

**84.27 STATEMENT OF BASIS SPECIFIC STATUTORY AUTHORITY AND PURPOSE:
OCTOBER 2019 RULEMAKING; EFFECTIVE XXXX.**

The provisions of sections 25-8-202, 25-8-205(1), and 25-8-208.8, C.R.S., provide the specific statutory authority for adoption of amendments to this regulation. The Commission also adopted, in compliance with section 24-4-203(4), C.R.S., the following statement of basis and purpose.

Basis and Purpose

During the 2018 Colorado legislative session, bills passed and became law regarding the use of reclaimed water for edible crop irrigation (House Bill-1093) and industrial hemp (Senate Bill 18-038).

House Bill 18-1093 establishes water quality standards for irrigation of food crops. House Bill-1093 also requires that *E. coli* standards are not to exceed the *E. coli* standards in the Food Safety Modernization Act (“FSMA”). It became effective on August 8, 2018. It states that “On or before December 31, 2019, the Commission may promulgate rules in accordance with the bills.”

Senate Bill 18-038 establishes water quality standards for Categories 1, 2 and 3 for irrigation of industrial hemp. It became effective on August 8, 2018. It states that “On or before December 31, 2019, the Commission may promulgate rules in accordance with the bills.”

To prepare for this rulemaking, the Division conducted a robust stakeholder process from October 2018 through May 2019, including 13 public stakeholder/workgroup meetings.

<u>Dates</u>	<u>Hours</u>	<u>Work Group Meetings</u>
10/17/2018	2	All Stakeholders
11/27/2018	2	All Stakeholders
12/18/2018	2	All Stakeholders
1/10/2019	2	Hemp
1/22/2019	2	Non-Commercial Food Crop Growing Operation
1/23/2019	2	Commercial Growing Food Crop Operation
2/21/2019	2	Non-Commercial Growing Food Crop Operation
2/25/2019	2	Hemp
3/6/2019	2	Commercial Growing Food Crop Operation
3/8/2019	2	Non-Commercial Growing Food Crop Operation
4/25/2019	2	All Stakeholders
5/3/2019	3	All Stakeholders
5/21/2019	2	All Stakeholders

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During those meetings, the Division conducted outreach and responded to stakeholders to address ideas and concerns from stakeholders. The Division revised its draft language several times in response to stakeholder input.

The Commission now adds four new categories of approved uses: Irrigation of Commercial Food Crop Growing Operation; Non-Commercial Food Crop Growing Operation; Resident Controlled Food Crop Irrigation; Non-Edible Hemp Irrigation; and Edible Hemp Irrigation, along with BMPs for each use, new inspection and compliance protocols for these uses, new NOA regulations, and new and revised definitions.

I. Definitions

The Commission modified definitions and adopted new definitions in Regulation 84. The following definitions were modified to increase clarity or to achieve consistency with other revisions: “Agricultural Irrigation”, “Resident-Controlled Landscape Irrigation”, “Treater” and “User.” The definition for “Agricultural Irrigation” was amended to include edible crops and hemp. The definition of “Resident-Controlled Landscape Irrigation” was changed to be more specific about what a residence is, and to match the new definition of Resident-Controlled Food Crop Irrigation”. The definition of “Treater” was amended to include inspectors that work for Treaters to clarify that inspection requirements by the Treater could be completed by an employee of the Legally Responsible Person on the NOA. The definition of “User” was revised to clarify that included both legally responsible persons and entities.

The following definitions were added: “Commercial Food Crop Growing Operation”, “Covered Produce”, “Cultivator”, “Edible Hemp”, “Flood and Sheet Irrigation”, “Industrial Hemp”, “Management User”, “Non-Commercial Food Crop Growing Operation”, “Non-Edible Hemp”, “Resident-Controlled Food Crop Irrigation”, “Site”, “Site Manager” and “Visitor”. The new definitions were added to reflect references for the new requirements and approved agricultural uses in Regulation 84.

