

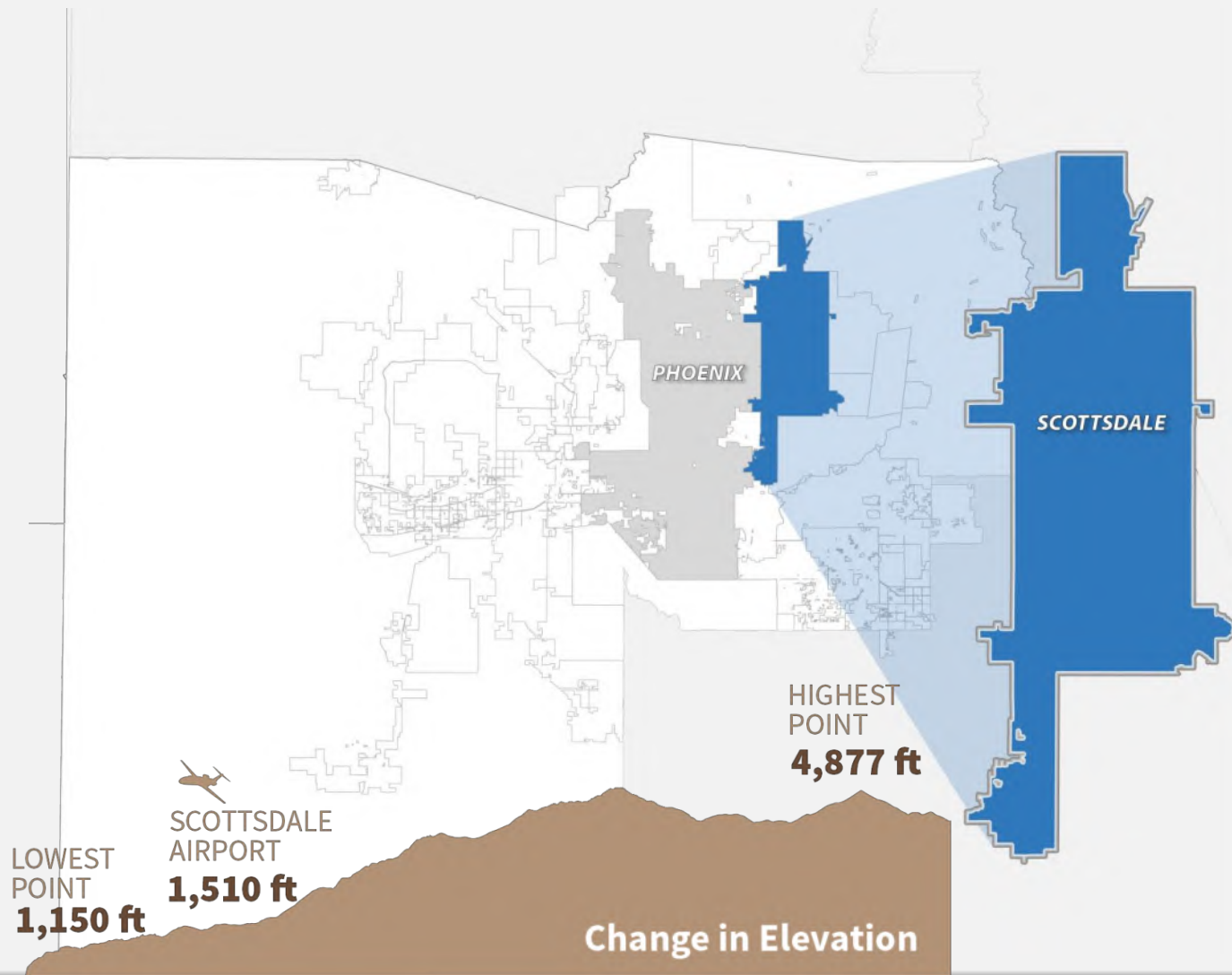
Water Reclamation Overview



Bryan Cassens

Water Reclamation Services Director





Scottsdale

Population

Current - 250,000

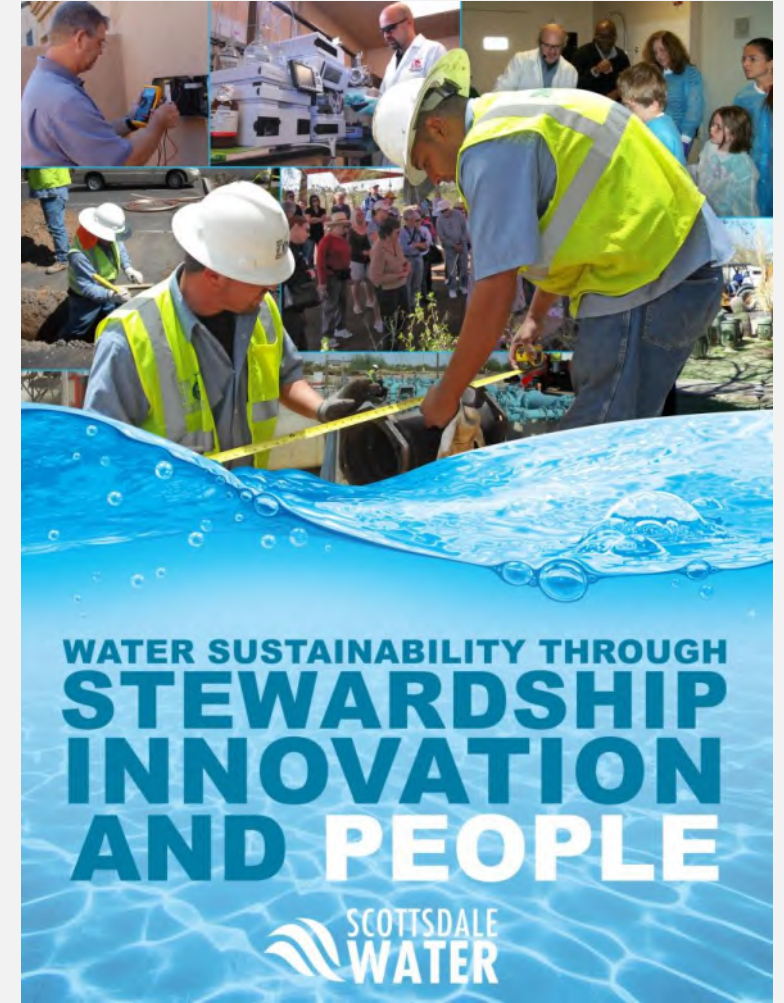
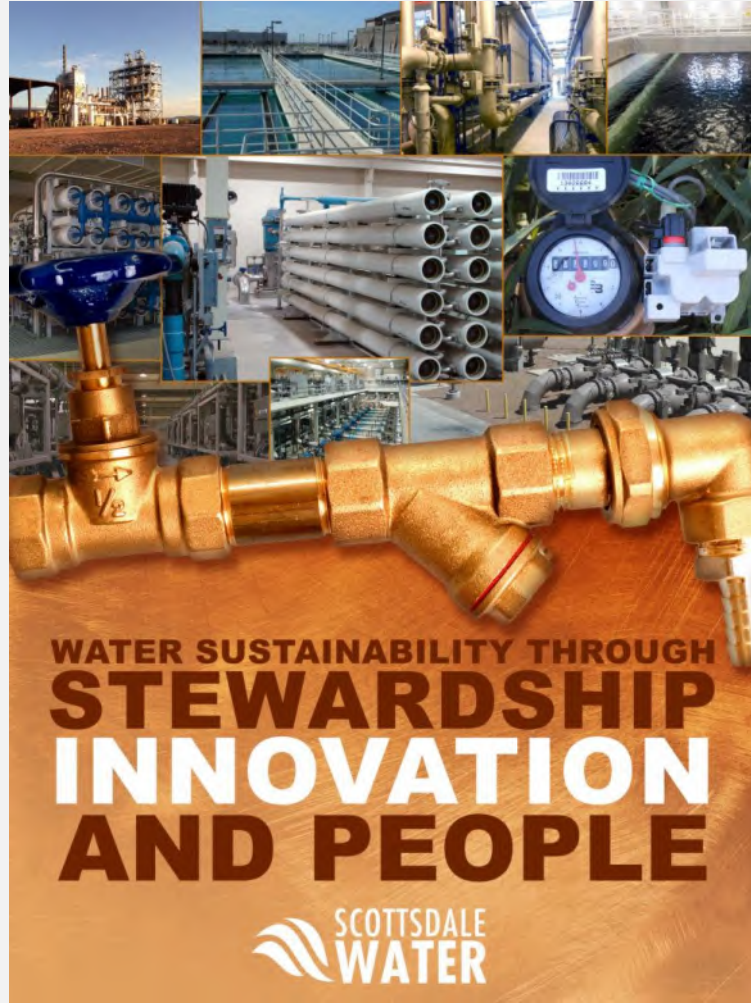
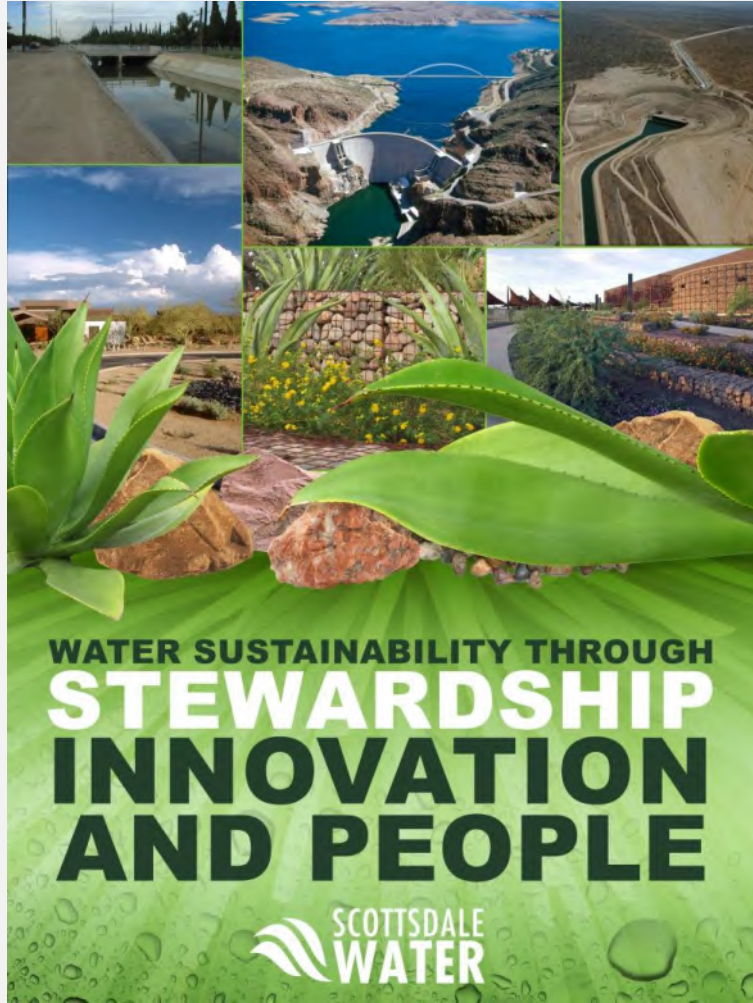
Buildout - 310,000

Sq. Miles: 184.5

Elevation change: 3,727 ft

- 2 Surface Water Treatment plants
- 21 wells and 5 groundwater Treatment facilities
- 2 Wastewater Treatment Plants
- 2100 miles of water mains
- 1400 miles of sewer mains

Scottsdale Water's Vision



AWARD-WINNING UTILITY

- 2022: Excellence in Action Award for Scottsdale's Reclaimed Water Distribution System; WaterReuse Association
- 2021/2016: Utility of the Future Today; EPA, DOE, and national consortium of water organization
- 2019: Sustainability Champion, Arizona Forward Environmental Excellence Crescordia Award
- 2018: Sustainable Utility Management Award; American Association of Metropolitan Water Agencies
- 2017: Public Education Program of the Year (Scottsdale Water Citizen Academy); WaterReuse Association



ARIZONA FORWARD
ENVIRONMENTAL EXCELLENCE
CRESCORDIA AWARD
2019

History - Arizona's First Direct Potable Reuse Facility

