



The Water Reclamation and Reuse Regulation (9VAC25-740): Requirements Applicable to Irrigation Reuses of Reclaimed Water

General Requirements

- Reclaimed water is defined in the Water Reclamation and Reuse Regulation as water resulting from the treatment of domestic, municipal or industrial wastewater that is suitable for a variety of uses. The Water Reclamation and Reuse Regulation does not address the treatment or reclamation of gray water, harvested rainwater and stormwater for use or reuse.
- Reclaimed water must meet a minimum of Level 1 standards for reuses including, but not limited to, irrigation of public access areas (i.e., golf courses, cemeteries, public parks, school yards and athletic fields), lawns, and any food crops not commercially processed (including crops eaten raw); filling landscape impoundments with potential for public access or contact; and toilet or urinal flushing.
- For 14 days after irrigation of ornamental nursery stock or sod farms with reclaimed water meeting Level 2 standards, harvesting, retail sale or access by the general public is prohibited unless the reclaimed water is further disinfected to meet Level 1 standards.
- Most irrigation reuse of reclaimed water will not require a permit from DEQ unless the irrigation sites are under common ownership or management with the facility producing and/or distributing reclaimed water applied to the sites. When irrigation sites must be permitted by DEQ, they may be covered by the same permit issued to the facility producing and/or distributing reclaimed water applied to the irrigation sites.
- When irrigation sites that receive reclaimed water are not required to have a permit from DEQ, the owner of the site must enter into a service agreement or contract with the provider of reclaimed water (or reclaimed water agent).
- All irrigation reuse of reclaimed water must be supplemental irrigation. This is defined in [9VAC25-740-10](#) as irrigation, which in combination with rainfall, meets but does not exceed the water necessary to maximize production or optimize growth of the irrigated vegetation. Supplemental irrigation is not the same as land treatment described in the Sewage Collection and Treatment Regulations ([9VAC25-790](#)). Supplemental irrigation is strictly reuse, while land treatment is first and foremost a method of treating and disposing of wastewater, and secondarily, planned or unplanned reuse.

Nutrient Management Plans for Irrigation Reuse

- There are no reclaimed water standards for nutrients (i.e., N and P). However, a nutrient management plan (NMP) for irrigation reuse sites may be required based on the following:
 1. **The nutrient content of the reclaimed water where Biological Nutrient Removal (BNR) is used as the threshold.** BNR is defined in the Water Reclamation and Reuse Regulation as treatment that achieves annual average concentrations less than or equal to 8.0 mg/l total nitrogen (N) and 1.0 mg/l total phosphorus (P). Reclaimed water that has total N and total P concentrations less than or equal to these values is referred to as BNR reclaimed water, while reclaimed water that has total N and total P concentrations greater than these values is referred to as non-BNR reclaimed water.
 2. **The size of the irrigation reuse site.** An irrigation reuse site is an area that receives reclaimed water for irrigation. A bulk irrigation reuse site is one contiguous property greater than 5 acres and a non-bulk irrigation reuse site is an individual area less than or equal to 5 acres. Bulk irrigation with non-BNR reclaimed water will require a NMP, while bulk irrigation with BNR reclaimed water will not. Non-bulk irrigation reuse sites will not require

a NMP, but may require other measures to manage nutrients for irrigation with non-BNR reclaimed water.

3. **Common ownership or management with the generator or distributor of reclaimed water and available disposal options.** Independent of the nutrient content of reclaimed water used for irrigation, bulk irrigation reuse sites will require a NMP where:
 - (a) The site is under common ownership or management with facilities that generate or distribute reclaimed water that is applied to the site, **and**
 - (b) In addition to irrigation reuse there is no option to dispose of the reclaimed water via a VPDES permitted discharge, or there is such an option but the VPDES permit does not allow discharge of the full nutrient load under design flow.
- A NMP, when required, must be prepared by a nutrient management planner certified by the Virginia Department of Conservation and Recreation (DCR). In the case where a NMP is required due to common ownership or management between a bulk irrigation site and a generator or distributor of reclaimed water, and the lack of any or an adequate VPDES permitted disposal option for the reclaimed water, DCR must also approve the NMP. A copy of the NMP must be maintained at the irrigation reuse site or a location central to all irrigation reuse sites covered by the same NMP.