II. Edible Crops

The Commission adopted separate definitions, treatment and best management practice requirements for Commercial Food Crop Growing Operations (e.g. large farms) and Non-Commercial Food Crop Growing Operations (e.g. community gardens, community supported agriculture, etc.). The Commission has relied upon the Food Safety Modernization Act, Produce Safety Rule (“PSR”) to differentiate between Commercial Food Crop Growing Operation and Non-Commercial Food Crop Growing Operations. Generally under the PSR, when a farm’s average annual monetary value of produce sold during the previous 3-year period is more than a certain inflation-adjusted number (currently \$26,999), the farm is covered by the PSR; if it is below that number, the farm is not regulated by the PSR.

The Commission adopted the same distinction to reduce uncertainty and overlapping requirements for farmers: if the PSR applies to a farm, it is a Commercial Food Crop Growing Operation under Regulation 84; if the PSR does not, it is a Non-Commercial Food Crop Growing Operation.

Note, however, the PSR's rules only apply to certain crops that the federal government has determined are most likely to be consumed raw. So, a farm that grows wheat may be above the profit threshold, covered by the PSR, and be a Commercial Food Crop Growing Operation under Regulation 84, but none of the PSR's rules would apply to that farm because it only grows wheat.

lii. Commercial Food Crop Growing Operations

Colorado House Bill 18-1093, the food crop reclaimed water law, directs the Commission to allow Categories 2 and 3 reclaimed water for the irrigation of Commercial Food Crop Growing Operations.

Under the authority of the Food Safety Modernization Act, the U.S. Food and Drug Administration has established regulations known as the Produce Safety Rule ("PSR"), which establish food and worker safety rules, including for water quality, for crops most likely to be eaten raw. Colorado House Bill 19-1114, which became law in 2019, authorizes the Colorado Commission of Agriculture to seek, accept and expend federal funds in order to implement the PSR in Colorado.

The Commission is requiring that Commercial Food Crop Growing Operations comply with the PSR, 21.C.F.R. Part 112 [84.9(A)(31)], along with a number of additional conditions in 84.9(A) relating to signage, education, and public access. Under the PSR, reclaimed water would be treated like other non-potable water sources for covered produce under the PSR. The PSR has specific requirements for personnel qualifications and training, health and hygiene, water quality requirements and testing, growing, harvesting, packing and holding activities, compliance and enforcement provisions and equipment, tools, buildings and sanitation requirements. Additionally, the PSR does not allow irrigation of sprouts with water at the quality of Categories 2 or 3.

The Commission has determined that implementation of the PSR for Commercial Food Crop Growing Operation, rather than adoption of a fully separate regime for reclaimed water at these farms, will create no greater risk to public health or the environment than previously authorized uses if implemented properly and fully along with implementation of the requirements in Regulation 84. The Commission acknowledges that some crops are not considered to be eaten raw and are not covered under the PSR. These crops will still be required to implement the additional conditions in 84.9(A) described below for Non-Commercial Food Crop Growing Operations.

The Colorado Department of Agriculture is planning on conducting a rulemaking in the coming years to incorporate the federal PSR into its state regulations. Once the Colorado Department of Agriculture adopts such regulations, the Division may request a written-only rulemaking to incorporate references to those new regulations into Regulation 84 to better align the state PSR with Regulation 84.

In addition to the PSR requirements, the Commission is requiring education and training for employees, cultivators and visitors for sites irrigating Commercial Food Crop Growing Operations with reclaimed water [(84.9(A)(13)]. Education and training include, at minimum, that non-potable reclaimed water is being used, it is not suitable for drinking, information about the best management practices and that hands and produce should be washed with potable water and/or water with no detectable generic *E. coli* after harvesting produce and prior to consuming produce [84.9(A)(17)].

The Commission required that harvesting and public access shall be prohibited in areas where irrigation is occurring resulting in wet soils and/or crops [84.9(A)(22)]. These requirements will reduce the potential for ingestion, inhalation and dermal exposure to pathogens and will protect Users, Cultivators, employees and Visitors against potential illness.

IV. Non-Commercial Food Crop Growing Operations

The Commission adopted additional requirements for Non-Commercial Food Crop Growing Operations because there will be not be oversight under the PSR at these sites, and the general public is more likely to be interacting with irrigation water, soils and edible crops at these sites.