- Prior to 2018, state regulatory prohibition against direct human consumption of recycled water.
- January 1, 2018 – State DPR Prohibition Lifted
- July 2018 – ADEQ Asks for Projects
- September 2018 – ADEQ and Scottsdale Water informally discuss possibilities
- February 7, 2019 – Scottsdale Water Submits Permit Application
- September 9, 2019 – DPR permit issued

20
Years



Scottsdale Water Campus

Why Advanced Purified Recycled Water For Scottsdale?

THE GOAL:

Participate in the development of Advanced Purified Recycled Water (APRW) initiatives, providing technical expertise and guidance.

Foster community trust and acceptance by educating the public on the safety and benefits of recycled water.

Demonstrate Scottsdale Water's Technology To The Public

Prepare For Large Scale APRW In 2027



Scottsdale's History with Recycled Water

Gainey Ranch Water Reclamation Facility - 1981

Water Campus – October 1998

Water Reclamations Plant with an Advanced Water Treatment Facility which includes

Ozone/Ultrafiltration/Reverse Osmosis/UV
Photolysis

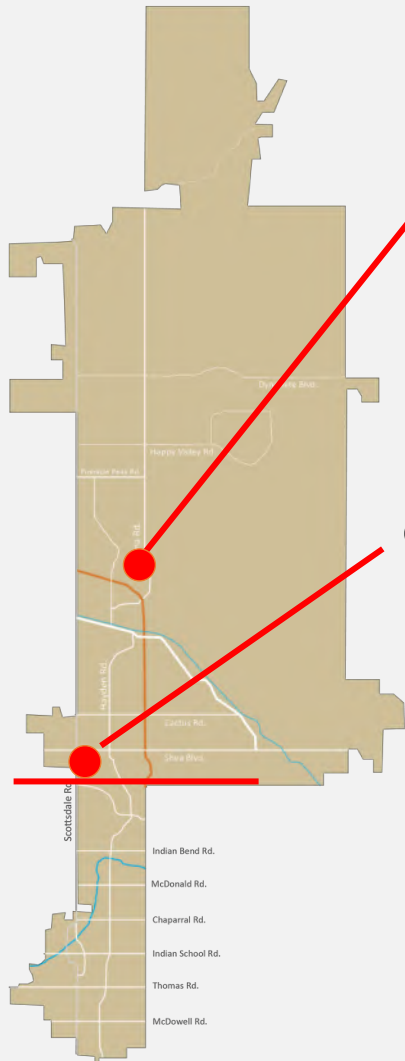
Two end uses: aquifer recharge, golf course irrigation

