

Discharge Limit Exceedances - Bacteria

Oliver Navo

ESSII

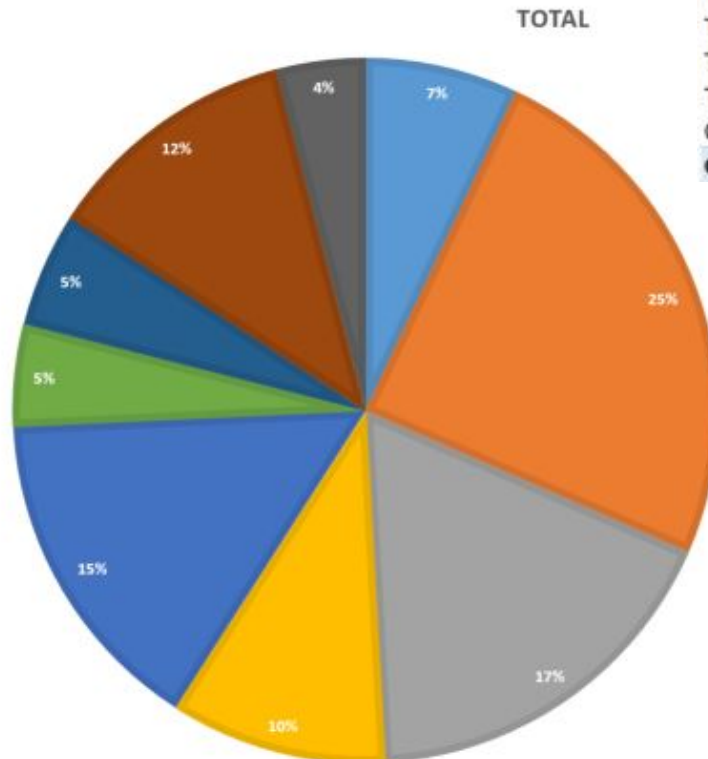
- The data we have
- Impact to ADEQ's mission
- Who are the receptors?
- Common root causes for exceedances
- Reuse
- APP requirements



Bacteria Numbers

DITAT DEUS

Row Labels	Count of CATEGORY
E.COLI	12
FECAL COLIFORM	42
FLOW	30
GEO MEAN TOTAL NITROGEN	17
TOTAL METAL	26
TOTAL NITROGEN	8
TRIALO METHANE (TTHM)	9
TURBIDITY	20
OTHER	7
Grand Total	171



CATEGORY

- E.COLI
- FECAL COLIFORM
- FLOW
- GEO MEAN TOTAL NITROGEN
- TOTAL METAL
- TOTAL NITROGEN
- TRIALO METHANE (TTHM)
- TURBIDITY
- OTHER