The Commission has determined that the level of reclaimed water treatment approved on November 6, 2018 for the use of toilet and urinal flushing (84.8, referred to here as “Category 3 Plus”) will also be required for Non-Commercial Food Crop Growing Operations and Resident-Controlled Food Crop Irrigation. Category 3 Plus reclaimed water removes more pathogens and particulates than Categories 1, 2, and 3. In the 2018 toilet and urinal flushing rulemaking, the Commission adopted the more stringent Category 3 Plus treatment requirements to address the risk of a person accidentally ingesting up to 2 liters of the reclaimed water per year from cross-connections within buildings. The Category 3 Plus treatment requirements are based off of, yet not identical to, California Title 22 Disinfected Tertiary reclaimed water whereby the treatment requirements were established through a microbial risk assessment (“MRA”). California’s Disinfected Tertiary reclaimed water is considered appropriate to irrigate edible crops that are commercially processed and non-commercially processed.

Despite the additional treatment, the Commission recognizes that there is a risk of using Category 3 Plus reclaimed water for the use of edible crop irrigation. Wastewater streams contain varying pathogen loads, and an MRA has not been conducted in Colorado. In addition, the Commission is not requiring any kind of disinfection residual or disinfection flushing in the reclaimed water distribution system, meaning that the pathogen load in the water at a Non-Commercial Food Crop Growing Operation site has the potential to be higher than it was at the treatment plant’s point of compliance. Nor is the Commission generally requiring *E. coli* monitoring at those Non-Commercial Food Crop Growing Operation sites (with the exception of obtaining a site-specific NOA for schools where students interact with the garden, see below), meaning that the pathogen loading at those sites is likely to remain unknown. In sum, at this time, local data does not exist to accurately assess the risk of using Category 3 Plus reclaimed

water to irrigate Non-Commercial Food Crop Growing Operation. Therefore, the Commission has worked to mitigate against some of these unknown risks through the imposition of BMPs.

The Commission has concerns about risks to children at Non-Commercial Food Crop Growing Operation sites with hoses. In these instances, children will be interacting in the garden and potentially harvesting produce. Children are more susceptible to becoming ill from ingestion and infection of pathogens; are less likely to comply with BMPs (particularly if they cannot read); and are more likely to directly ingest reclaimed water through drinking out of the hose and/or water fights. Moreover, as noted above, the pathogen level of the water at these sites is at this time unknown. The Commission adopted the Division's recommendation that an age restriction should be applied, and that hose bibs should be locked and hoses inaccessible when children under 10 are on site. The Commission also adopted a path that would allow this restriction to be lifted, however, if the reclaimed water at the site is shown to meet the Category 3 standard for a year (no *E. coli* detected in at least 75% of the samples within a month, no sample exceeds 126 cfu *E. coli* per 100 mL [84.9(A)(19)]). In that case, the Division may issue the User a site-specific NOA allowing children under 10 to be present during hose irrigation.

The Commission adopted another BMP to specifically address school gardens using reclaimed water. Non-Commercial Food Crop Growing Operations that are at schools where children interact with the garden require teachers and guardians to undergo education and training as required in [84.9(A)(13)] and the legal guardian of each student must submit a signed document acknowledging that they understand that non-potable water is being used at the garden site. These records must be kept onsite for the Treater and the Division to review. Additionally, a student to teacher/guardian ratio of 1:10 is required while students are interacting with the garden [84.9(A)(20)]. The Commission determined that these requirements will help to minimize risk of potential illness for children, teachers and guardians.

The Commission also adopted the PSR's restrictions on the irrigation of sprouts at Non-Commercial Food Crop Growing Operations [84.9(A)(23)]. The Commission adopted this restriction because the warm and humid conditions used for sprouting are uniquely ideal for the growth of bacteria, including Salmonella, Listeria, and *E. coli*.

The Commission required that potable water supplies and soap be on or near a site using reclaimed water for Users and Visitors to be able to wash their hands after harvesting crops and/or being present on the Site. This requirement is necessary to prevent hand to mouth ingestion of pathogens and is protective of public health. The Commission also required that if the hand washing supply is a portable hand washing station, the used water must be disposed of in an area whereby it will not come into contact with the crops, soils or infiltration into soils near crops because this is a requirement in the PSR. Also, the portable hand washing station must stay adequately full of potable water for Users [84.9(A)(17)]. This requirement excludes Resident-Controlled Food Crop Irrigation because a residence will have potable water supply onsite within the residence.

