

Reclaimed Water Training Program



ACWWA
Arapahoe County Water
and Wastewater Authority

Topics to be Discussed

- Reclaimed Water Overview
- Regulation No. 84 Overview
- Regulation No. 84 Violation Procedures
- Potential Health Hazards of Reclaimed Water
- Responsibilities of a Reclaimed Water Legal Contact
- Additional Resource Information
- Questions

Reclaimed Water Overview



Arapahoe County Water
and Wastewater Authority

What is Reclaimed Water?

- Reclaimed water is domestic wastewater that has received secondary treatment by a domestic wastewater treatment works (centralized system or a localized system) and such additional treatment as to enable the wastewater to meet the standards for approved uses.
 - ACWWA has a centralized treatment system.
 - Centralized reclaimed water treatment system or Centralized System means a domestic wastewater treatment works that receives domestic wastewater from a diverse service area for treatment to produce reclaimed water for beneficial use where the service area has meaningful inputs from industrial or other diluting sources.

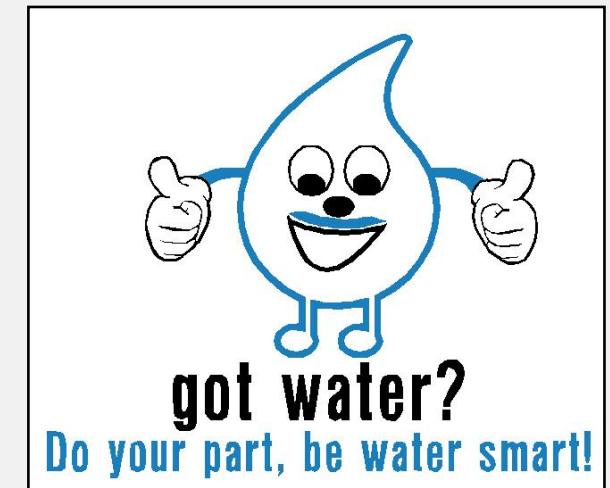
Do NOT Drink Reclaimed Water

- Reclaimed water is **NOT** intended for human consumption!!!
 - (e.g. drinking, cooking, bathing, etc.)



Why Use Reclaimed Water?

- Conserve potable water resources
- More reliable and available during times of drought
- Reduces amount of effluent discharged into natural waters
- Delays requirement to develop new water supplies