Water Campus – September 2019

First Facility Permit for Direct Potable Reuse
in Arizona



Water Reclamation Facilities



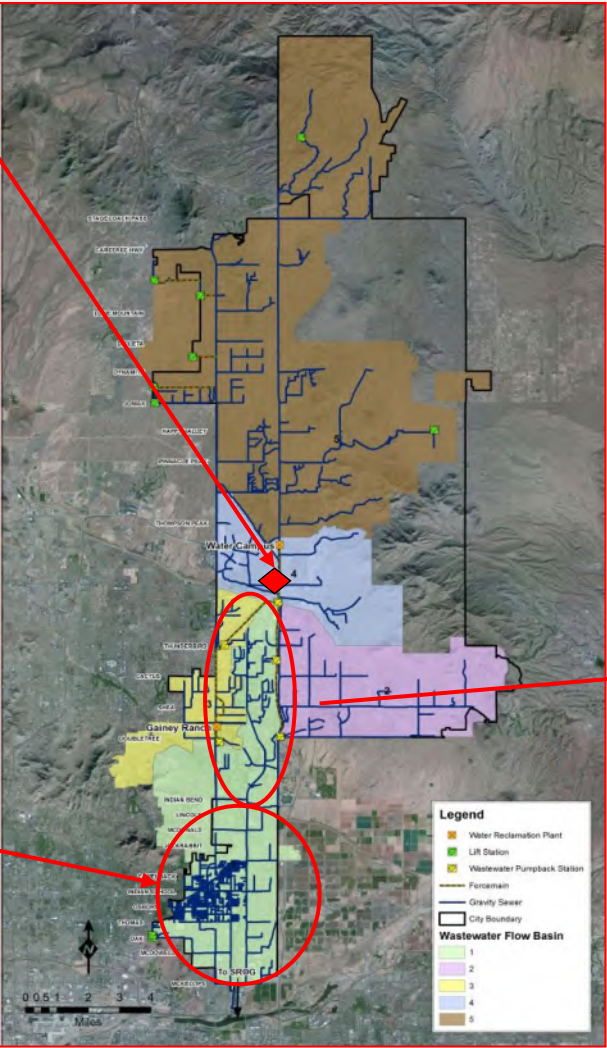
Water Campus October 1998
Advanced Water Treatment
Plant September 2019

Gainey Ranch WRP 1981

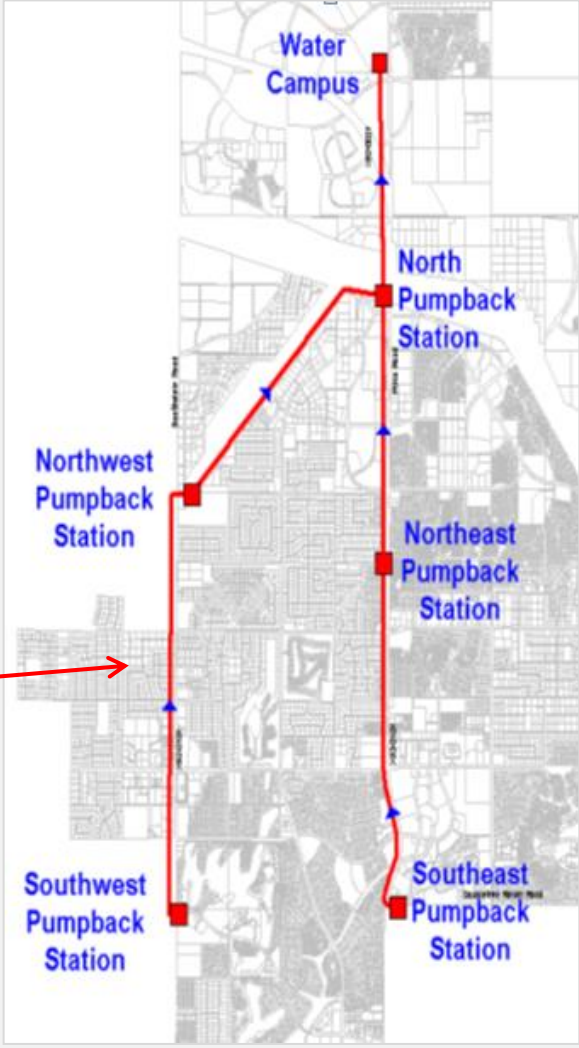


Pumpback System

Water Campus



SROG



Roughly 15 Miles Of Force Main
5 Large Pump Stations
Largest NPB
7 Pumps – 500 Hp
Design Capacity 30 MGD
Sub-regional Operating Group (SROG)