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The Commission decided that if *E. coli* and/or turbidity standards exceed the required standards in Regulation 84 at Point of Compliance, Treater shall notify the Legally Responsible Entity or person, and the Legal Responsible Entity or person must notify all Site Managers and Management Users [84.9(A)(34)]. Users should be informed that water quality standards are not being met to take proper precautions while continuing to use reclaimed water to irrigate.

The Commission adopted the provision that hose bibs must be locked when they are not in use to prevent any person(s) that are not a trained user to potentially collect water for drinking purposes [84.9(A)(18)].

The Commission adopted more frequent inspection requirements for Non-Commercial Food Crop Growing Operations, as well as a new role (Site Manager) to ensure proper implementation and enforcement of Regulation 84 [(84.9(A)(35)]. The initial inspection by the Treater prior to beginning irrigation is to ensure that all of the proper best management practices are set up and in place for irrigation (e.g. appropriate signage, marked appurtenances, lock box for hose bibs, etc.) The second inspection that must occur after irrigation has started within 30 days of the first inspection is required to ensure that the practices and requirements that were verified in the initial inspection are being implemented. Site Manager inspections are required every two weeks to continue to ensure that best management practices and requirements are being met throughout the entire irrigation season. Both inspections by the Treater, and frequent inspections by the Site Manager help to ensure that implementation of the requirements in Regulation 84 are being met to protect public health and the environment. Additionally, if a portable hand washing station is the potable water supply for a site, the Site Manager must ensure that there is adequate potable water and soap so Users can wash their hands after cultivation and irrigation.

Due to the fact that some Division inspections of Non-Commercial Food Crop Growing Operation Sites (like for community gardens) may take place when there is not a representative of the user or treater present at the site, the Commission added a provision to identify the process for an authorized representative from the Division to also submit inspector credentials before any inspection upon issuance of the NOA, as required by CRS 25-8-306, [84.9(A)(33)]. If persons are present at the site at the time of the inspection, the Division representative would also be required to present their inspector credentials at the time of the inspection.

V. Resident-Controlled Food Crop Irrigation

The Commission also adopted a number of unique requirements for Resident-Controlled Food Crop Irrigation, because of the specific management and compliance challenges of this structure.

The Commission required that a Management User must be designated to carry out responsibilities and conduct inspections. The Management User must be knowledgeable about the requirements in Regulation 84 in order to enforce the regulation and take action on violations of the regulation. The Management User could be a Homeowners Association representative, Condominium Association representative, landlord, etc [84.9(A)(27)]. The

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Commission decided to require this to ensure the tiered oversight approach was applied to Resident-Controlled Food Crop Irrigation sites for protection of public health and the environment.

The Commission required that Management Users provide all property owners and renters with an educational manual and verbal education prior to a new resident using reclaimed water. The education requirements are the same as those required in [84.9(A)(13)]. The property owner and/or renter must sign a document acknowledging that they received education, and the Management User must keep copies of the signed documents on site. If a property is sold or rented to another User, the new residents must receive the same education and sign the acknowledgement document [84.9(A)(28)]. The Commission felt that this was the most adequate way to ensure new tenants are aware that non-potable water is being used to irrigate, and to make them aware of the safety protocols to implement to minimize risk at residential sites.

The Commission required that a potable water supply spigot be available on the exterior of the residence so that potable water can be used should the Treater's reclaimed water not meet the water quality standards in Regulation 84 at any point in time [84.9(A)(25)].

The Commission required that harvested produce must only be for personal use by the person conducting the harvest because these individuals are informed that non-potable water was used to irrigate the produce [84.9(A)(29)]. Individuals that did not receive training and are not aware that non-potable water was used to irrigate the produce may not follow the safety protocols prior to consuming the produce (e.g. washing produce with potable water).