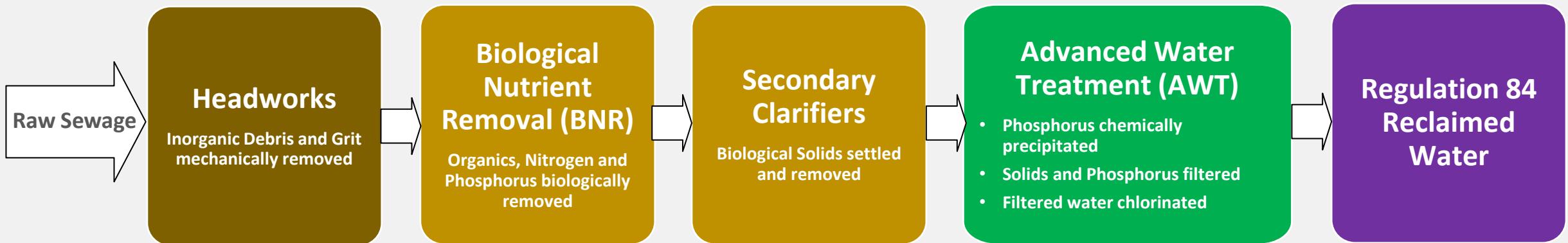


Lone Tree Creek Water Reuse Facility

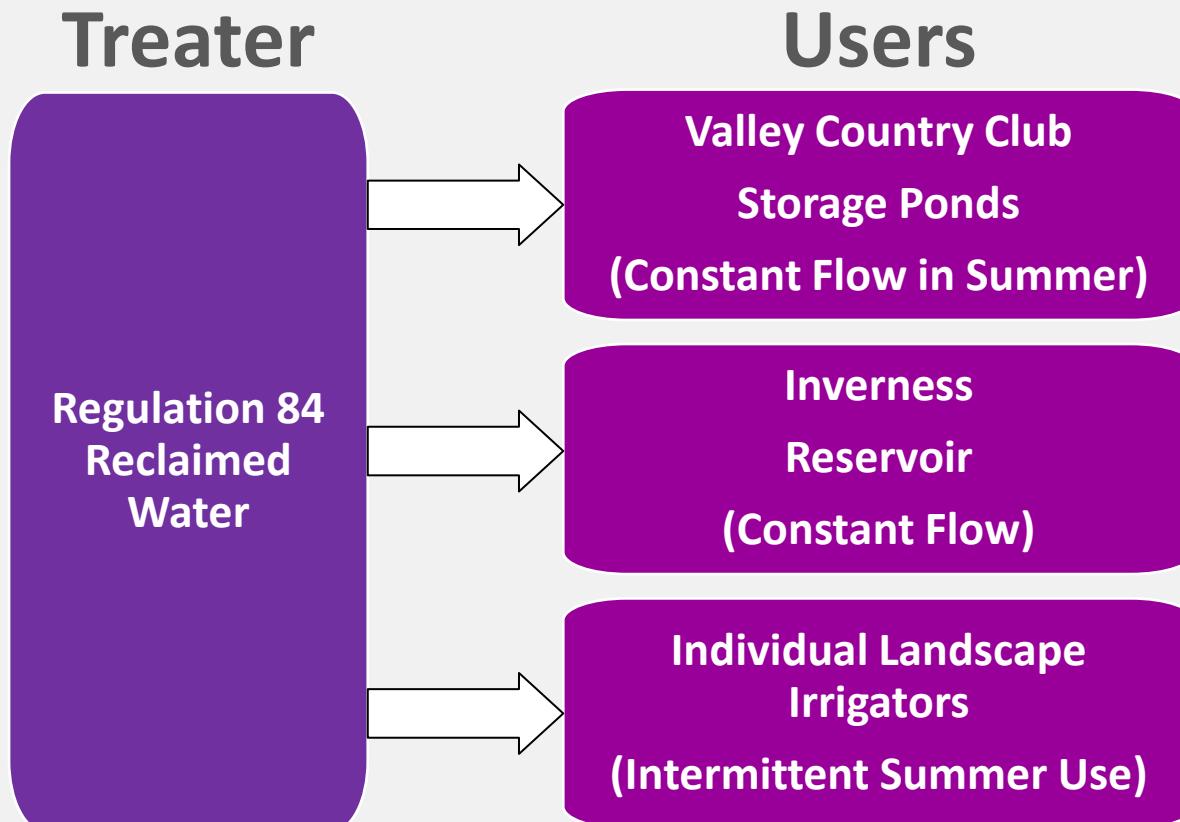
- ACWWA built a state-of-the-art water reuse facility to treat wastewater
- Allows reclaimed wastewater to be used for outdoor irrigation
- ACWWA has a “dual pipe” distribution system to separate potable and reclaimed water



Lone Tree Creek Water Reuse Facility Treatment Process



Reclaimed Water Distribution



Regulation No. 84

Overview



Regulation No. 84 Purpose

“The purpose of this regulation is to establish requirements, prohibitions, standards and concentration limits for the use of reclaimed water to protect public health and environment while encouraging the use of reclaimed water.”

Regulation No. 84 Responsibilities

Colorado Department Public Health & Environment (CDPHE)
Responsible for Oversight, Permitting, Enforcement



Arapahoe County Water & Wastewater Authority (ACWWA)
Responsible for Reporting and Compliance



Reclaimed Water Users/Customers
Responsible for Compliance

Reclaimed Water Categories and Standards

- There are 3 reclaimed water categories: Category 1 (lowest standards), Category 2, and Category 3 (highest standards).
- ACWWA qualifies for Category 2 Reclaimed Water
- **Category 2 Treatment** consists of secondary treatment with filtration and disinfection
- **Category 2 Approved Uses:** industrial, landscape irrigation, commercial, fire protection, agricultural irrigation. Please see Reg. 84 for specific uses.

