsite
Technologies)

Colleen Mitchell
(Herrera)

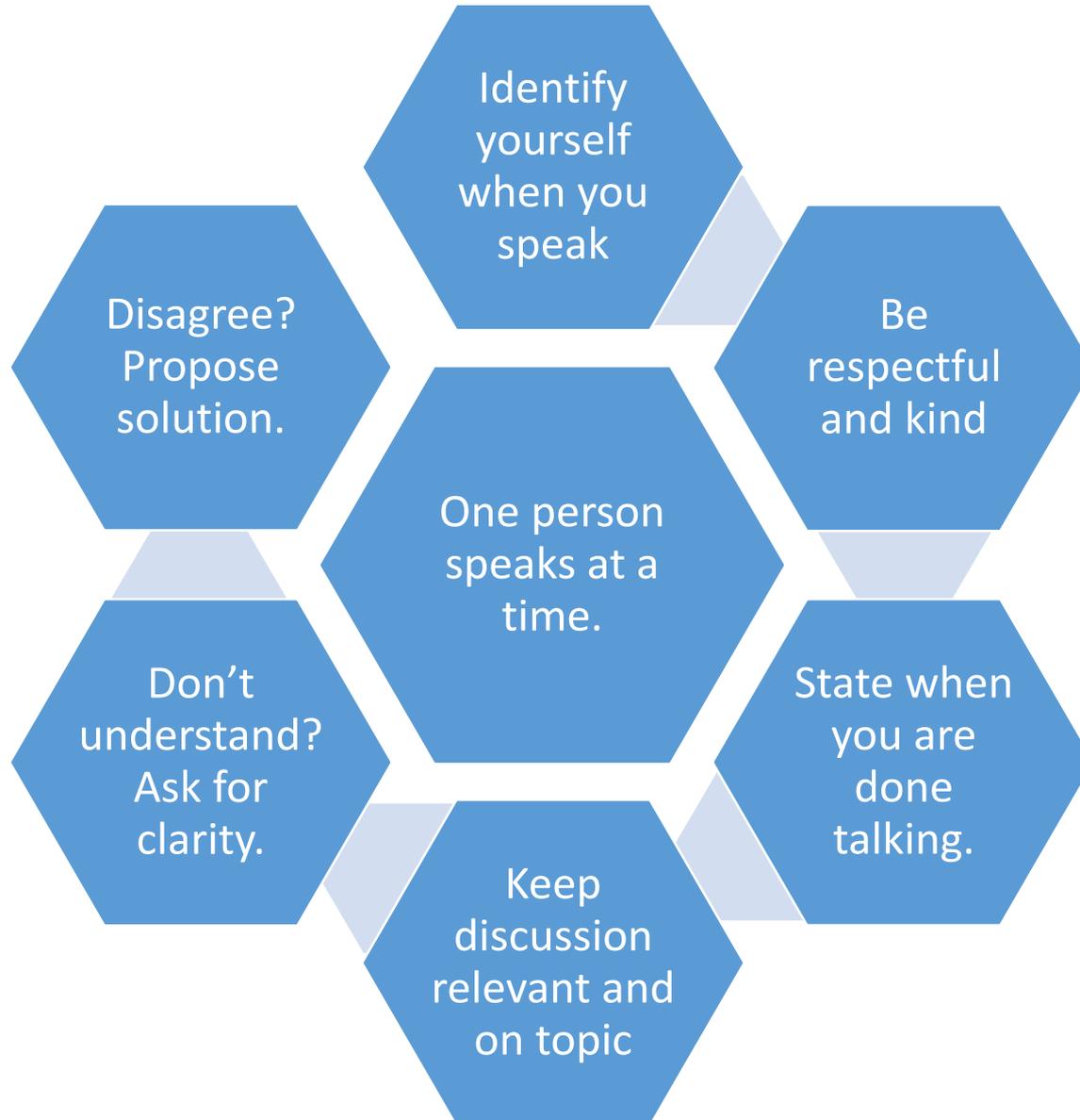
Peter Munoz
(Biohabitats)