Site Plans for Bulk Irrigation Reuse Sites

- A site plan is required for each bulk irrigation reuse site and area of proposed expansion to an existing bulk irrigation reuse site. It must be displayed on the most current USGS topographic map, preferably 7.5 minute series, and must show the following:
 1. Boundaries of the irrigation site;
 2. Within 250 feet of the irrigation site boundaries, the locations of all potable and non-potable water supply wells and springs, public water supply intakes, occupied dwellings, property lines, areas accessible to the public, outdoor eating, drinking and bathing facilities; surface waters, including wetlands; and limestone outcrops and sinkholes; and
 3. Setback areas around the irrigation site that comply with the regulation (see “Setbacks from Irrigation Site Boundaries” below).
- The site plan must be prepared by the applicant or permittee when the bulk irrigation site is under common ownership or management with facilities that generate or distribute the reclaimed water to be applied to the site. In this case, the plan must be submitted to DEQ as part of a permit application for water reclamation and reuse.
- Where a bulk irrigation site is **not** under common ownership or management with facilities that generate or distribute the reclaimed water to be applied to the site, the bulk irrigation end user must prepare the plan and submit it to the reclaimed water provider or agent through the terms of the service agreement or contract between the agent and end user.

Requirements Applicable to All Irrigation Reuse

- There must be no overspray of surface waters, including wetlands, with reclaimed water.
- There must be no application of reclaimed water to the ground when it is saturated, frozen or covered with ice or snow, and during periods of rainfall.
- There must be no application of reclaimed water during winds of sufficient strength to cause overspray or aerosol drift into or beyond setback areas around the irrigation specified in the regulation (see “Setbacks from Irrigation Site Boundaries” below)
- The method of irrigation must minimize human contact with reclaimed water.
- Reclaimed water must be prevented from coming into contact with drinking fountains, water coolers, or eating surfaces.
- There must be no nuisance conditions resulting from irrigation reuse of reclaimed water.

Design and Operation Requirements for Bulk Irrigation Reuse

- Irrigation systems for bulk irrigation reuse sites must be designed, installed and adjusted to:
 1. Provide uniform distribution of reclaimed water over the irrigation site,
 2. Prevent ponding or pooling of reclaimed water at the irrigation site,
 3. Facilitate maintenance and harvesting of irrigated areas, and preclude damage to the irrigation system by use of maintenance or harvesting equipment,
 4. Prevent aerosol carry-over from the irrigation site beyond required setbacks, and
 5. Prevent clogging from algae and suspended solids.
- All bulk irrigation system pipes, pumps, valve boxes and outlets must comply with design, installation and labeling requirements for reclaimed water distribution systems in [9VAC25-740-110](#) (see also “[Identification of Reclaimed Water Distribution Components](#)” below).
- Any reclaimed water runoff must be confined to the bulk irrigation reuse site unless authorized by DEQ.

Setbacks from Irrigation Site Boundaries

Feature Requiring Setback	Setback Distance (feet)	
	Level 1 ^a .	Level 2 ^b .
Potable water supply wells and springs, and public water supply intakes	100	200
Non-potable water supply wells	10	10
Surface waters, including wetlands	---	50
Occupied dwellings	---	200
Property lines and areas accessible to the public	---	100
Limestone rock outcrops and sinkholes	50	50

- a. For irrigation with Level 1 reclaimed water, no setback distances are required from occupied dwellings or outdoor eating, drinking or bathing facilities. However, aerosol formation at the irrigation site must be minimized within 100 feet of these land features through the use of low trajectory nozzles for spray irrigation or the use of drip irrigation.
- b. For irrigation with Level 2 reclaimed water, there are options available to reduce most of these setbacks, including, but not limited to, increased disinfection of the reclaimed water to meet Level 1 standards, use of irrigation equipment or methods to reduce aerosols, and/or installation of physical barriers to minimize or prevent aerosol drift from the site (see [9VAC25-740-110.H](#) for more options).