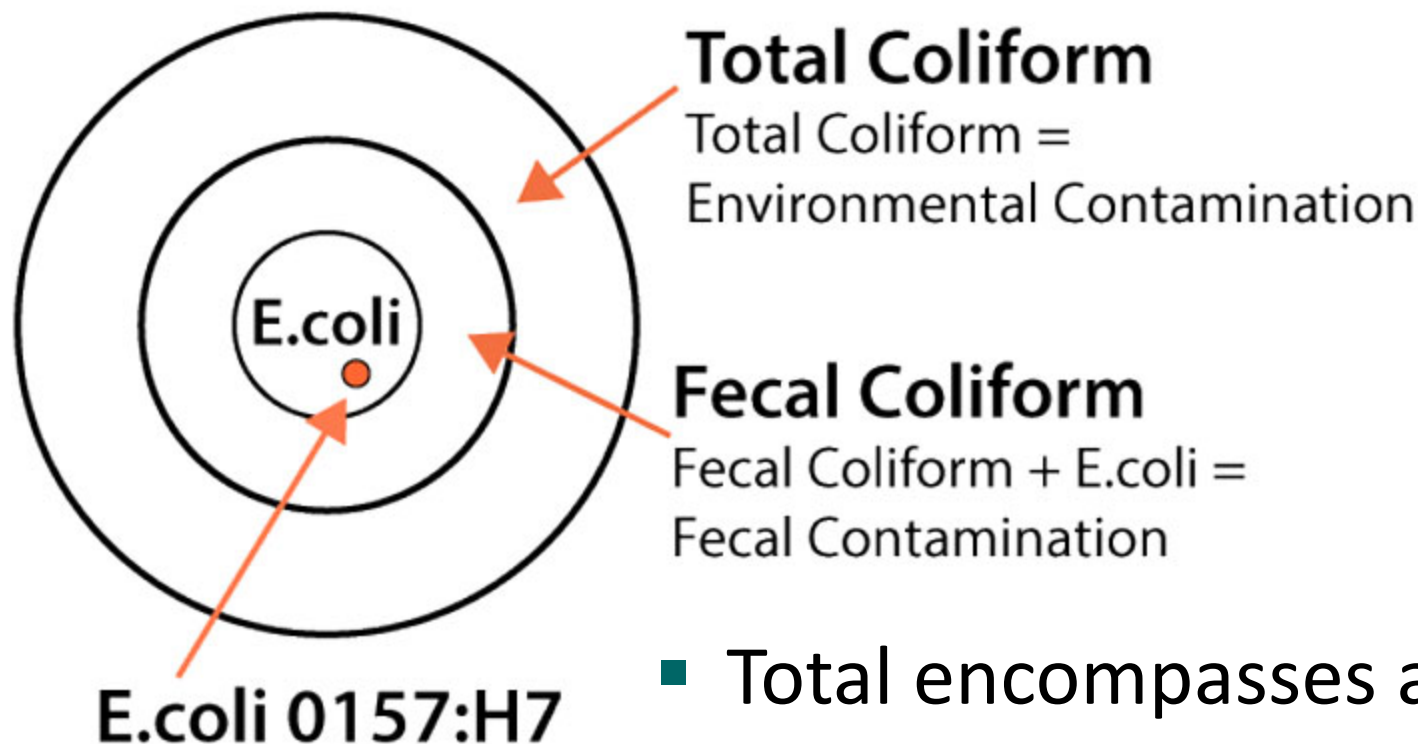
Contaminated Streams/Rivers



Contaminated Drinking Water

