

Direct Potable Reuse Regulatory Update

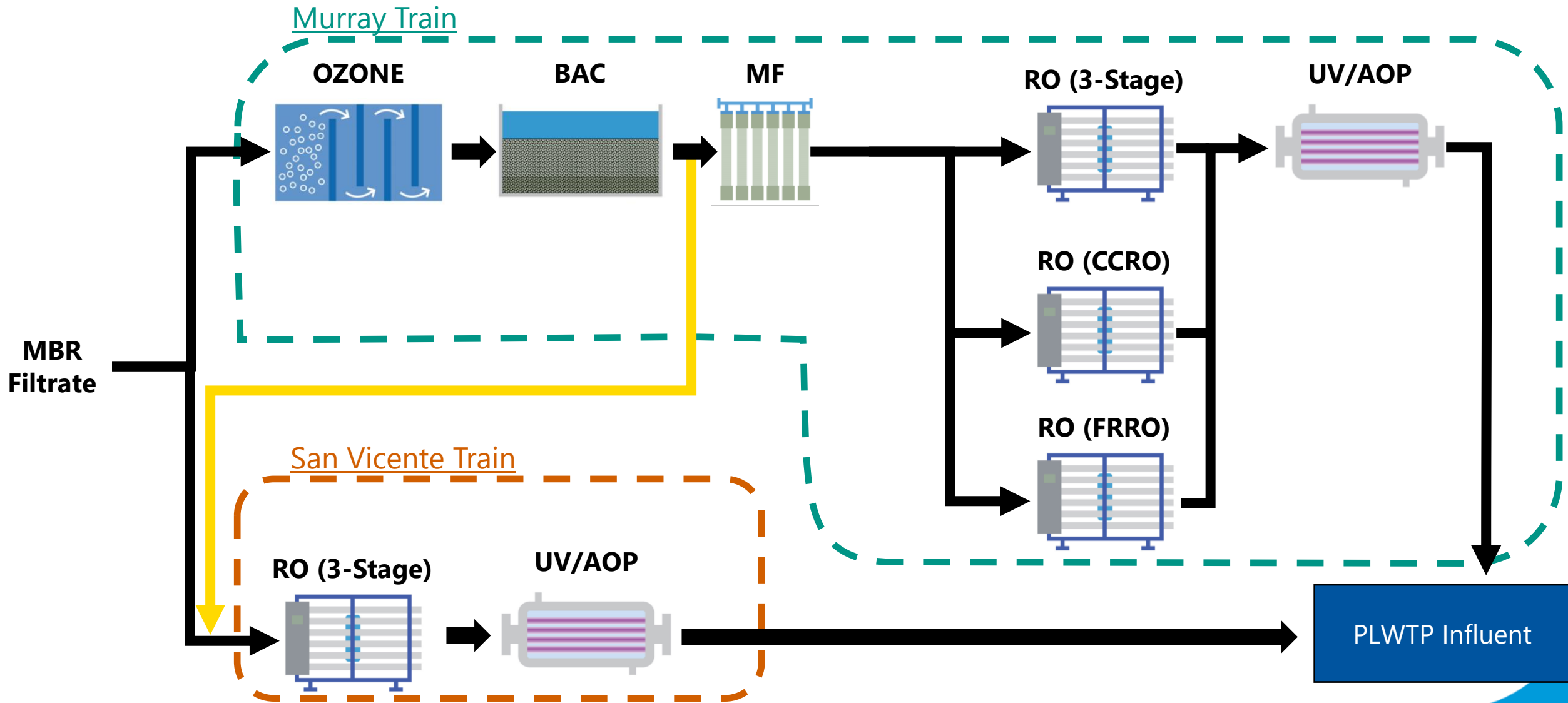
Metro TAC

May 17, 2023

- San Vicente is larger and would be Indirect Potable Reuse.
- Murray Reservoir is smaller and would be Direct Potable Reuse.
- Many factors involved in ongoing assessment.