Lift Stations



Water Reclamation Services



Gary Tuning
Wastewater Treatment Manager



Gainey Ranch Water Reclamation Plant



1.7 MGD - Class A+
Effluent

O&M covered by
effluent sales

Meeting irrigation
needs Since '84

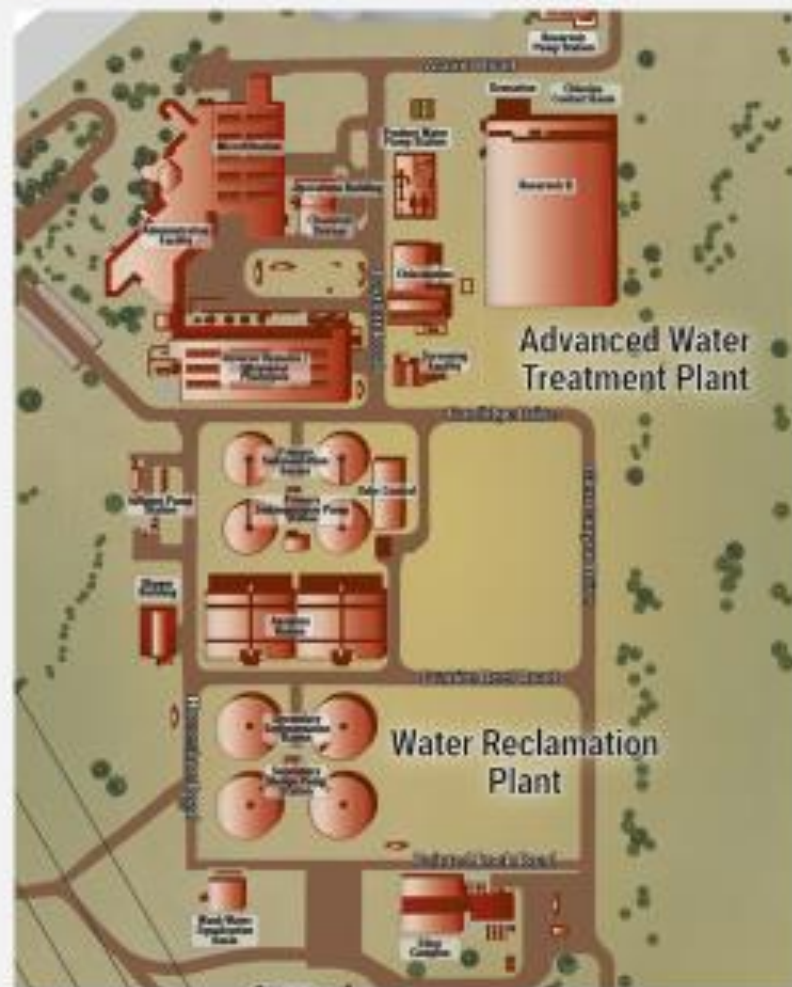


Water Reclamation Plant

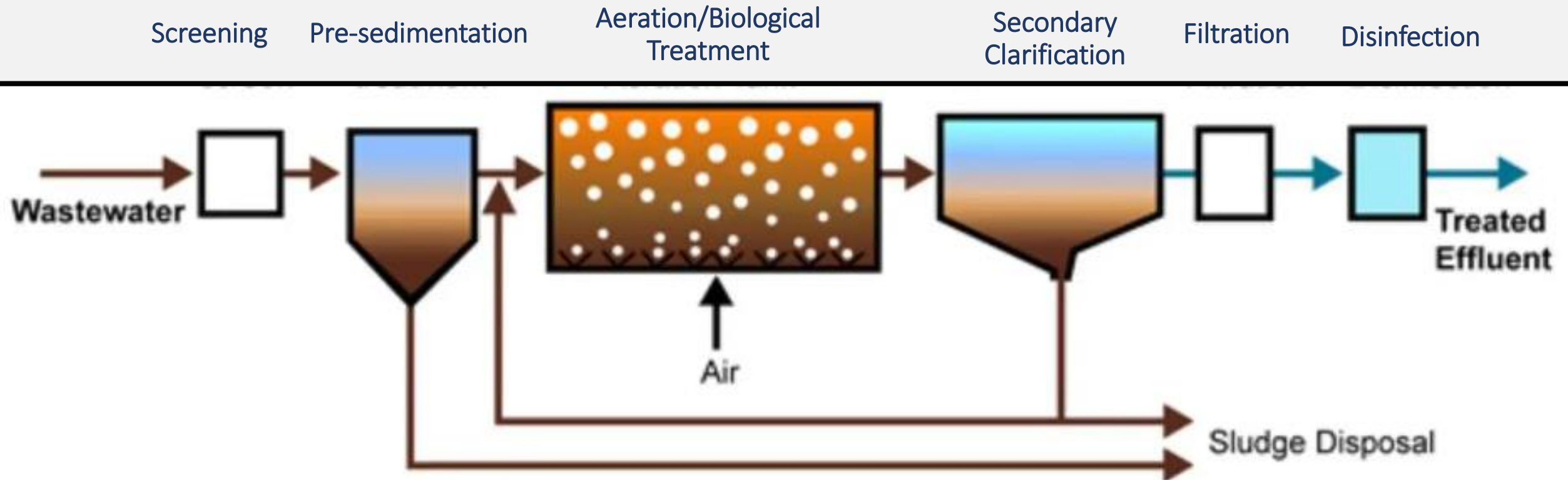
Currently @ 24 MGD

Conventional treatment processes

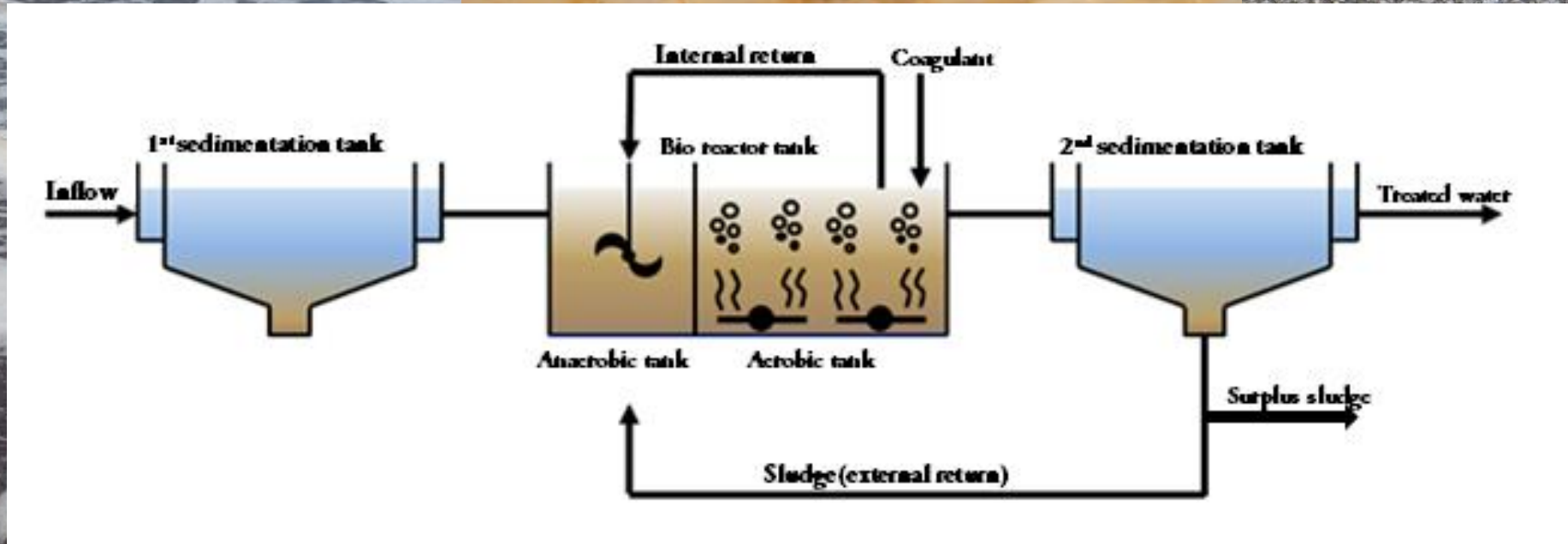
- Preliminary
- Primary
- Biological / Secondary
- Tertiary Filtration
- Disinfection – chloramination
- Odor Control
- 8 MG storage reservoir
- No solids handling



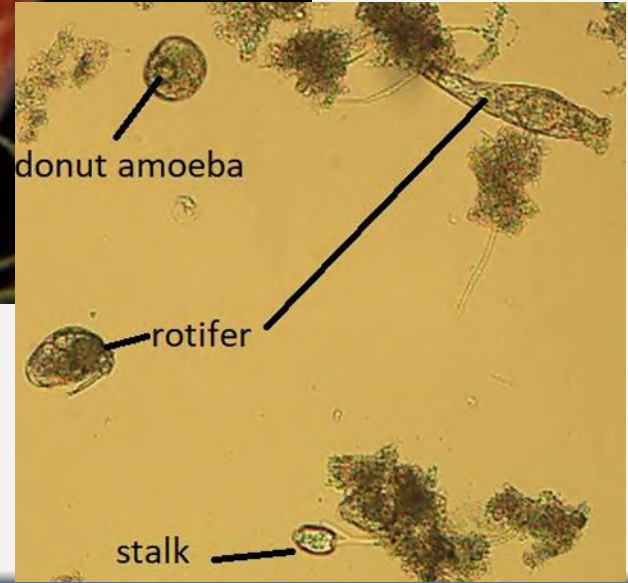
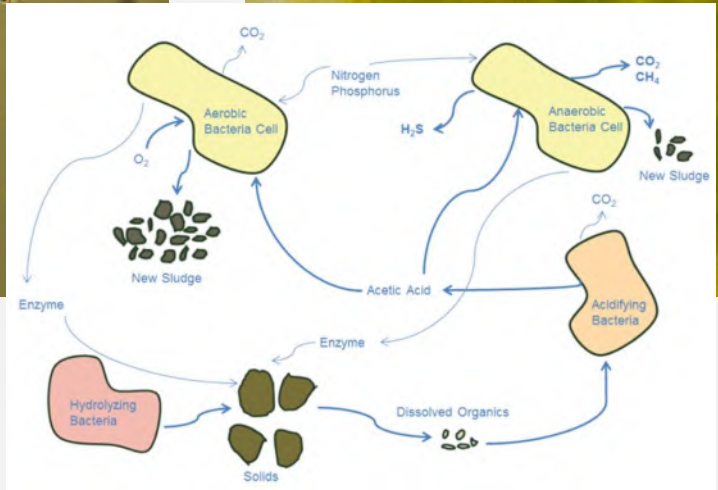
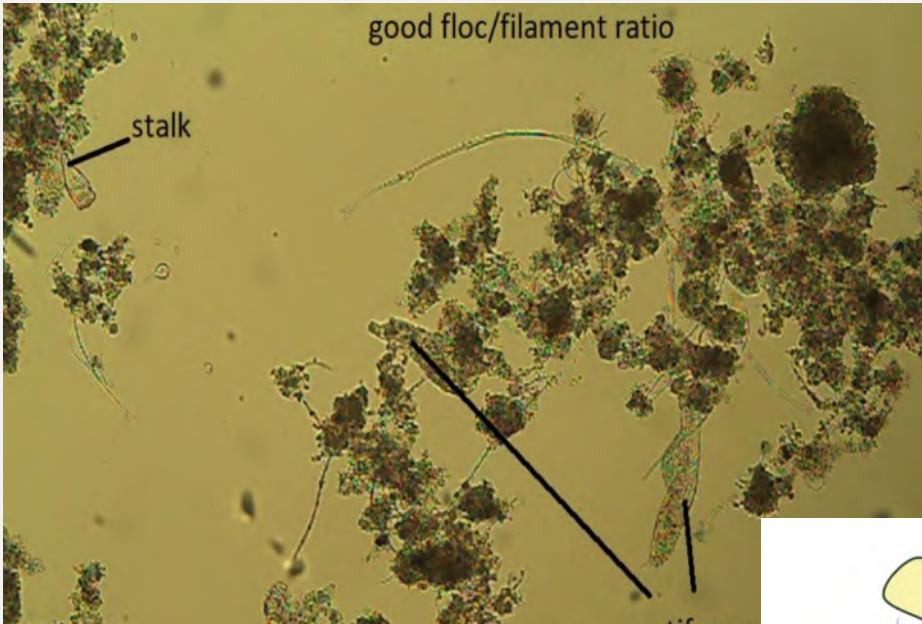
Conventional Treatment