Reclaimed Water Categories and Standards

▪ Standards for Category 2 Reclaimed Water

- E. Coli
 - 126/100 ml monthly geometric mean
 - 235/100 ml single sample maximum
- Turbidity (the cloudiness or haziness of a fluid)
 - Not to exceed 3 NTU as a monthly average
 - Not to exceed 5 NTU in more than 5% of during any calendar month

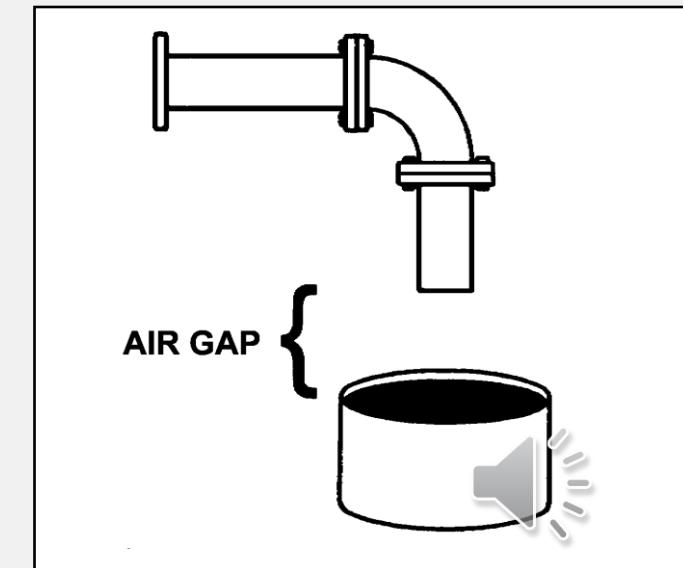
Conditions for Use of Reclaimed Water

- Provide notification to inform the public reclaimed water is being used and is not intended for consumption
 - Posted signs, stickers, etc.
- A backflow prevention device is provided at all potable water service connections to reclaimed water use areas



Conditions for Use of Reclaimed Water

- Operation of reclaimed water irrigation system performed only by personnel authorized by the user with proper training
- Supplementing reclaimed domestic wastewater with potable water is not allowed except through an approved reduced pressure principle backflow prevention device or an air gap



Conditions for Use of Reclaimed Water

- No impoundment or irrigation within 100 feet of any well used for domestic supply unless
 - Impoundment is lined
 - Other precautions approved by division
- Workers must be informed of the potential health hazards and must be educated regarding proper hygienic procedures



Conditions for Use of Reclaimed Water

- Not sprayed on areas not designated for application
- All new, modified, or replaced piping, valves, valve boxes, sprinkler heads, or other appurtenances should be colored purple and marked to differentiate from potable water system



Conditions for Use of Reclaimed Water

- Direct and windblown spray will be confined to authorized irrigation areas only
- Application rates will be controlled to minimize any ponding and runoff



What is Agronomic Rate?