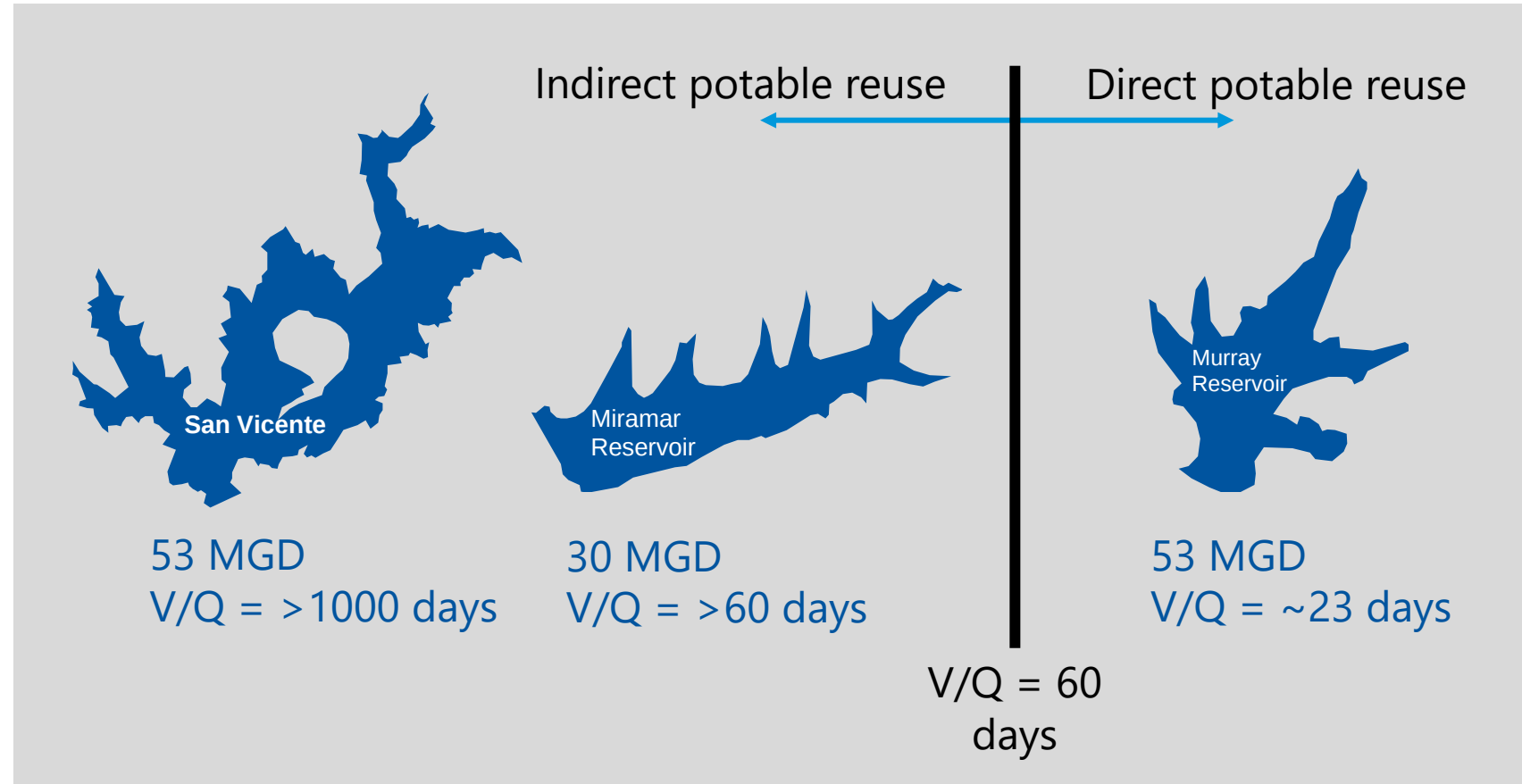


Central Area Small Scale Facility has Two Trains



SD 53 MGD to Murray Reservoir considered DPR

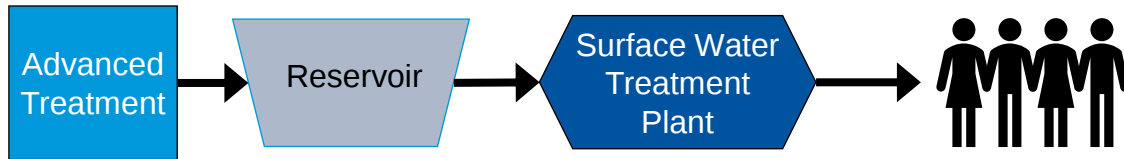
- Indirect potable reuse regulations require minimum retention time of 60 days
- At 53 MGD, Murray Reservoir has retention time of 23 days



SD CA DPR Criteria Developed for All Forms of DPR

Raw Water Augmentation (RWA)

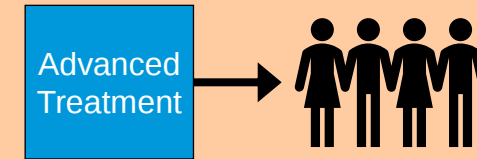
Raw Water Augmentation with a reservoir



Raw Water Augmentation without a reservoir



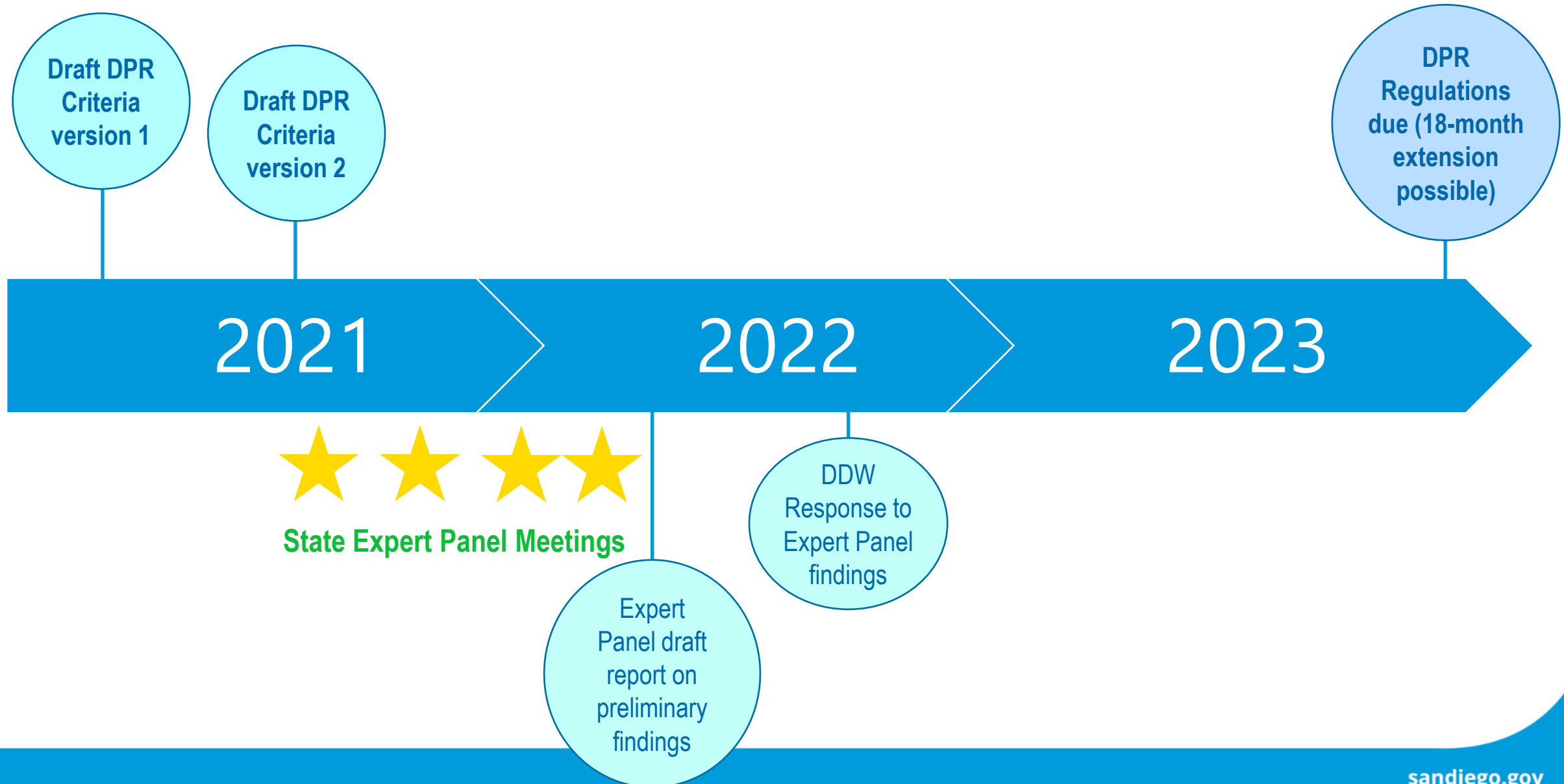
Treated Water Augmentation (TWA)