Brian Sayrs
(DOH)

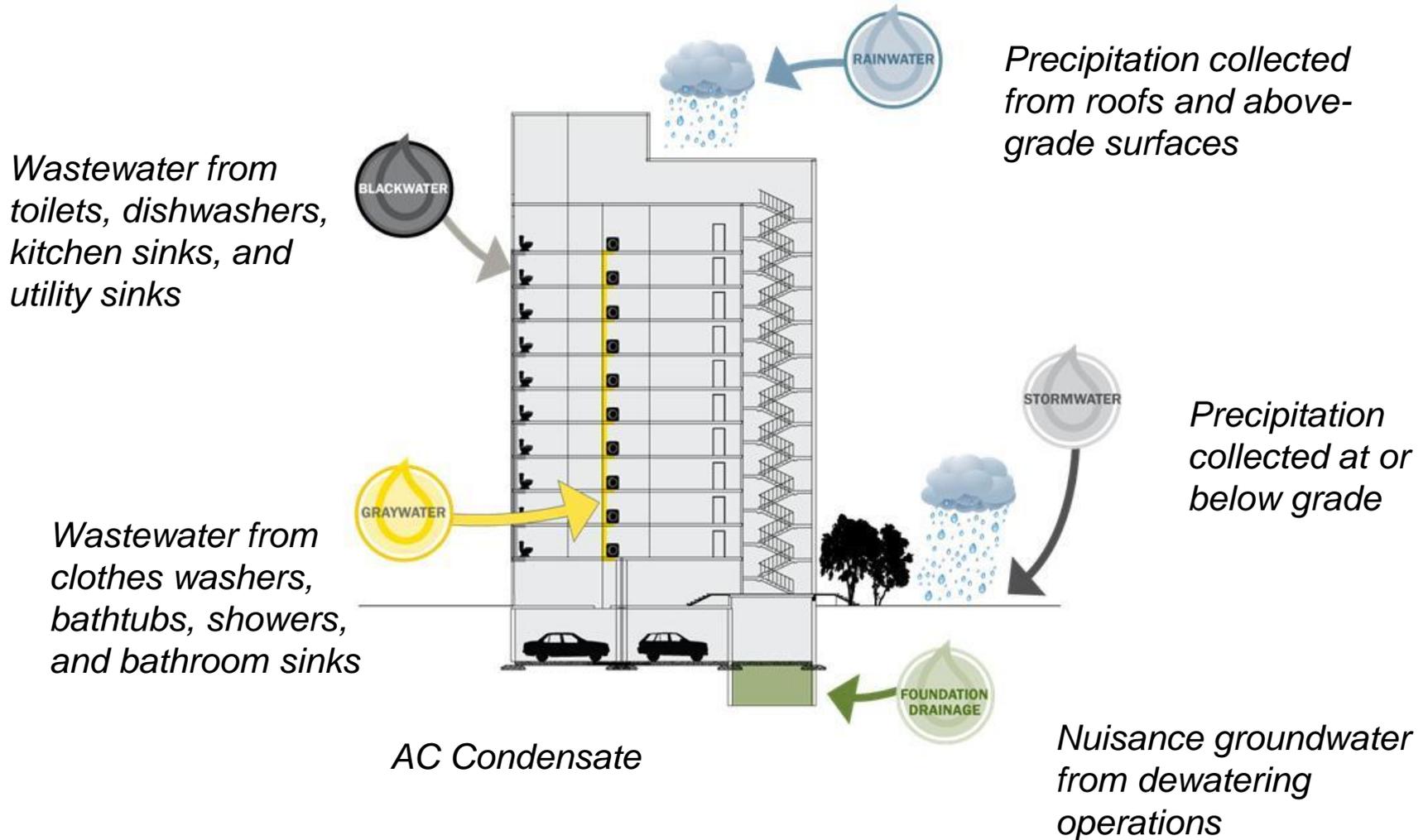
Steve Deem
(DOH)