VI. Hemp

The Division met with hemp workgroup stakeholders to discuss irrigation of edible and non-edible hemp and the hemp industry recommended the following: Category 1 reclaimed water only be used for rotational crops which are crops used to reduce soil erosion, increase soil fertility and increase crop yield for the next crop to be grown; Categories 2 and 3 reclaimed water to be allowed for irrigation of hemp to be used for fiber products; and Category 3 Plus to be allowed for irrigation of hemp to be used for edible and dermal products. Hemp stakeholders also recommended that clones not be irrigated with reclaimed water [84.9(A)(23)]. The Commission adopted these recommendations.

The Commission required that potable water supplies and soap be on or near a site using reclaimed water for Users and Visitors to be able to wash their hands after harvesting crops and/or being present on the Site. This requirement is necessary to prevent hand to mouth ingestion of pathogens and is protective of public health. The Commission also required that if the hand washing supply is a portable hand washing station, the used water must be disposed of in an area whereby it will not come into contact with the crops, soils or infiltration into soils near crops because this is a requirement in the PSR. Also, the portable hand washing station must stay adequately full of potable water for Users [84.9(A)(17)].

The Commission required that harvesting and public access shall be prohibited in areas where irrigation is occurring resulting in wet soils and/or crops [84.9(A)(22)]. The Commission also added a requirement that harvesting of produce not occur during irrigation events [84.9(A)(23)]. These requirements will reduce the potential for ingestion, inhalation and dermal exposure to pathogens and will protect Cultivators, employees and Visitors against potential illness.

The hemp industry stakeholders expressed concerns about heavy metal uptake into usable portions of the hemp plant and how it may affect end products for customers. The Commission decided to require that hemp users have access to specific metals of concern in Treaters' reclaimed water upon request by hemp users, and that the data be sent to the user within 60 days, and that the samples have been taken within the last 12 months [84.9(A)(15)]. The Commission adopted this requirement to address stakeholder concerns so they can make educated decisions about using reclaimed water to irrigate hemp.

The Commission requires a Site Manager to ensure proper implementation and enforcement of Regulation 84 [(84.9(A)(35)].

VII. Additional Discussion Applicable to Multiple New Uses

A. Application of Basic BMPs to All New Uses

The Commission applied a number of basic BMP similar to existing BMPs to all of the new uses, including the following: leaks in the irrigation system or hoses must be repaired immediately to avoid ponding and runoff and irrigation in excess of the agronomic rate [84.9(A)(26)]; a manual or display must be located at each of the reclaimed water sites; education and training must be conducted that is specific to each use; signage must be placed at specified distances throughout the site; all irrigation equipment and hoses must indicate that non-potable water is being used [84.9(A)(16)]; and a ban on flood and sheet irrigation because it could result in an exceedance of irrigation at the agronomic rate [84.9(A)(31)].

B. Tiered Approach to Oversight for New Uses

The Commission adopted a tiered approach to oversight for Non-Commercial Food Crop Growing Operation, Resident-Controlled Food Crop Irrigation and Edible and Non-edible Hemp. The Division, the Treater and the Site Manager or Management User (for Resident-Controlled) each have oversight, authority, general and inspection responsibilities. Each tier of oversight has the authority to lock/disconnect the hose bibs, or terminate service of reclaimed water when a User is in violation of Regulation 84 [84.10]. This tiered approach will help to ensure that best management practices are being implemented, and provide a blanket of protection for public health and the environment.

C. User Plan to Comply Requirements

The Commission adopted new User Plan to Comply Requirements for the new agricultural uses. The User Plans to Comply for the new uses require descriptions of how Users, Site Managers and Management Users intend to comply with the best management practices and adhere to the responsibilities and inspections required in Regulation 84 [84.12(D-G)]. Adding the new

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User Plan to Comply requirements sets forth the expectations by the Division and the Commission for the new uses and binds users to the requirements in the User Plan to Comply and NOA to protect public health and the environment. Should a user violate the requirements in the User Plan to Comply and the NOA, enforcement action can be implemented by the Division.

D. TDS

The Commission adopted a requirement for Treaters to monitor and report TDS data to the Division in their Discharge Monitoring Reports on a quarterly basis, and email this data to all users for the new Food Crop users [84.9(A)(14)]. The Commission finds that Users that are irrigating edible crops with reclaimed water will benefit from this information to determine if they want to use reclaimed water to irrigate crops and/or to determine which crops to grow according to plant specific TDS sensitivity.