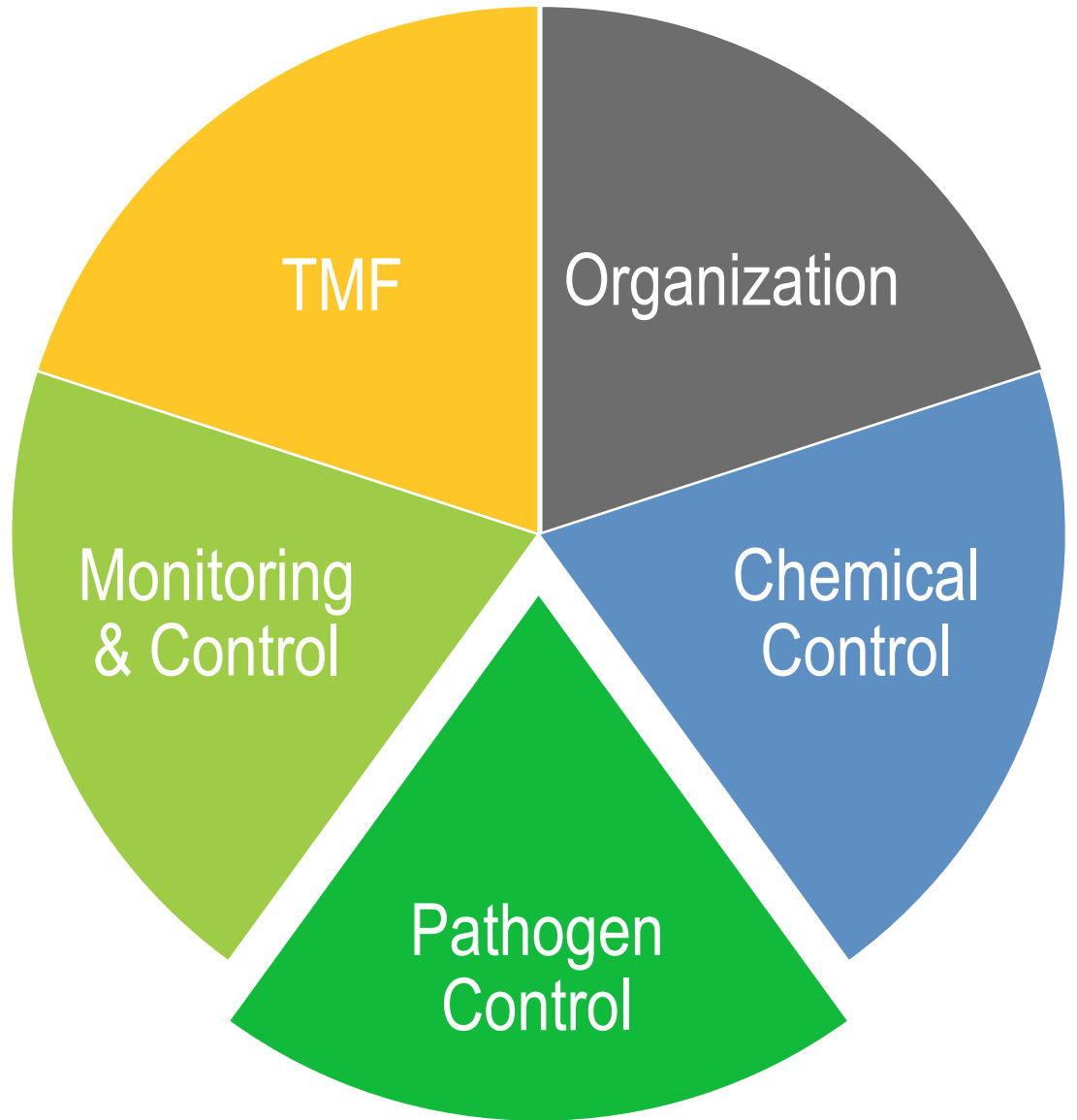
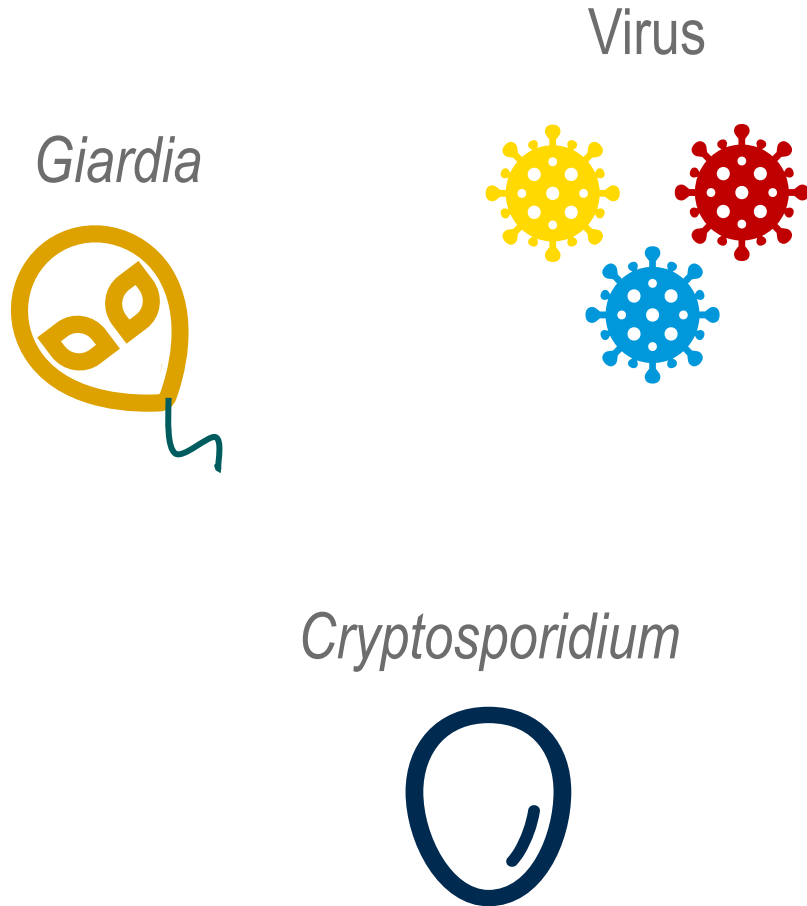