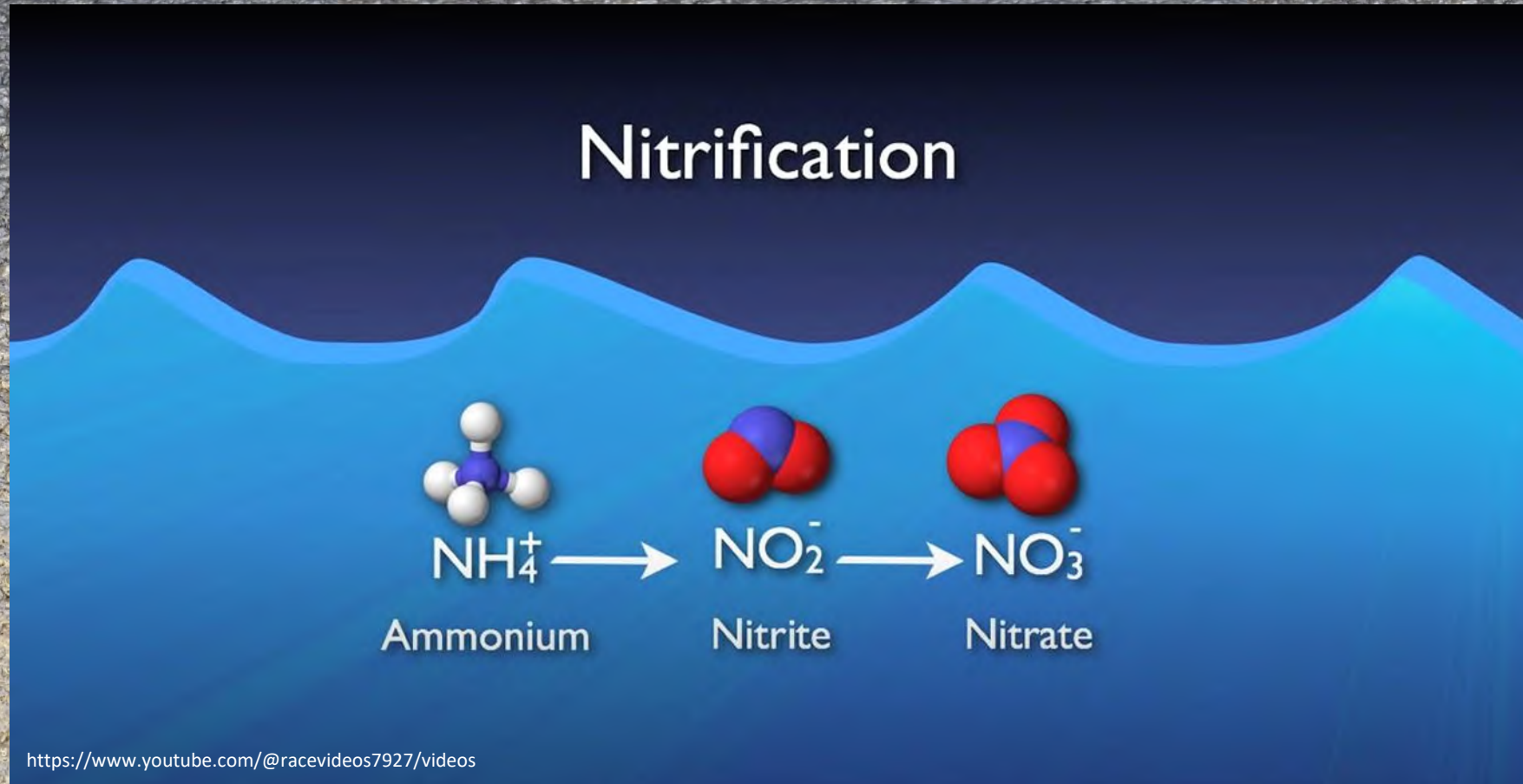
Biological Treatment



Activated Sludge

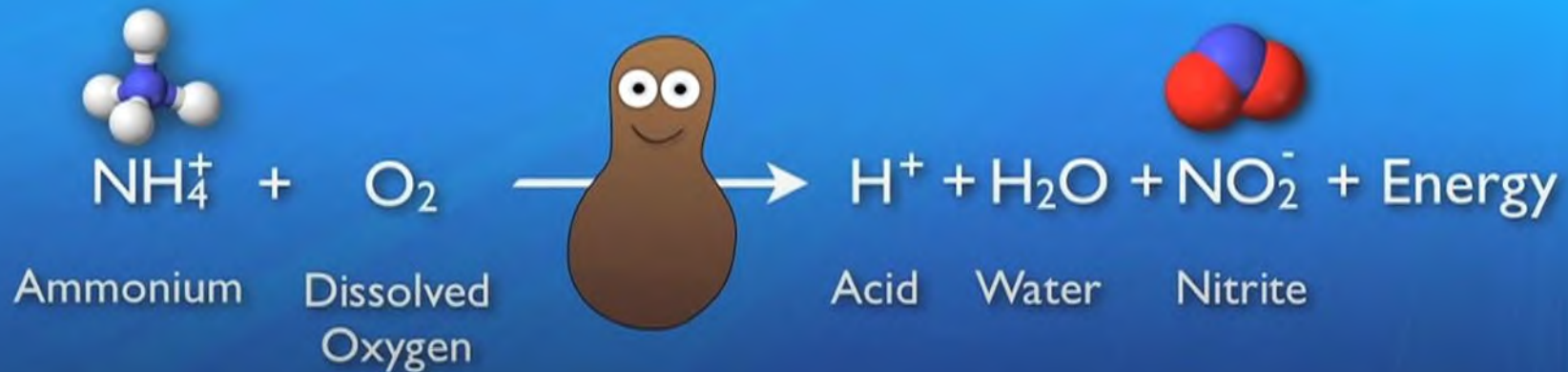


Activated Sludge



Activated Sludge

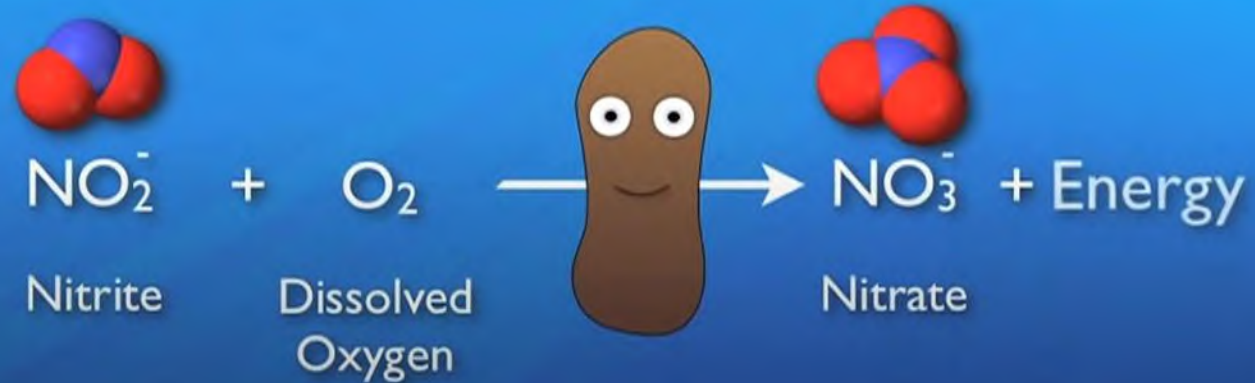
Nitrification Part I



<https://www.youtube.com/@racevideos7927/videos>

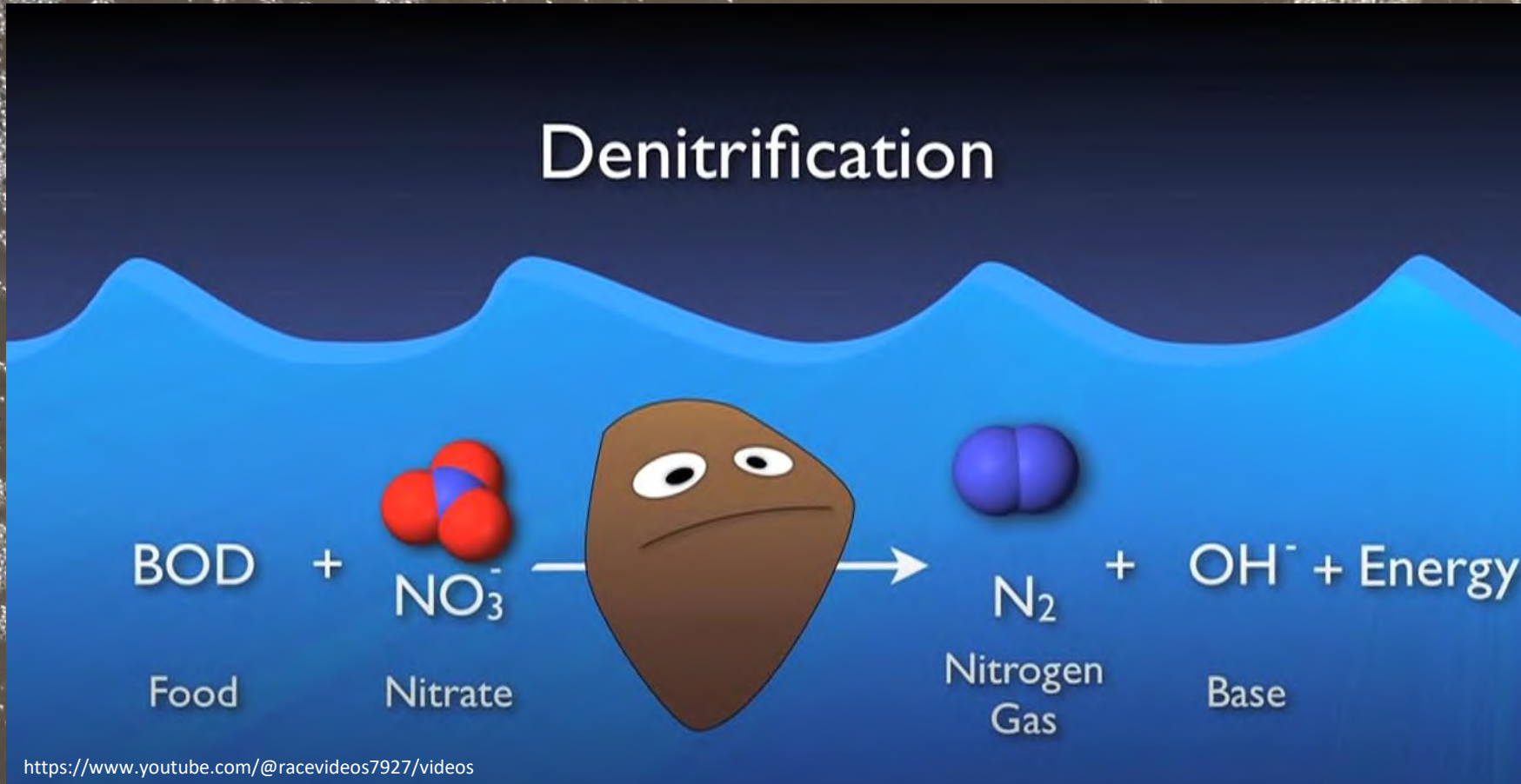