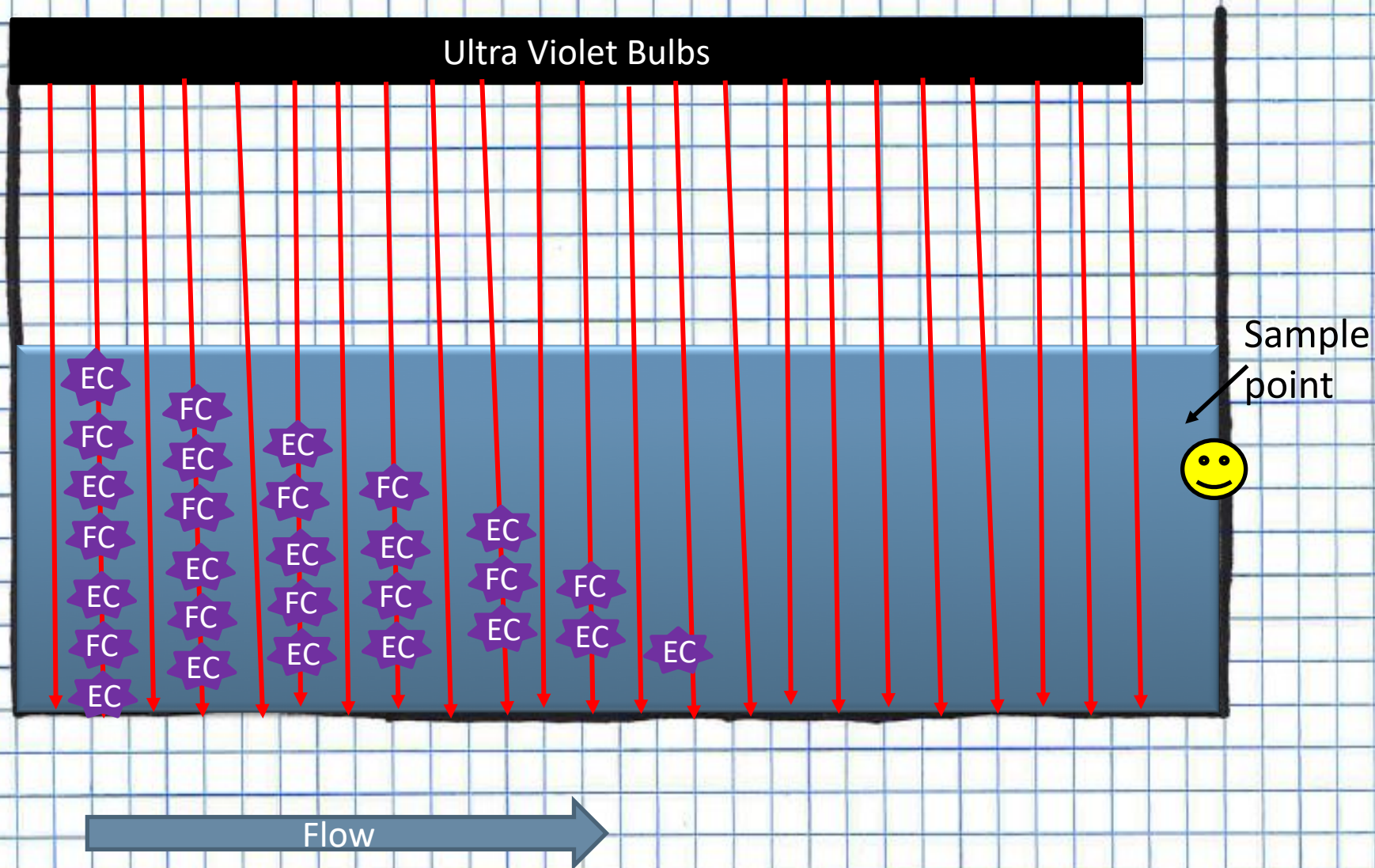


Total Coliform, Fecal Coliform and E.coli

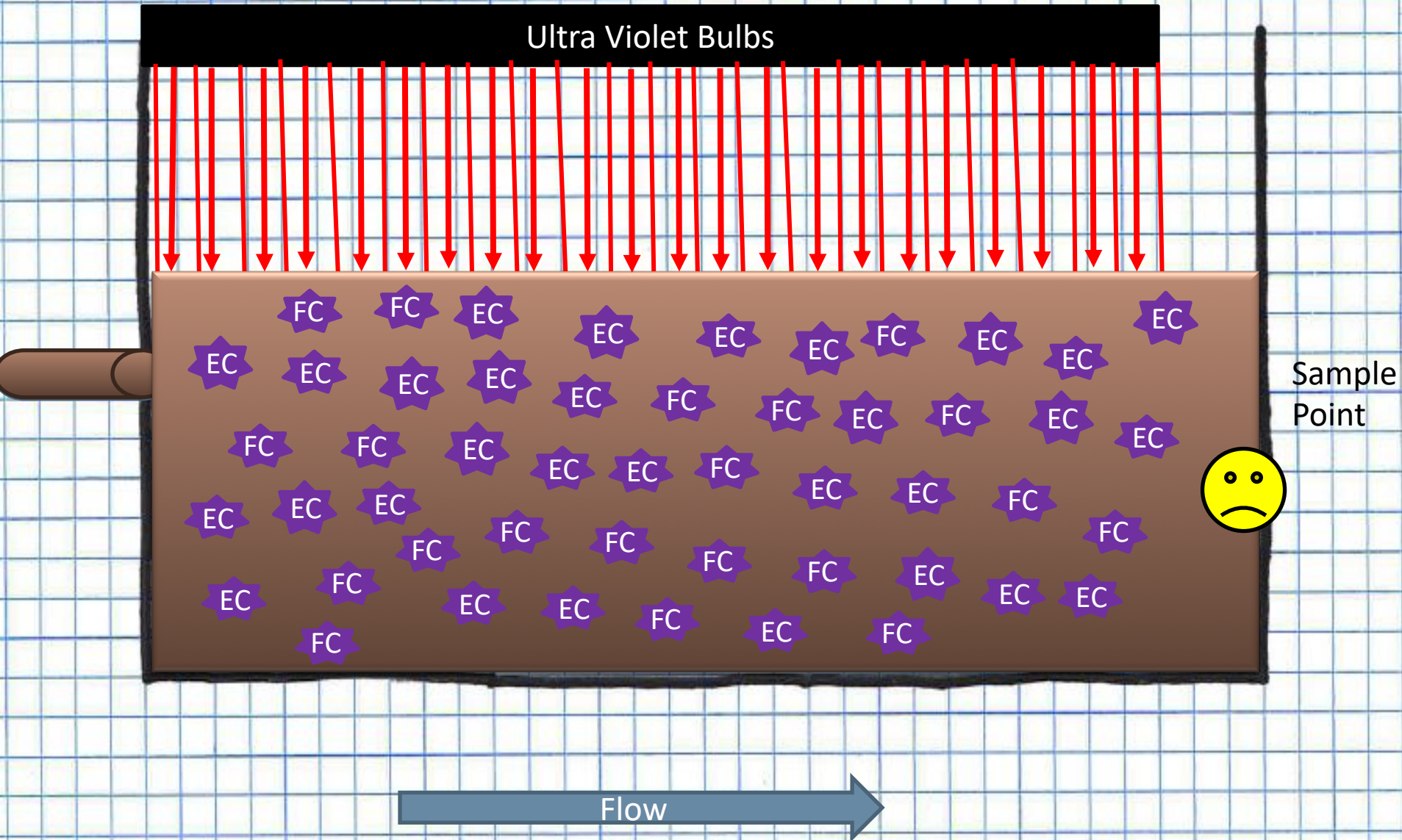


- Total encompasses all coliform. Fecal is one sub-group of total. *E. Coli* is a sub-group of fecal.