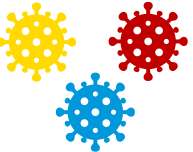
- DPR criteria developed to be protective of all forms of DPR
- This resulted in criteria targeted towards TWA projects



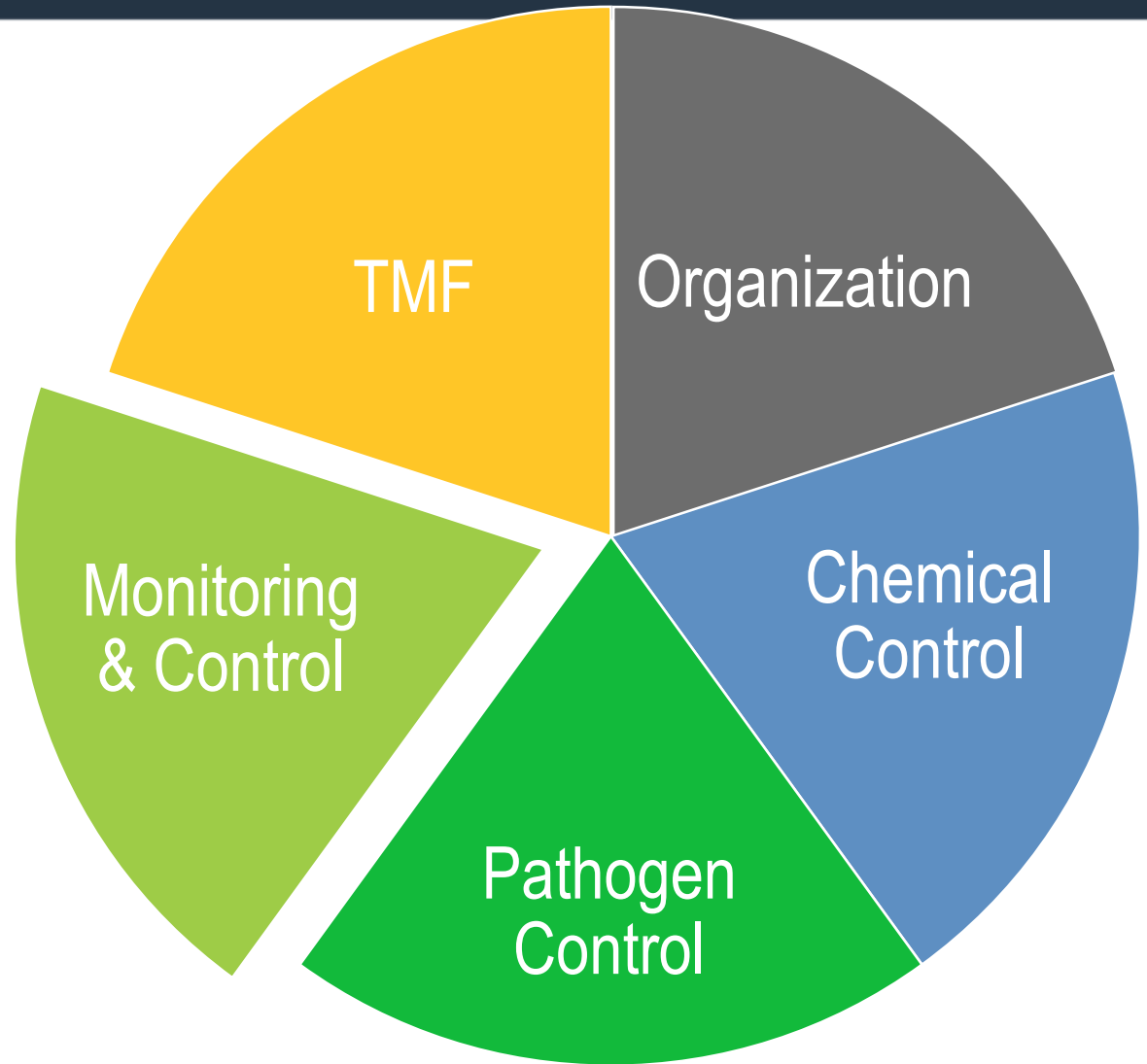
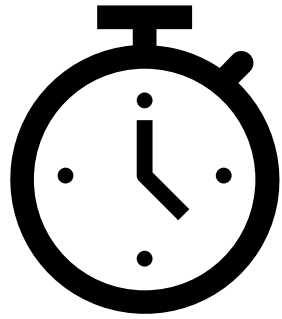
Regulatory Development Timeline