Activated Sludge

Nitrification Part 2



<https://www.youtube.com/@racevideos7927/videos>

Activated Sludge



Advanced Water Treatment Plant

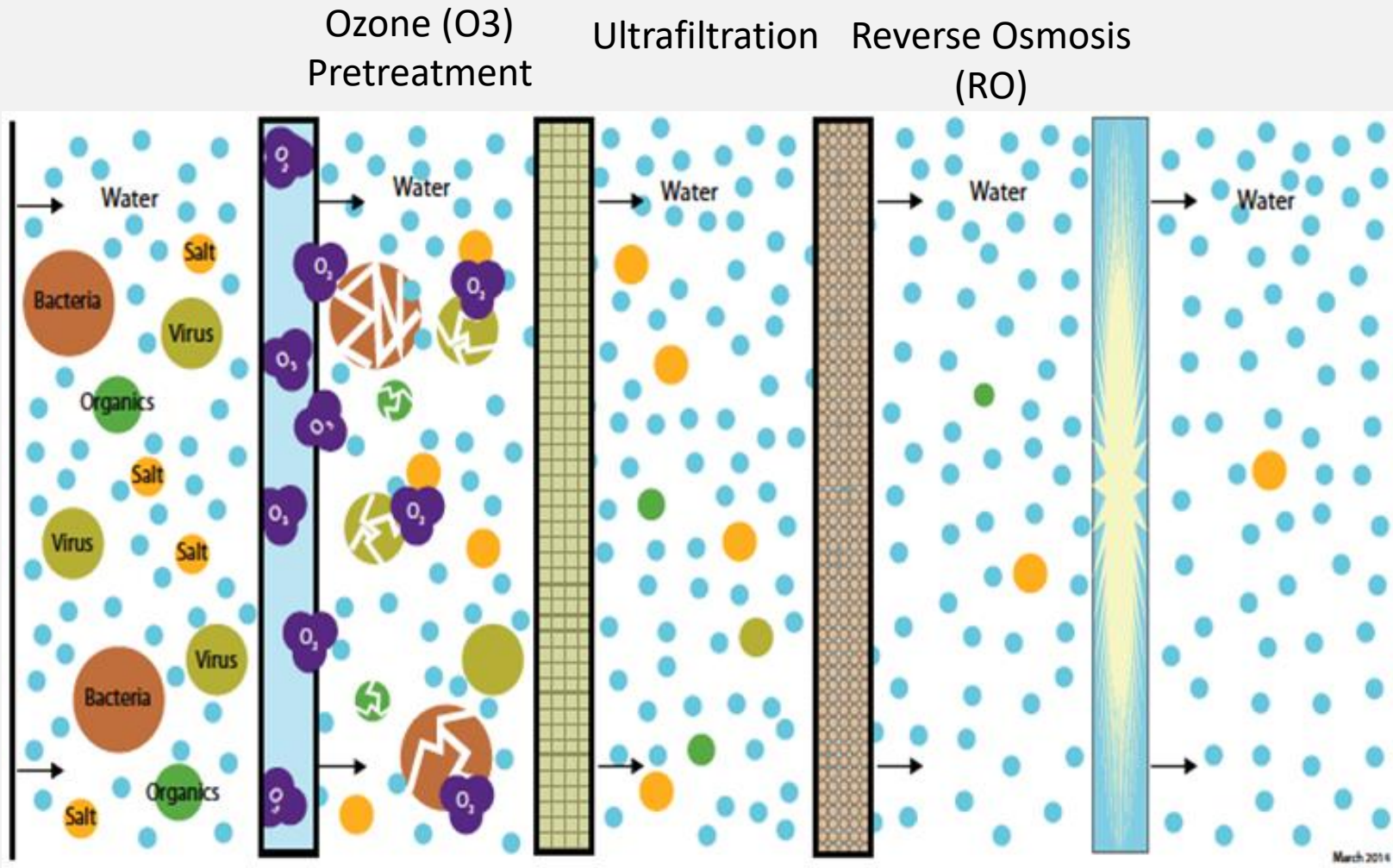
20 MGD Capacity

- Ozonation
- Ultrafiltration
- Reverse osmosis
- Ultraviolet photolysis disinfection