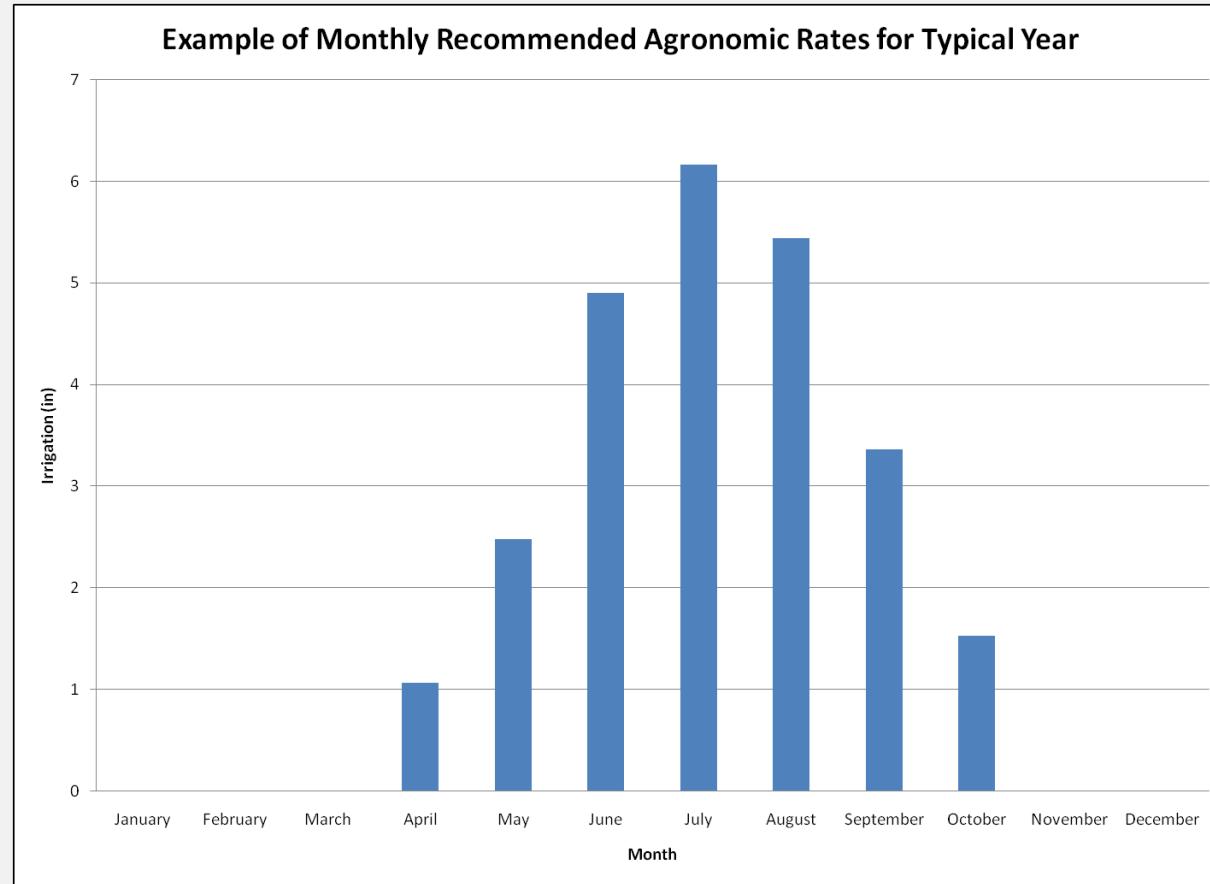
- **Agronomic Rate** is the rate of application of reclaimed water and associated nutrients necessary to satisfy the nutritional and watering requirements of the vegetation at a site, while strictly minimizing the amount of nutrients that run off to surface waters or which pass below the root zone of the plants

Agronomic Rates

- User Application and Site Management Plan (UASMP) requires an agronomic rate analysis
- CDPHE provides methods to calculate agronomic rate
- A **typical** year of irrigation application for turf grass in Centennial, CO area is **25-30 inches**.
- ACWWA's 2022 average total inorganic nitrogen (TIN) was 5.27 mg/L



Agronomic Rates



Compliance Inspections

- ACWWA, CDPHE or designated representative will conduct inspections to determine user compliance at any time
- All of the conditions for the use of reclaimed water stated in the User Plan to Comply (UPC) or User Application and Site Management Plan (UASMP) must be met
 - Proper signage
 - Evidence of educating those who come in contact with reclaimed water
 - Proper agronomic application



Regulation No. 84

Violation Procedures



Arapahoe County Water
and Wastewater Authority

Regulation No. 84 Violation Procedure

■ Minor Violation

- Overspray/broken sprinkler heads
- Ponding of water/runoff
- Improper signage
- Irrigation above agronomic rate
- Operation by unauthorized/untrained personnel



Regulation No. 84 Violation Procedure

▪ Minor Violation

- If a violation by a user is found, ACWWA has 60 days to work with the user to resolve the violation
- If the violation is resolved, no separate notice to the division is required except the violation is reported in the treater's annual report
- If violation continues after 60 days, ACWWA will report the violation to the Division within 5 business days

Regulation No. 84 **Violation** Procedure

■ Major Violation

- Discharges to surface water (Over 10,000 gallons)
- Cross connections without a backflow prevention device
- Exceedance of the reclaimed water standards for E. coli
- Other violations posing an immediate threat to public health or the environment

Regulation No. 84 **Violation Procedure**

- **If a user observes a major violation**

- During normal ACWWA Business Hours (M-F 8:00 AM – 4:30 PM)
 - Contact ACWWA Regulation 84 Coordinator
 - Danae Walker 303-790-4830 Ext. 312
- After normal ACWWA Business Hours
 - Contact CDPHE 24-Hour Spill Hotline
 - CDPHE 24-Hour Spill Hotline (1-877-518-5608)

Regulation No. 84 Violation Procedure

■ Treater (ACWWA) Violation

- Report any **minor violation** of the reclaimed domestic wastewater regulation at their treatment and distribution facilities in writing to the division within **30 days** of becoming aware of the violation
- Report any **major violations** to the division within **24 hours** of becoming aware of the violation and followed up by a written report within **5 business days**.
- For a major violation such as the exceedance of reclaimed domestic wastewater standards for E. coli
 - ACWWA stops delivery, notifies users, & retests for E. coli