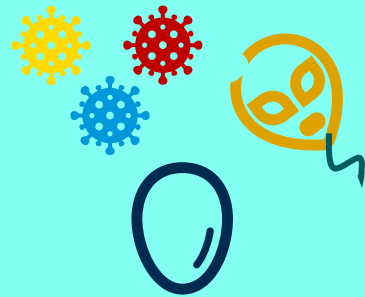
	Groundwater Recharge	Surface Water Augmentation	Direct Potable Reuse
Virus 	12	12 to 14	20
Giardia 	10	10 to 12	14
Cryptosporidium 	10	10 to 12	15

- 4 processes providing at least 1-log for each pathogen
 - GWR is 3 processes total
 - SWA is 2 to 3 processes total
- 3 *mechanisms* for each pathogen including:
 - UV disinfection (300 mJ/cm²)
 - Physical separation
 - Chemical disinfection



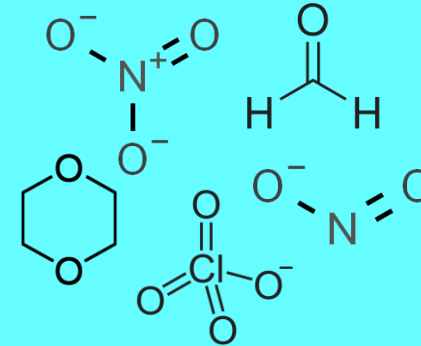
CP

Pathogen
Control Point



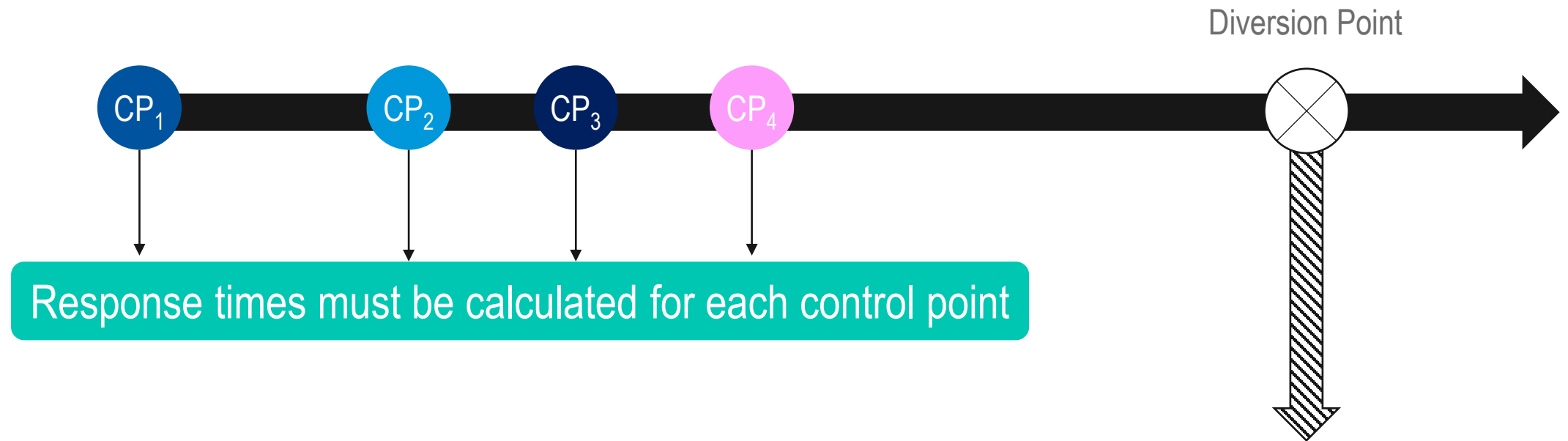
CP

Chemical
Control Point



An activity, procedure, or
process that is essential for
removing pathogens or
chemical hazards

Response Time – Pathogens & Acute Chemicals

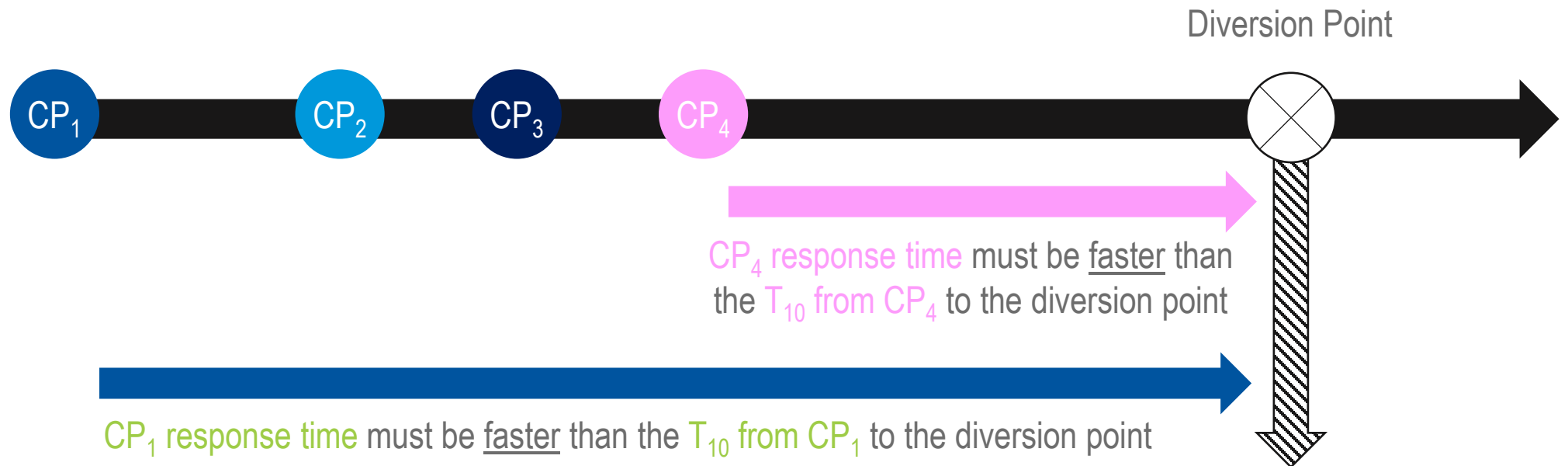


$$\text{Response Time} = \sum t_1, t_2, t_3$$

t_1 = time interval between online measurements
 t_2 = time for SCADA to access data
 t_3 = time for SCADA to implement a response:

- Determine an exceedance is occurring,
- Actuate a diversion or shutoff valve, and
- Divert or completely stop flow to distribution system

Response Time – Pathogens & Acute Chemicals

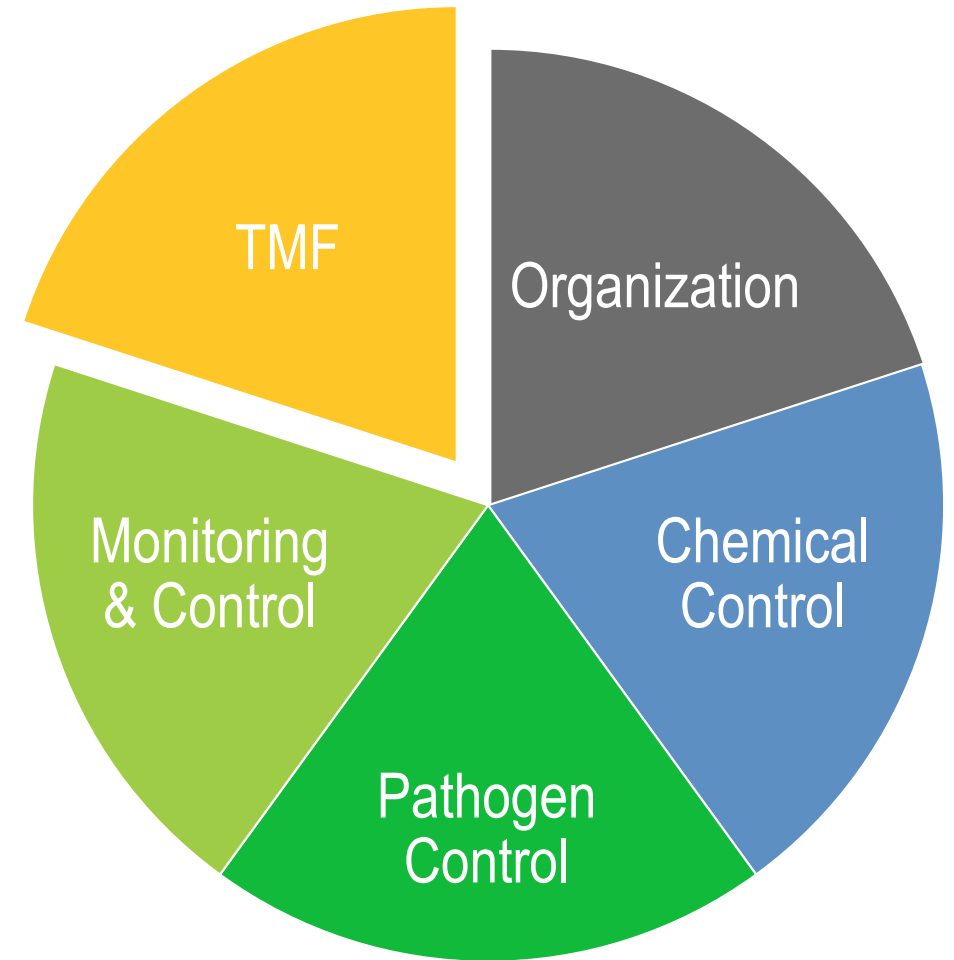
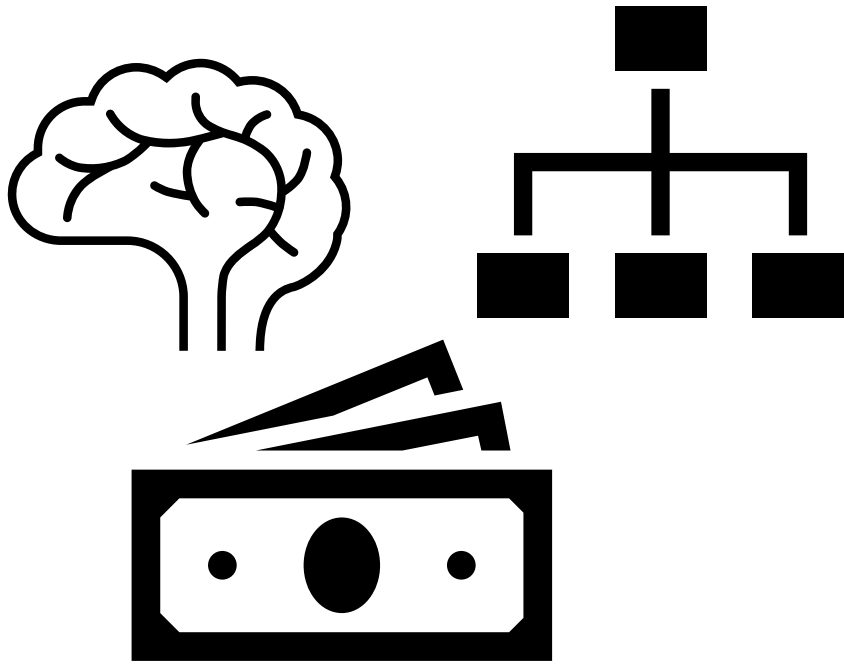