Advanced Purified Recycled Water (APRW)

Water Source
Treated Reclamation
Plant Effluent



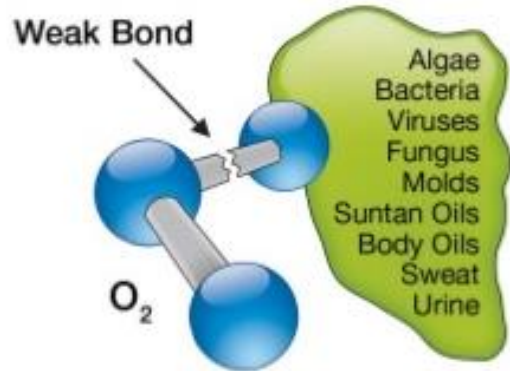
Ultraviolet (UV)
Disinfection

Ozonation

Ozone Creation

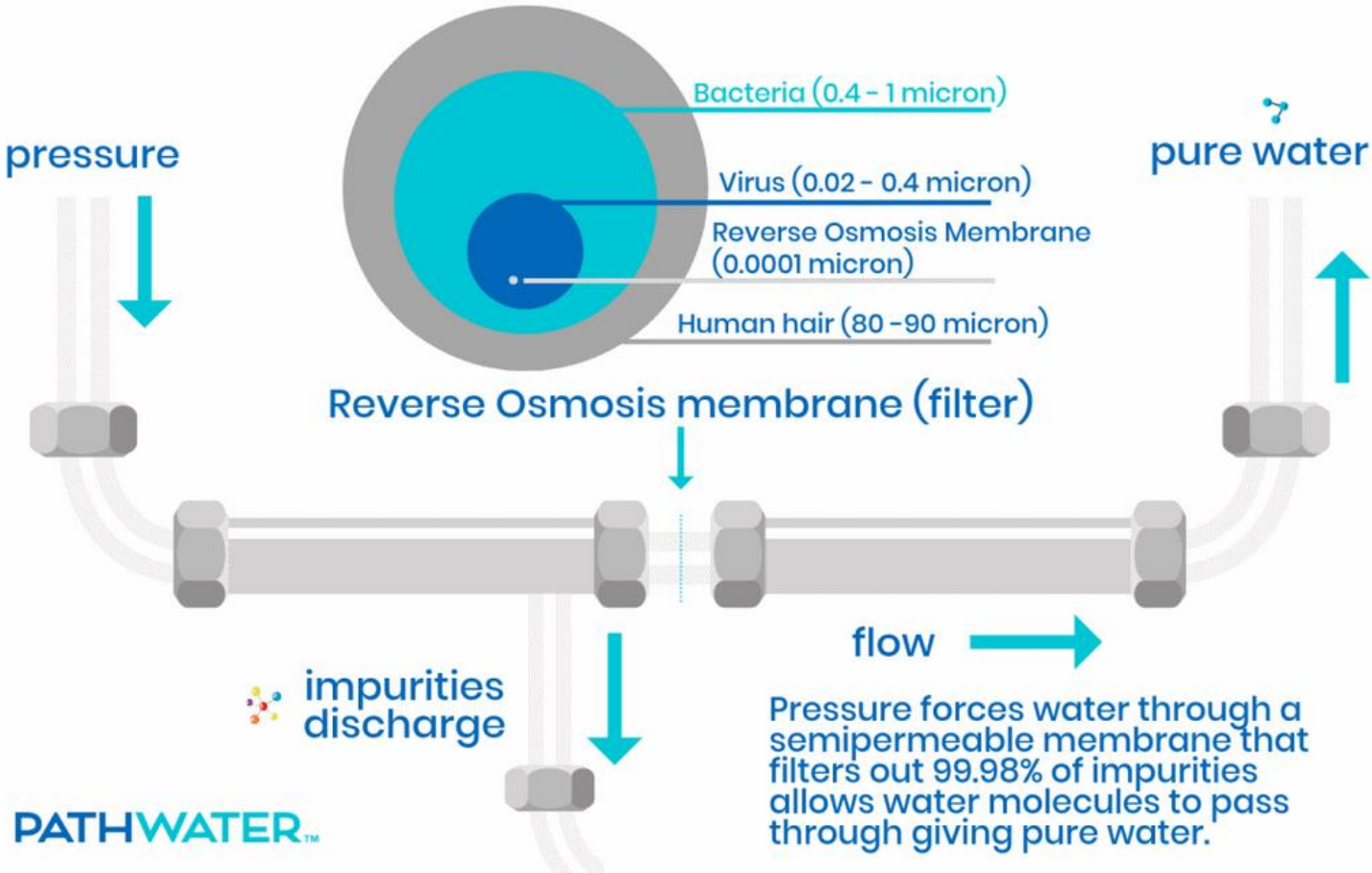


Oxidizable Substance



Reverse Osmosis

WHAT IS REVERSE OSMOSIS?