Mamdouh
El-Aarag
(DOH)

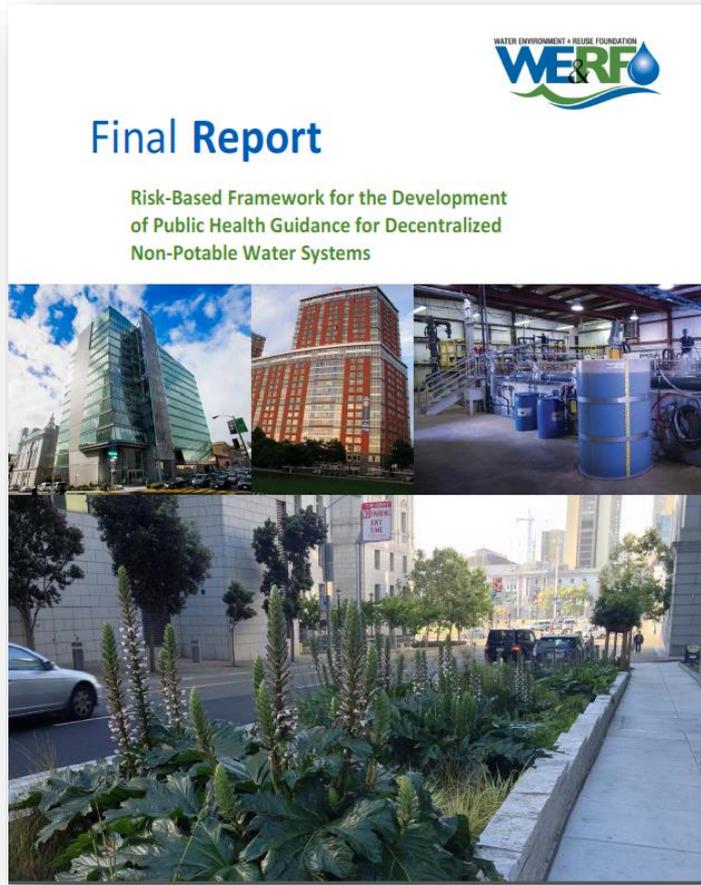
Ground rules



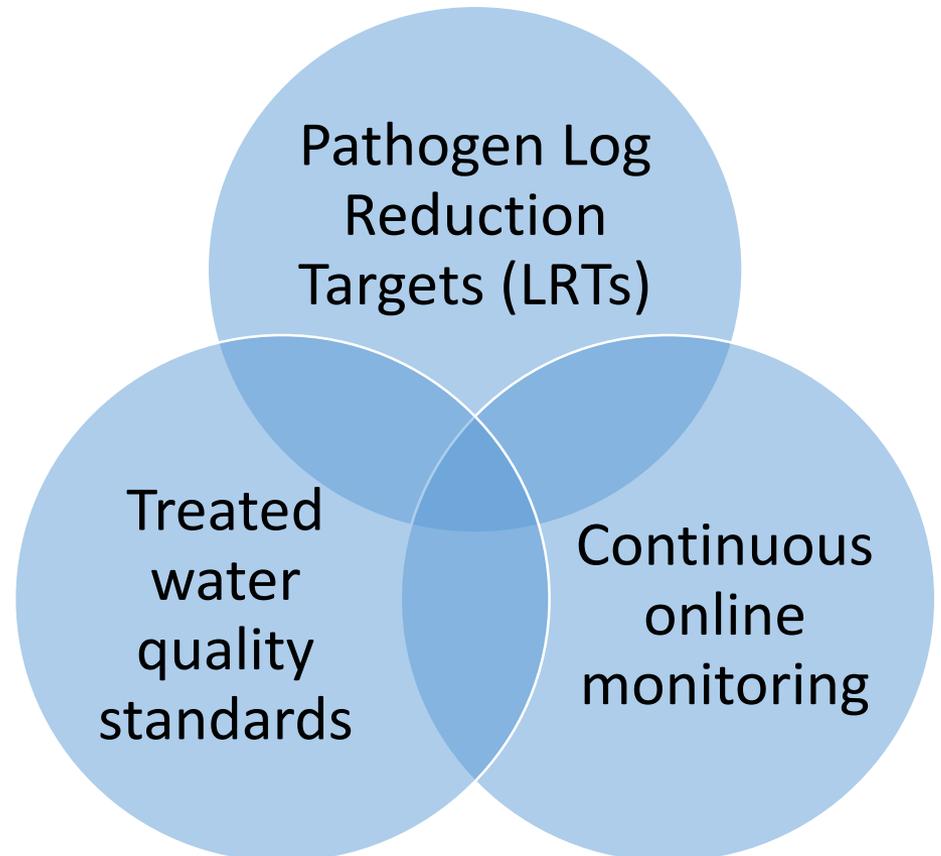
Alternative Water Sources