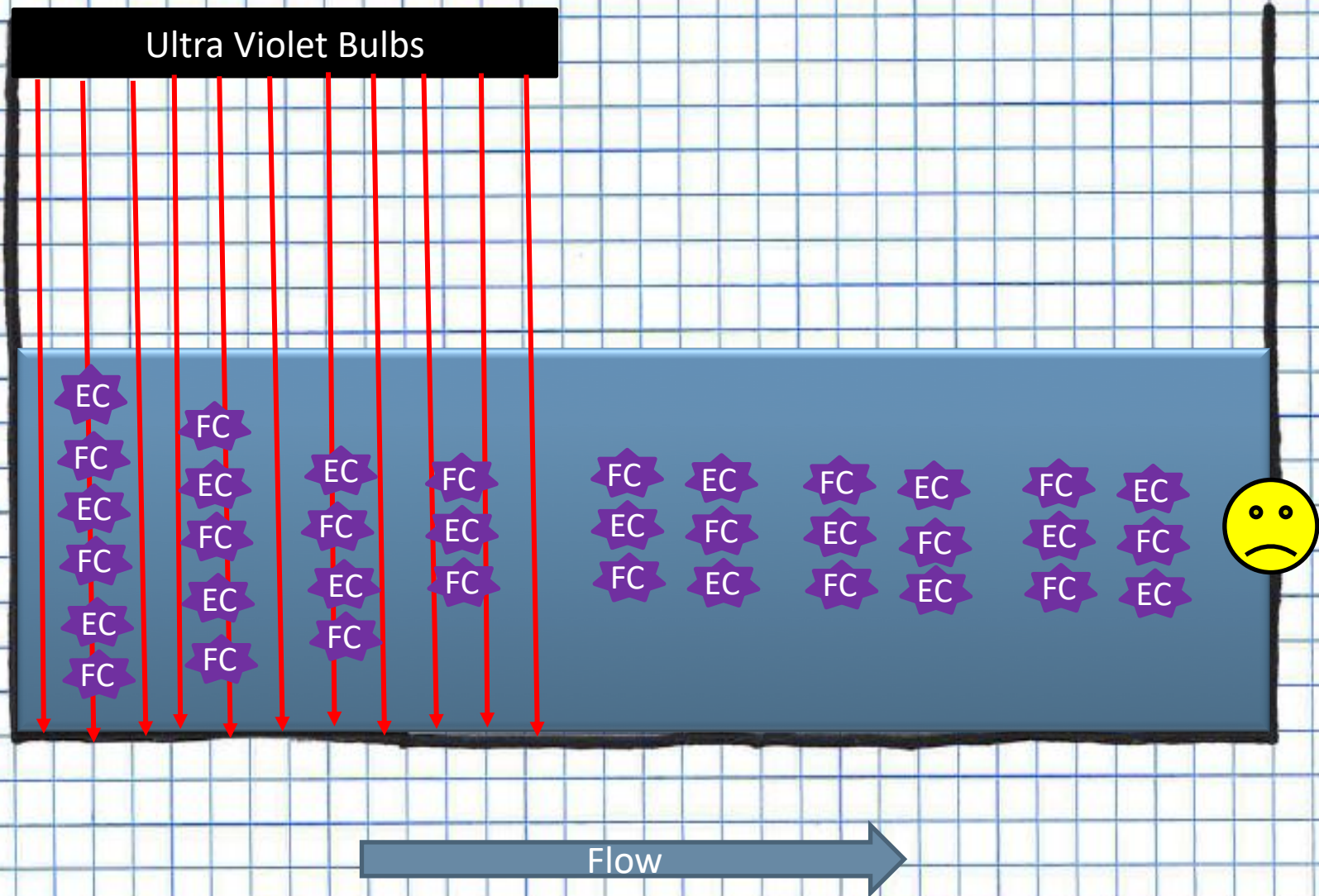
How UV disinfection functions



Turbidity Problem



UV treatment distance



Chlorination



Chlorination Failures – dosage and contact time



Regulations

Table 1. Signage and Notification Requirements for Direct Reuse Sites

Re-claimed Water Class	Hose Bibbs	Residential Irrigation	Schoolground Irrigation	Other Open Access Irrigation	Restricted Access Irrigation	Mobile Re-claimed Water Dispersal
A+, A	Each bibb at valve	Front yard, or all entrances to a subdivision if the signage is supplemented by written yearly notification to individual homeowners by the homeowner's association.	On premises visible to staff and students	None	None	On dispersal equipment and visible to the public
B+, B	Each bibb at valve	Direct Reuse Not Allowed	Direct Reuse Not Allowed	Direct Reuse Not Allowed	1. Ingress points; 2. At reasonably spaced intervals of not more than 1/4 mile at the reuse site or along the open water conveyance, unless access to vehicular and pedestrian traffic is secured; and 3. If applicable, notice on golf score cards	On dispersal equipment and visible to the public
C	Each bibb at valve	Direct Reuse Not Allowed	Direct Reuse Not Allowed	Direct Reuse Not Allowed	1. Ingress points; 2. At reasonably spaced intervals of not more than 1/4 mile at the reuse site or along the open water conveyance, unless access to vehicular and pedestrian traffic is secured; and 3. If applicable, notice on golf score cards	On dispersal equipment and visible to the public

Note: All impoundments with open access including lakes, ponds, ornamental fountains, waterfalls, and other water features shall be posted with signs regardless of the class of reclaimed water.