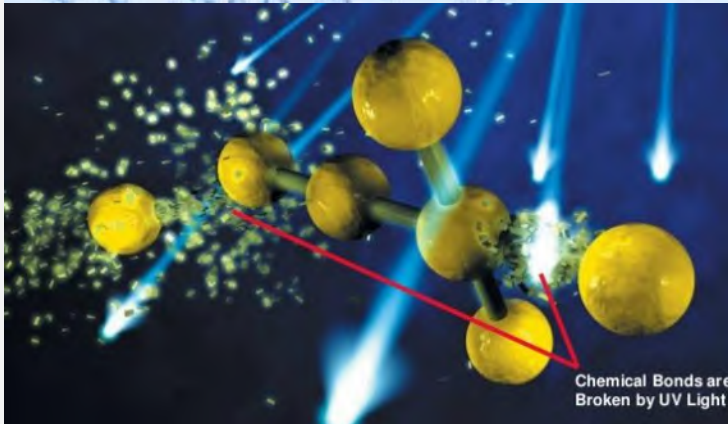


Drinkpathwater.com

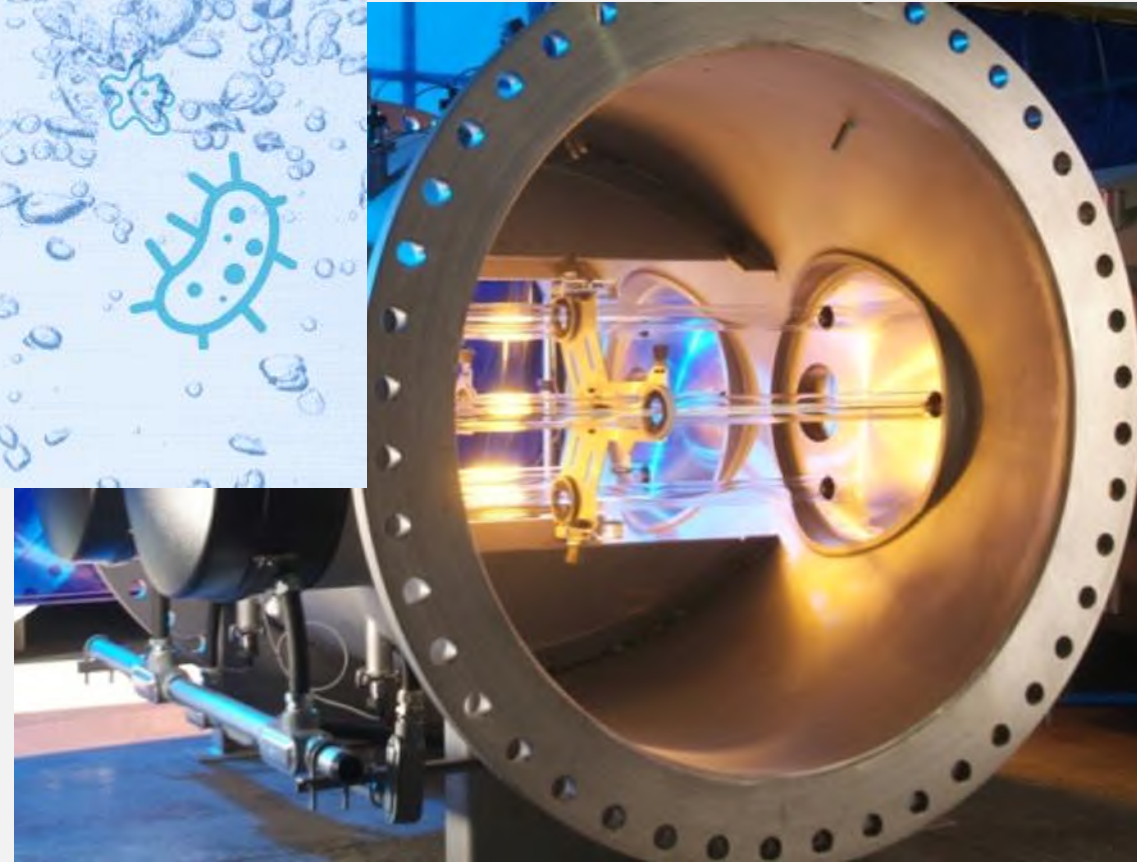
Ultraviolet Photolysis



www.aquasana.com



Chemical Bonds are Broken by UV Light



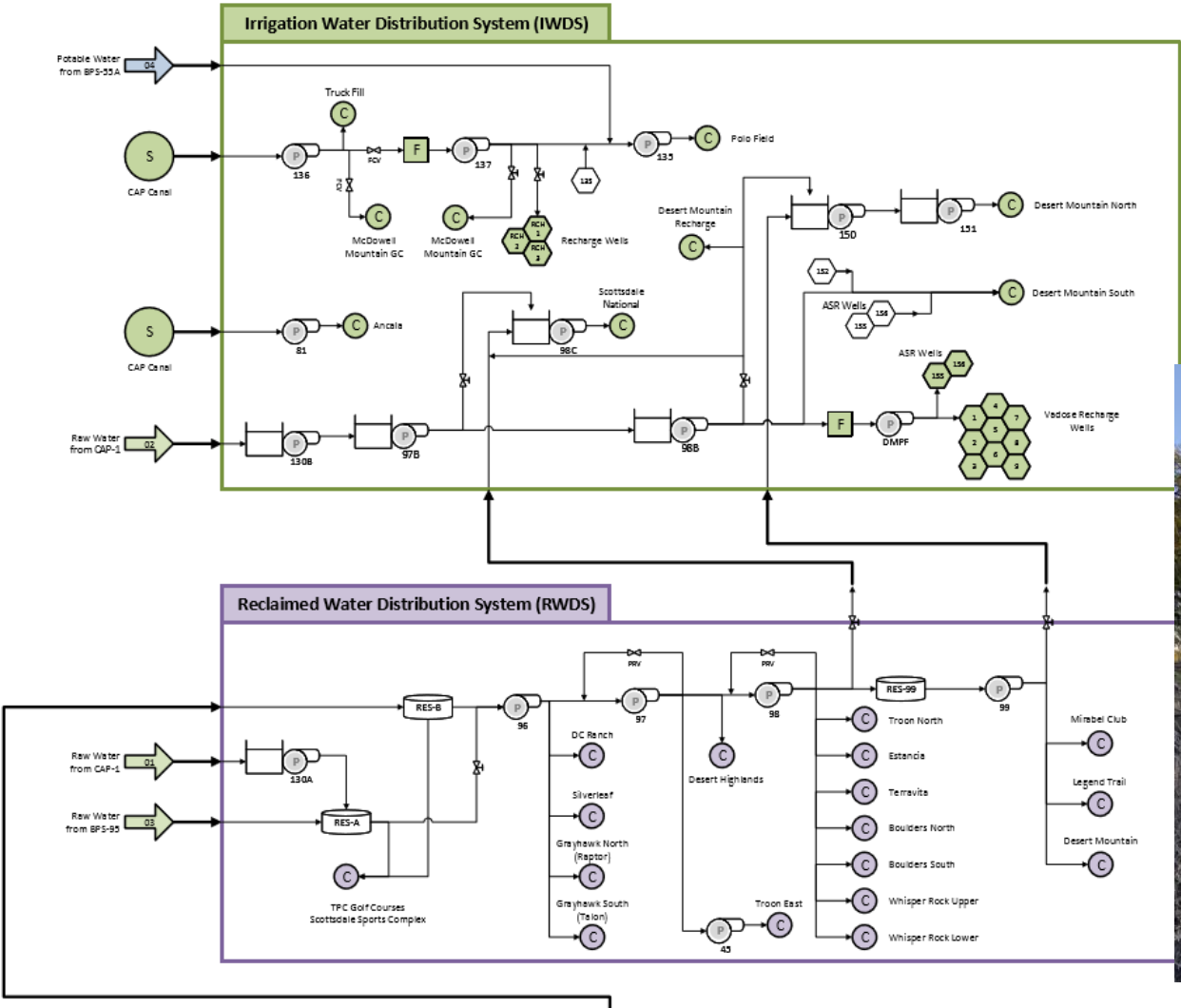
Direct Potable Reuse Permit

Water Campus Advanced Water Treatment Facility



- Purified water must meet drinking water quality standards
- Operational monitoring
- Quarterly Self Monitoring Reports submitted to ADEQ

RWDS/IWDS Distribution



Golf Courses Entitled to allotments agreed upon in the original service agreements