Risk-Based Water Quality Approach for Onsite Water Systems



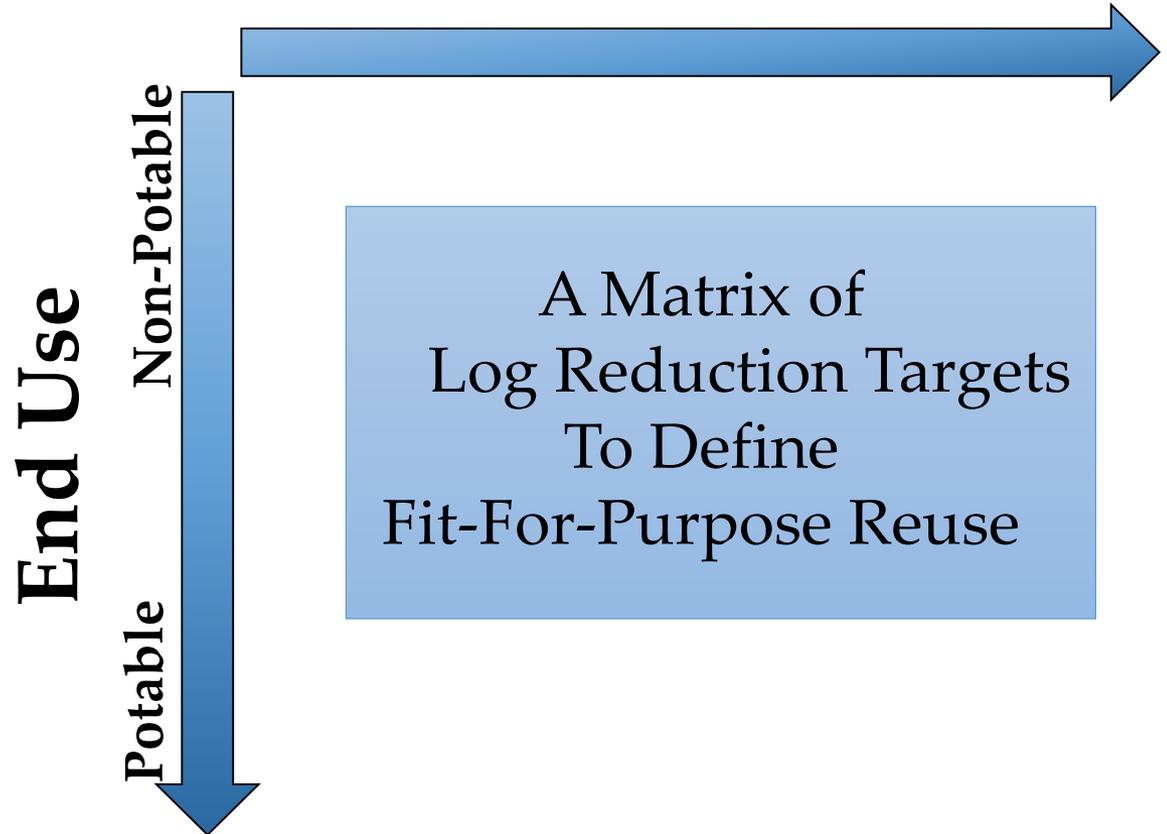
NWRI formed independent expert panel to develop:



Quantitative Microbial Risk Assessment (QMRA)



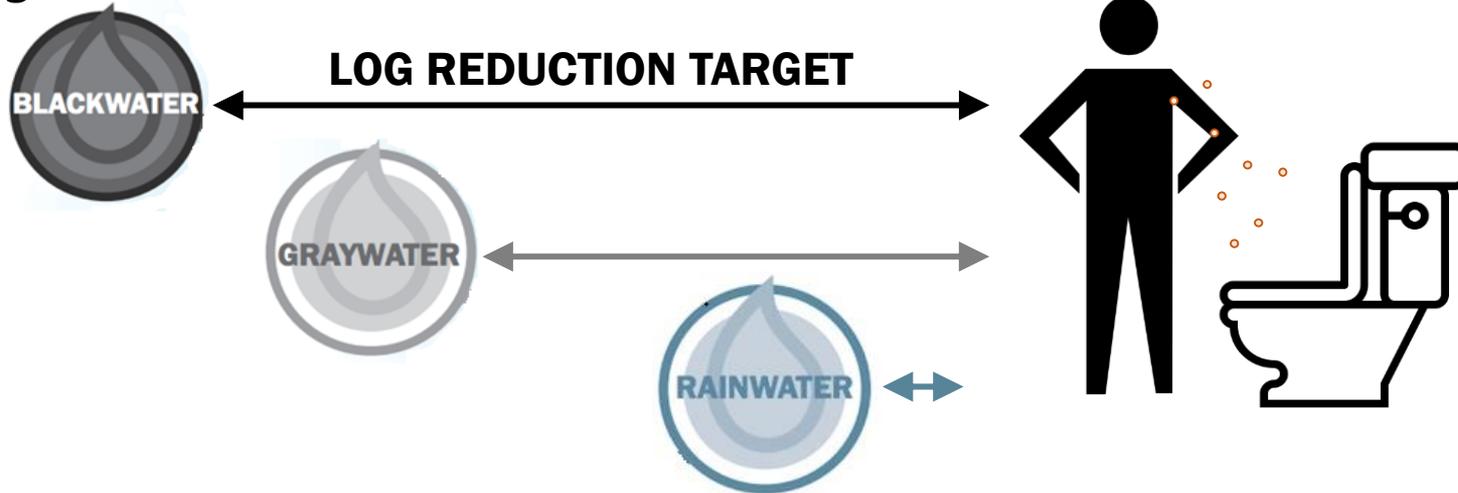
“Source” waters
(roof runoff, storm water, graywater, blackwater)