$$\text{Response Time} = \sum t_1, t_2, t_3$$

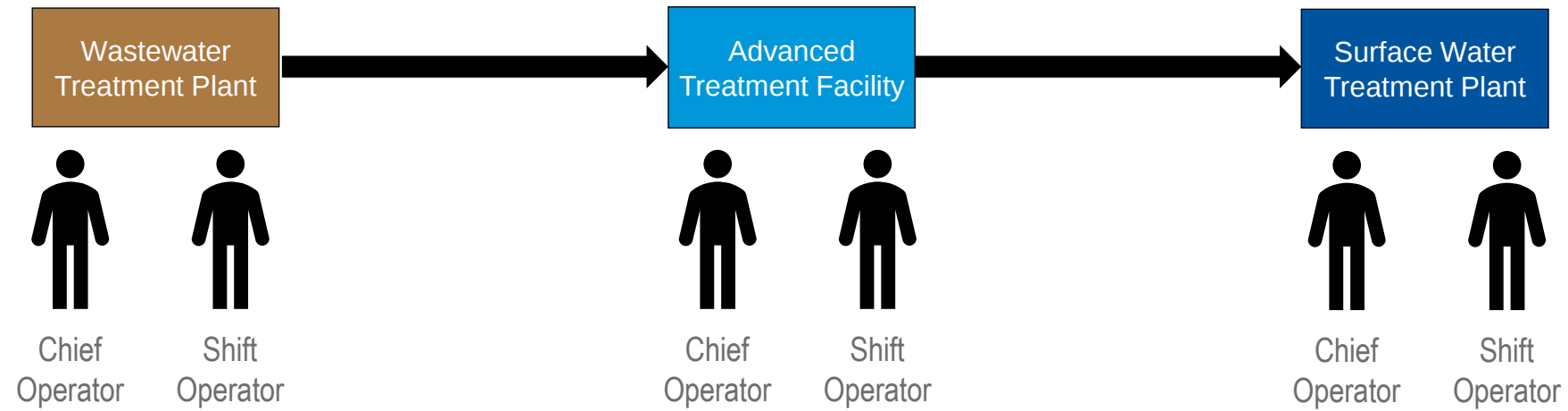
t_1 = time interval between online measurements
 t_2 = time for SCADA to access data
 t_3 = time for SCADA to implement a response:

- Determine an exceedance is occurring,
- Actuate a diversion or shutoff valve, and
- Divert or completely stop flow to distribution system

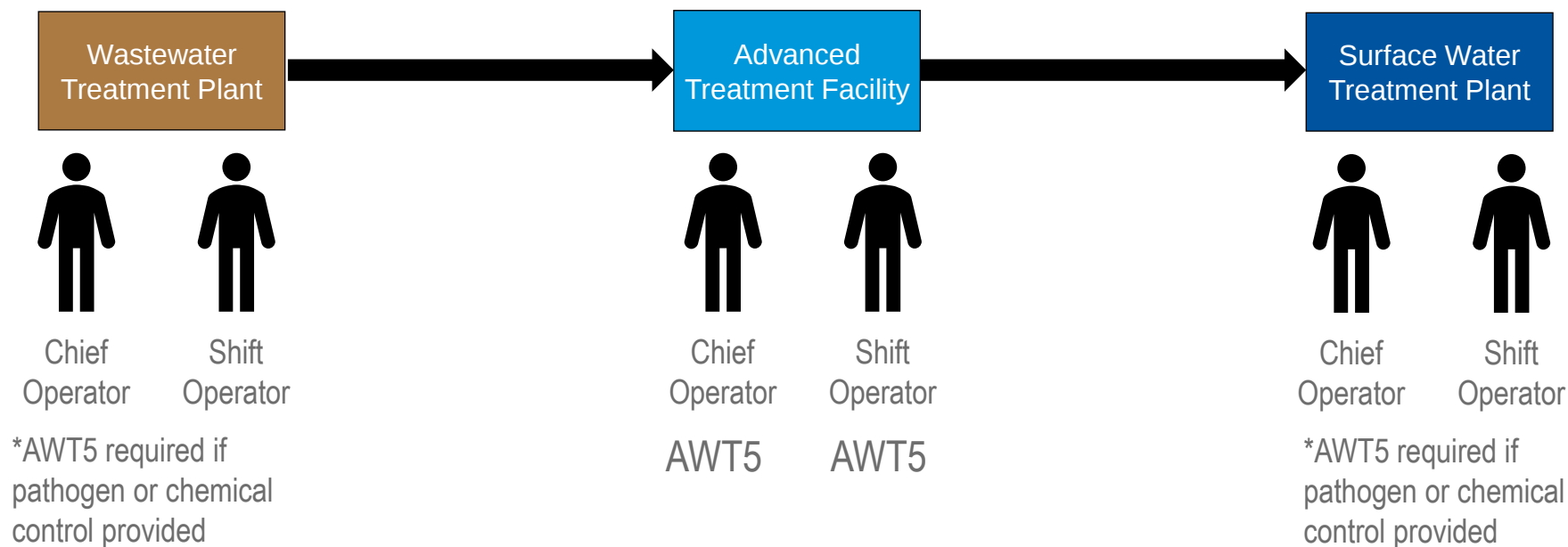
SD Technical, Managerial, Financial Capacity