Identification of Reclaimed Water Distribution Components

- Labeling, color coding, taping, tagging or other identification for reclaimed water distribution components is required. These components include piping, valves and valve boxes, above-ground, hand-operated connections (e.g., hose-bibs, spigots, etc.), outlets (e.g., fire hydrants, etc.), and appurtenances (e.g., pumps, etc.).
- All reclaimed water piping (above and below ground) must display the warning statement “CAUTION: RECLAIMED WATER - DO NOT DRINK” and be identified by one or more methods described in [9VAC25-740-110.B.8](#). Written identification is also required for all mechanical appurtenances of a reclaimed water distribution system, stating, at a minimum, “RECLAIMED WATER”.

Non-System Storage of Reclaimed Water

- There are three types of storage for water reclamation and reuse: reject water storage, system storage, and non-system storage. End users, such as golf courses, will typically have non-system

storage. Non-system storage is located downstream of the service connection to the reclaimed water distribution system and equalizes flow to the end user. Non-system storage can include lakes, ponds and landscape impoundments; and will have less rigorous design, construction and operation requirements compared to system storage or reject water storage. However, where reclaimed water in non-system storage is used to irrigate sites under common ownership or management with facilities generating reclaimed water applied to the sites, requirements for non-system storage will be the same as those for system storage.

- There are setbacks for non-system storage that are determined primarily by the level (1 or 2) of reclaimed water stored in the facility and whether the facility is lined or unlined. The setbacks measured to the perimeter of a non-system storage facility are as follows:

Reclaimed Water Quality	Level 1		Level 2	
	Lined	Unlined	Lined	Unlined
Type of Storage				
Feature Requiring Setback				
Property line	≥ 50'	≥ 50'	≥ 50'	≥ 50'
Potable water supply wells & springs, & water supply intakes	≥ 100'	≥ 200'	≥ 200'	≥ 400'

- Reclaimed water non-system storage facilities, including impoundments used for non-system storage, must be designed and operated to prevent a discharge to surface waters of the state except during a storm event greater than a 10-year, 24 hour storm.

Access Control and Advisory Signs

- For irrigation reuse sites that receive Level 1 reclaimed water, there are no public access restrictions. However, advisory signs or placards must be posted within and at the boundaries of the irrigation reuse sites, and must state the nature of the reuse. Some examples of notification methods that may be used include posting advisory signs at entrances to residential neighborhoods where reclaimed water is used for landscape irrigation, and posting advisory signs at the entrance to a golf course and at the first and tenth tees.
- For irrigation reuse sites that receive Level 2 reclaimed water, fencing around the site boundary is not required but public access must be restricted. Advisory signs or placards must be posted around irrigation site boundaries, and must state the nature of the reuse and no trespassing.
- Advisory signs must be posted adjacent to impoundments or ponds, including landscape impoundments, used for non-system storage of reclaimed water.
- All advisory signs must additionally display:
 1. “CAUTION: RECLAIMED WATER – DO NOT DRINK” or other warning statement approved by DEQ. The size of the sign and lettering on the sign must be easily read by a person with normal vision at a distance of 50 feet; and
 2. The equivalent standard international symbol for non potable water.

For More Information

Visit DEQ’s Program page for Water Reclamation and Reuse

(<http://www.deq.virginia.gov/Programs/Water/LandApplicationBeneficialReuse/WaterReclamationReuse.aspx>), or contact DEQ’s Water Reclamation and Reuse Coordinator, Valerie Rourke, at (804) 698-4158 or Valerie.Rourke@deq.virginia.gov