Pathogen Log Reduction Targets

Source waters have different starting pathogen concentrations

Target safe pathogen level is the same regardless of source water

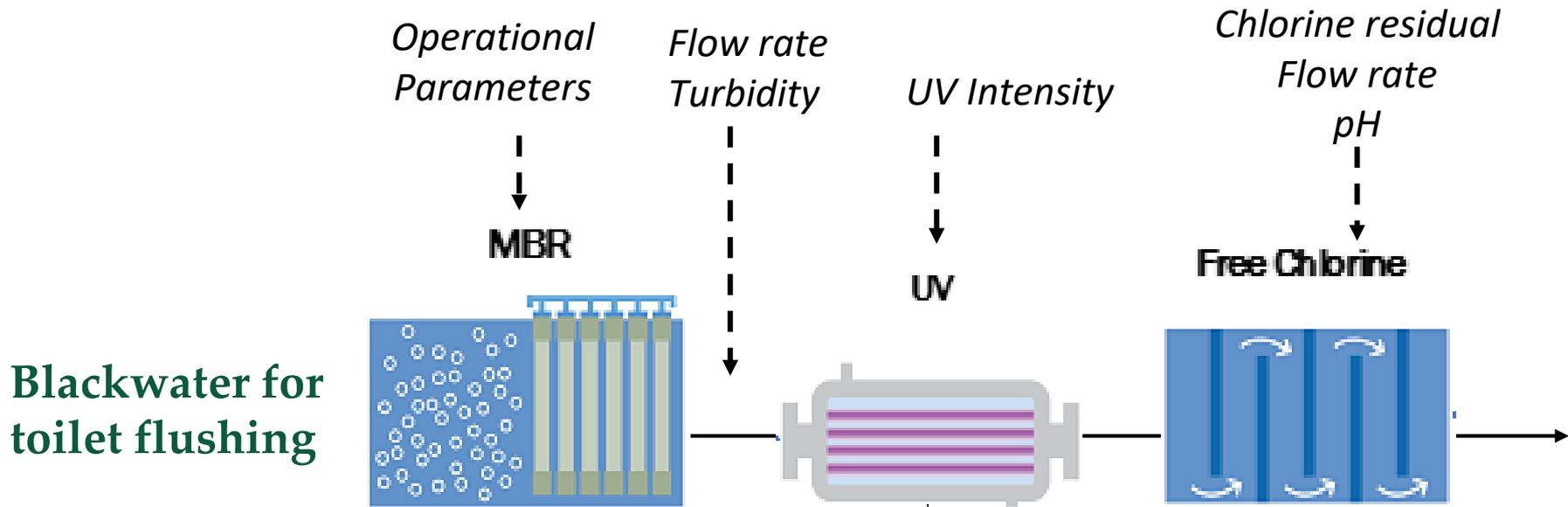


Log reduction target is the difference between the starting point and the safe end point.

Log Reduction Targets

| | Enteric Viruses | Parasitic Protozoa | Enteric Bacteria |
|--------------------|--------------------|-----------------------|---------------------|
| Blackwater | | | |
| Outdoor use | 8.0 | 7.0 | 6.0 |
| Indoor use | 8.5 | 7.0 | 6.0 |
| Graywater | | | |
| Outdoor use | 5.5 | 4.5 | 3.5 |
| Indoor use | 6.0 | 4.5 | 3.5 |
| Roof Runoff | | | |
| Outdoor use | N/A | N/A | 3.5 |
| Indoor use | N/A | N/A | 3.5 |
| Stormwater | | | |
| Outdoor use | 3.0 | 2.5 | 2.0 |
| Indoor use | 3.5 | 3.5 | 3.0 |

Pathogen Crediting: Blackwater Treatment System



| Pathogen Credits | | | |
|----------------------|--------------------------------|---|---|
| Treatment Process | MBR | UV | Chlorine |
| Virus | 1.5 | Up to 6 | Up to 5 |
| Protozoa | 2 | Up to 6 | 0 |
| Bacteria | 4 | Up to 6 | Up to 5 |
| Ongoing Requirements | Operate within Tier 1 envelope | Online monitoring to confirm validated dose | Demonstrate CT with verified free chlorine residual |

Legislative direction

RCW 90.46.290(1): By July 1, 2022,
adopt rules

Risk-based water quality
standards for specified
land uses—excludes
single-family homes.

Construction standards

Rules takes effect by December 31, 2022

Legislative direction

Risk-based log
reduction targets

Treatment and
performance

Water quality
monitoring

Reporting

Notification and
public information

Cross-connection
controls

Permitting

Stormwater general
permit conflicts

Water right
impairment review

Legislative direction

RCW 90.46.290(3): Existing systems

Systems in operation prior to the end of this year must meet standards by the end of 2023.

A permitting agency (county, city or town) may waive this requirement if it would be “cost prohibitive”

Committee Input / Questions



Regulation Implementation

DOH proposing: State creates regulations (LRVs, treatment credits, monitoring & reporting requirements) / local governments implement the regs in their jurisdictions.

- DOH concerned about staff capacity in future.
- ONWS require building level detail – locals already involved with permitting.
- Local water and wastewater need to concur with program.