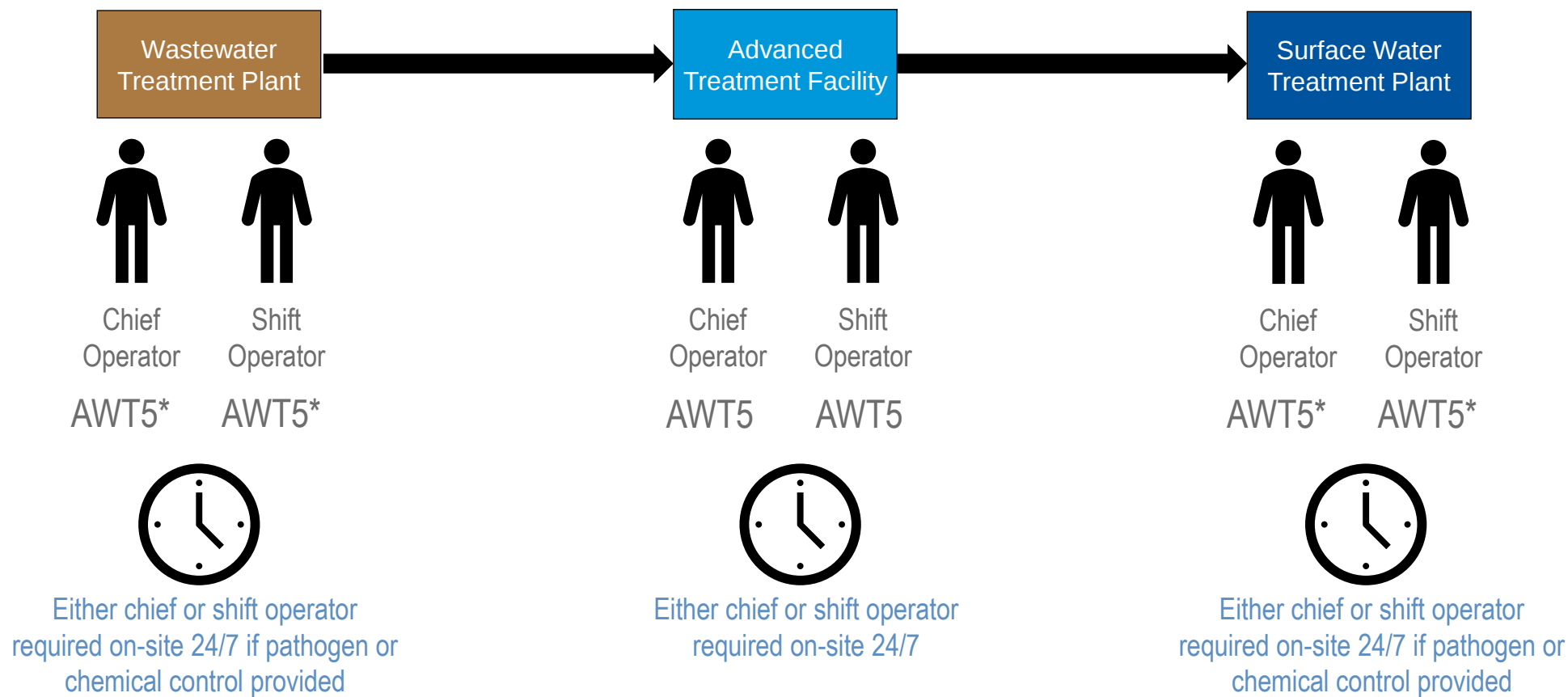
Operator Certification



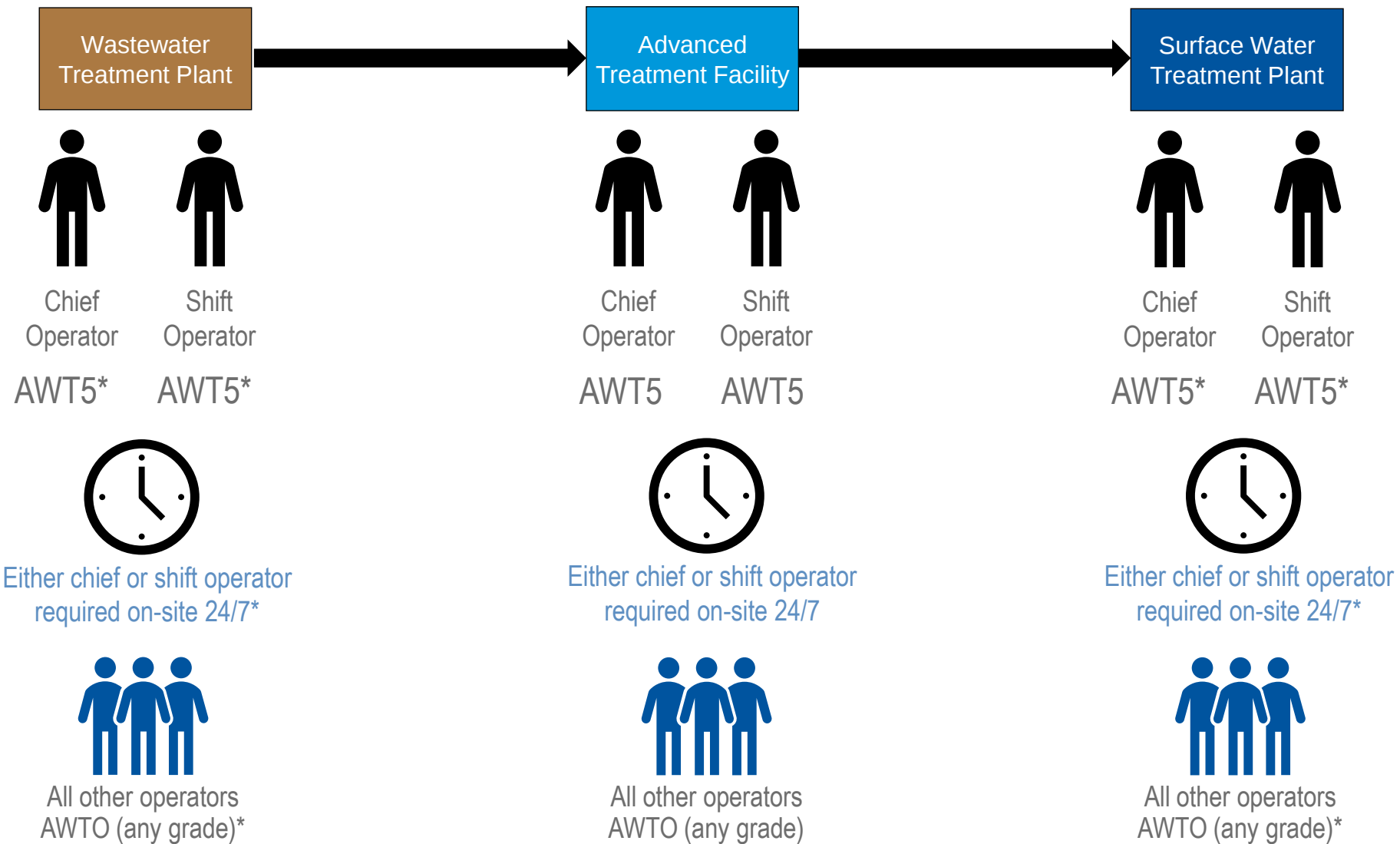
SD Operator Certification



SD Operator Certification



SD Operator Certification



Questions/Discussion