Regulation No. 84 Annual Report

- **ACWWA is required to provide an annual report to the CDPHE**
 - Information demonstrating **ACWWA's** compliance with reclaimed domestic wastewater standards
 - Information demonstrating **User's** compliance
 - Confirmation that ACWWA conducted inspections
 - Any violation by ACWWA or User
 - Amount of reclaimed water delivered to each site

Potential Health Hazards of Reclaimed Water



Potential Health Hazards

- Reclaimed water is not subject to the same level of treatment as drinking water
 - Reclaimed water is NOT intended for consumption
- May contain infectious agents such as bacteria, viruses, and protozoa
- Gastroenteritis (stomach flu)
 - Nausea, Vomiting, Diarrhea, Abdominal pain



Proper Hygienic Procedures

- **DO NOT DRINK** the reclaimed water
- **WASH HANDS** with soap and water after working with reclaimed water
 - If soap and water are not available, use hand sanitizer containing at least 60% alcohol
 - Hand sanitizer is not as effective as hand washing with soap and potable water
- **DO NOT** consume food while working with reclaimed water
- Cover cuts and sores with clean, waterproof dressing and change frequently
- Flush out eyes immediately if reclaimed water is splashed in the eyes
- Report all skin rashes and illnesses such as nausea, vomiting, or diarrhea to your supervisor immediately



Responsibilities of a Reclaimed Water Legal Contact



Legal Contact Responsibilities

- Ensuring the site is compliant with all applicable requirements in Regulation No. 84
- Certifying the site's compliance with Regulation No. 84 by submitting an annual certification statement to ACWWA
- Ensure that the user application (UPC/UASMP) and user permit (NOA) is kept onsite in an easily accessible location
- Notify ACWWA if there is any change to the user application (UPC or UASMP)
- Notify ACWWA's regulation 84 coordinator if legal contact or facility/site contact has changed
- Minimize public contact with reclaimed water
- Provide signage indicating use of reclaimed water



Legal Contact Responsibilities

- Apply reclaimed water at agronomic rates
- Ensure the system is properly maintained and repaired
- Notify employees of potential health hazards
- Ensure all reclaimed water users/operators are trained via ACWWA's Reclaimed Water Training Program and an up-to-date training log is kept onsite
 - Even if you use a third-party contractor, you will still need current training logs available
- Report to ACWWA if a **major violation** is observed during normal business hours (8:00 AM – 4:30 PM)
 - Danae Walker - 303-790-4830 Ext. 312
- Report to CDPHE if a **major violation** is observed outside of normal business hours
 - CDPHE 24-Hour Spill Hotline (1-877-518-5608)



Additional Information

- ACWWA Recycled Water Webpage
 - <https://www.acwwa.com/2171/Regulation-84>
- ACWWA Rules & Regulations
 - <https://acwwa.com/DocumentCenter/View/168/Rules-and-Regulations-PDF>
 - Section 2.1.43 – Definition of Reclaimed Water
 - Section 2.1.44 – Definition of Regulation No. 84
 - Section 4.7 – Non-Potable Water and/or Reclaimed Water- Determination to Use
 - Section 5.9.4 – Irrigation Using Reclaimed Water – Additional Regulation
 - Section 5.9.5 – Irrigation Using Reclaimed Water – Customer Responsibilities
- U.S. Environmental Protection Agency
 - <https://www.epa.gov/waterreuse>
- Colorado Department of Public Health and Environment
 - <https://cdphe.colorado.gov/water-quality-reclaimed-water-reuse-permits>
- Rocky Mountain Water Environment Association
 - <https://www.rmwea.org/reuse.php>

Contact Information

- **ACWWA Regulation 84 Coordinator**
 - Danae Walker – 303-790-4830 Ext. 312
- **Colorado Department of Public Health and Environment**
 - Liz Lemonds – 303-692-3515
 - Brandi Honeycutt - 303-692-6357
- **CDPHE 24-Hour Spill Hotline**
 - 1-877-518-5608

Questions?



Please email any questions to ACWWA's Regulation No. 84
Coordinator at dwalker@acwwa.com.