Alternative: State creates and implements.

RAC – thoughts? Any inputs?

Blackwater Treatment System at SFPUC HQ



1

Constructed Wetland

2

100 μ Screen Filter



4

UV Disinfection

5

Tablet Chlorinator

3

5 μ Cartridge Filter

ONWS Treatment Reviews

Treatment systems must be designed by licensed professional engineer.

Designs need to be reviewed by regulating entity & approved.

Initial Management direction:

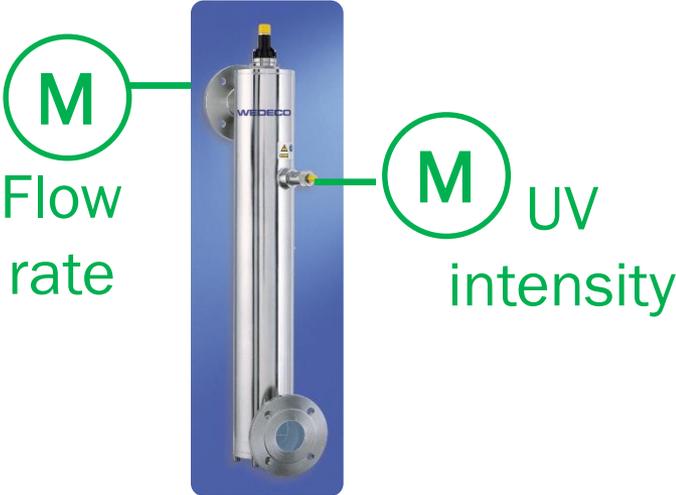
- Local governments will need to have engineering capacity to evaluate systems.
- Develop internal or contract outside.

Alternative:

- DOH conducts reviews and bills hourly.

RAC – thoughts? Any inputs?

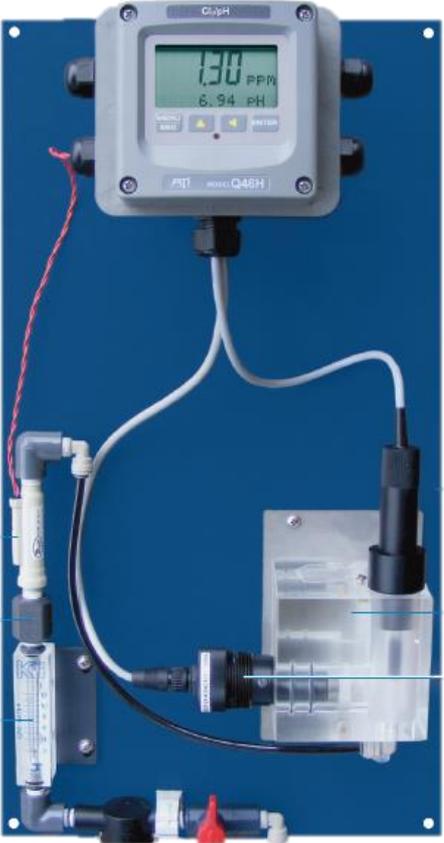
Example Monitoring Devices



**UV Reactor with
online sensors**



Turbidimeter



Chlorine analyzer

Ongoing monitoring

What monitoring requirements are needed?

How to answer the question:

- “How do I know this system is ‘working’ (producing safe water) at any given time on any given day?”