A/A+ Requirements

- 1) No detectable fecal coliform organisms in 4/7 samples taken
- 2) Max concentration for a single sample: 23/100 ml

B/B+ Requirements

- 1) 4/7 samples taken have a max of 200 / 100 mls
- 2) Max concentration for a single sample: 800 / 100 ml

C Requirements

- 1) 4/7 samples taken have a max of 1000 / 100 mls
- 2) Max concentration for a single sample: 4000 / 100 ml

Potential Exposure Pathways

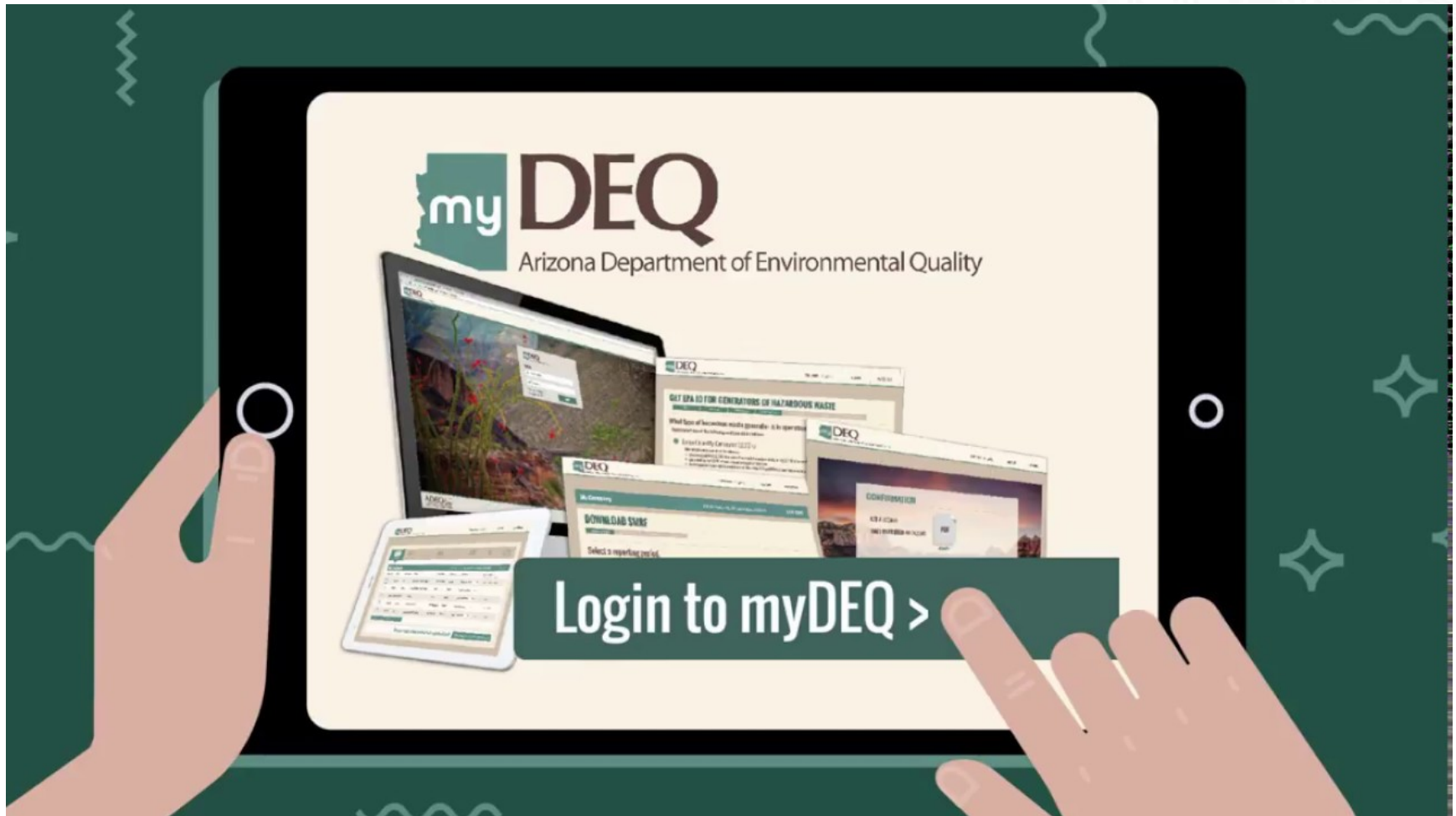


Direct Exposure
of Recycled Water

Contaminated Irrigation



What to do if you have a violation



- Email: on2@azdeq.gov
- Cards are available

