



# **Reclaiming Water for Urban Foodsheds: State of Nevada Regulations and Permitting**

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The ***Reclaiming Water for Urban Foodsheds*** project integrates basic scientific research with Extension outreach to examine the feasibility of using reclaimed water resources for irrigated agriculture in urban environments. Funded by a grant [2017-69007-26309] from the USDA National Institute of Food and Agriculture, research is conducted in University of Nevada, Reno campus laboratories and its Experiment Station facilities, including Main Station Farm and the

*Greenhouse Complex. This fact sheet was generated to educate readers about the current rules and permitting for using reclaimed water for agriculture in the State of Nevada.*

## **Why reclaim water for food production?**

Treated wastewater, generated from municipal and industrial sources, has the potential to provide both water and nutrients to agriculture located in close

proximity to urban areas, reclaiming wastewater resources for important purposes (Thebo, Drechsel and Lambin, 2014). Climate-driven changes in snowpack and snowmelt timing in the arid western U.S. will likely increase water supply variability. The uncertainty produced by supply variability can possibly fuel competition among urban, environmental and agricultural users for limited water supplies, particularly during prolonged droughts.

Across the world, wastewater has been (re)used in irrigation for centuries, most often for agricultural activities adjacent to cities (Drechsel et al., 2010). At present, policies are being developed to facilitate and regulate the use of treated wastewater for irrigation purposes, including crop production (Blanco-Gutiérrez, Varela-Ortega and Purkey, 2013). Well-established and enforced regulations and permitting to govern the use of treated wastewater for irrigated agriculture already exist in several states, including Nevada and California. In both states, treated wastewater can be used for food crops, with restrictions depending on the quality of the treated effluent (Wu et al., 2009).

In Nevada, all uses of reclaimed water require a permit. This fact sheet seeks to clarify these existing regulations and permitting processes specific to the State of Nevada, and describe what is permitted for use of reclaimed water for agriculture.

### **What is reclaimed water?**

The State of Nevada defines reclaimed water, also known as reused or recycled water, as water that has been treated to secondary treatment standards, or to a

water quality suitable for environmental discharge to waterways under the U.S. Clean Water Act, and disinfected to levels specified for its use (Nevada Division of Environmental Protection, 2014a). In the U.S. secondary treatment is typically the minimum standard for legal discharge of treated wastewater into waterways.

### **How is reclaimed water regulated and can it be used to irrigate food crops?**

The State of Nevada regulates the use of reclaimed water through the Nevada Administrative Code (NAC) 445A.274 to 445A.280. The Bureau of Water Pollution Control within the Nevada Division of Environmental Protection (referred to herein as the Division) administers the rule, provides oversight and issues discharge permits for the use of reclaimed water according to NAC 445A.275 and NAC445A.276 (Nevada Division of Environmental Protection, 2014a).

Reuse categories are defined by water quality, ranging from A+ through E. State-approved applications of reclaimed water include agricultural irrigation, residential landscape watering, industrial processes, toilet flushing and the replenishment of groundwater basins through artificial groundwater recharge.

As outlined in the NAC, Category A reclaimed water may be used to irrigate food crops. Category B water may be used to irrigate nonfood crops. The NAC defines irrigation as either sprinkler irrigation, further subdivided into solid-set (golf courses and parks), move-stop (wheel lines), and constant move (center pivot systems); or surface

irrigation, further subdivided into flood irrigation and drip irrigation.

### **What is the process for obtaining a permit?**

The first step is to apply for a discharge permit with the Bureau of Water Pollution Control. The Division determines the appropriate discharge permit, which defines the minimum quality of the discharged water required to protect waters of the State and public health.<sup>1</sup>

With guidance from the Division, the water “reuser” also is responsible for characterizing their reuse site and preparing a *Reclaimed Water Management Plan*. Reusers may be, for example, golf course superintendents, farmers, park maintenance workers or industrial workers. Site characterization includes map(s) of the site showing topography and boundaries of reuse, and data related to soils, plant surveys, and water quality from groundwater and wells.

The Division provides a document containing a general overview of nutrient reduction and management strategies that can be implemented at reclaimed water reuse sites and ranches fertilized with municipal biosolids (Nevada Division of Environmental Protection, 2014c). The Division requires that a qualified Nevada Registered Professional Engineer prepare and certify the *Reclaimed Water Management Plan*. The Division then reviews the plan and provides comment

(Nevada Division of Environmental Protection, 2014b).

This process can take approximately six months. The Division then contacts the reuser to review the details of the application (Pascual, 2019). For example, depending on the purpose and location of reclaimed water use, the reuser may be required to provide additional treatment and ongoing sampling to monitor water quality. Ultimately, the permit that the Division issues will reflect the needs of the reuser.

The reuser also must notify the Nevada Division of Water Resources of each *Reclaimed Water Management Plan* prepared and submitted in order to address water rights issues. Nevada Water Law (NRS 533.440) assigns them the oversight of secondary water rights created when reclaimed water is applied to a beneficial use in lieu of fresh water.

Additionally, best practices recommend consulting the Division’s Bureau of Safe Drinking Water, which ensures that the use of reclaimed water is consistent with all water supply protection requirements. Local governments and water purveyors may have additional regulations and permitting processes concerning reclaimed water use.

To learn more about reclaimed water use in the State of Nevada, visit Nevada Department of Environmental Protection Water Pollution Control link [here](#).

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<sup>1</sup> Waters of the State are defined in the Nevada Revised Statutes (NRS 445A.415) as “all waters situated wholly or partly within or bordering upon this State, including but not limited to: a) All streams, lakes, ponds, impounding reservoirs, marshes, water courses, waterways, wells, springs, irrigation systems and drainage systems; and b) All bodies or accumulations of water, surface and underground, natural or artificial.”

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