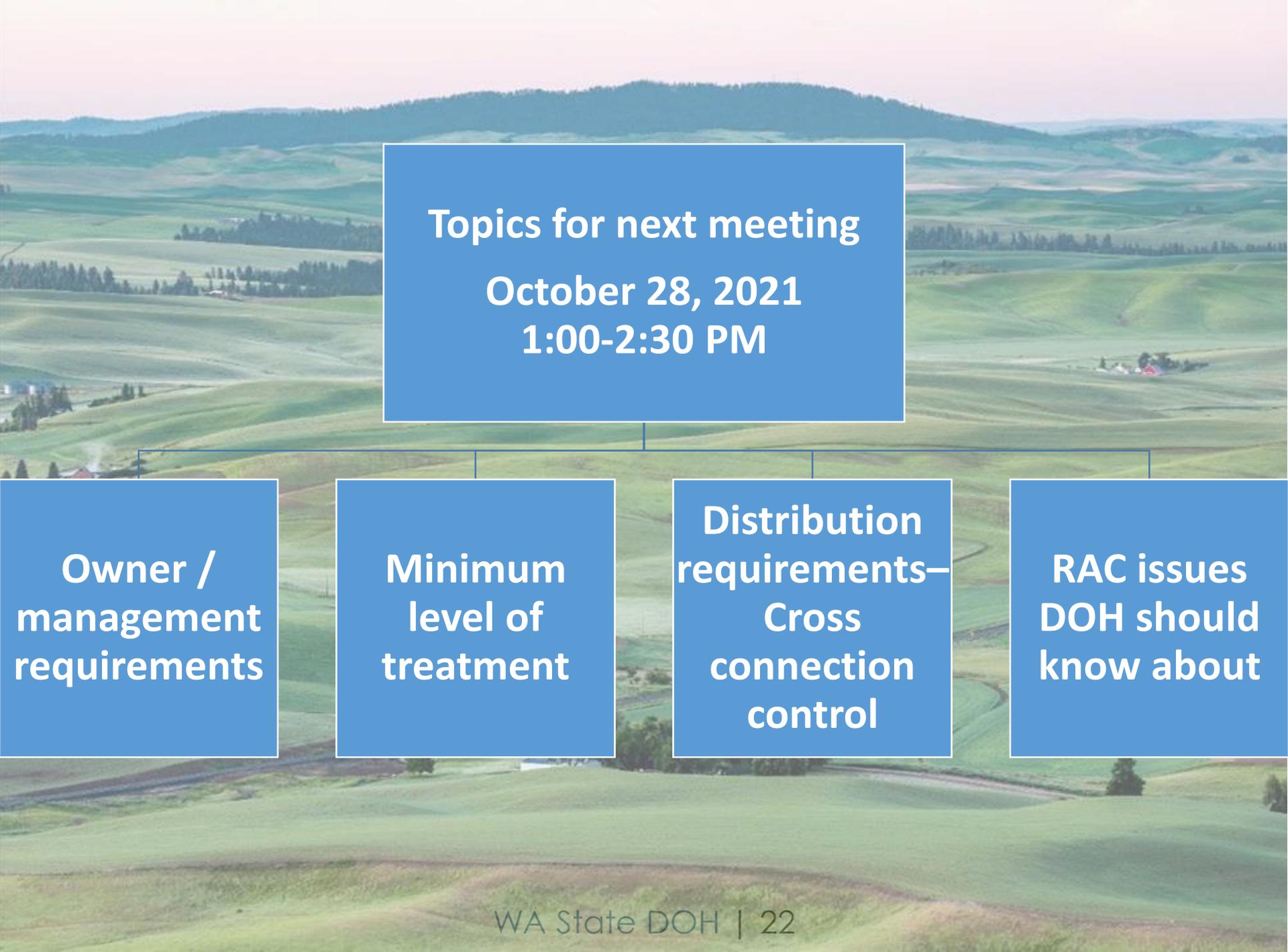
RAC – thoughts? Any inputs?

Ongoing Reporting – Action Triggers

How frequent and to whom should reporting be made?

- **Continuous data stream-how often capture this?**
 - Daily – Weekly – Monthly – Annual?
- **What do if a system fails?**
 - Tell users?
 - Tell Regulators?
 - Report failure at end of the month / the year?

RAC – thoughts? Any inputs?



Topics for next meeting

October 28, 2021

1:00-2:30 PM

**Owner /
management
requirements**

**Minimum
level of
treatment**

**Distribution
requirements—
Cross
connection
control**

**RAC issues
DOH should
know about**



Washington State Department of

Health