STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

APPLICATION GUIDANCE FOR WASTEWATER REUSE PROJECTS

Program Overview

The proper use of treated wastewater effluent will be an important option as suppliers of clean, potable water struggle to meet increasing demands. The guidance herein is intended to assist applicants in assembling and coordinating needed information for DEM review of proposed projects. These requirements have been coordinated with DEM's Offices of Water Resources, Air Resources and Agriculture.

Who Must Apply

Anyone intending to (i) supply treated wastewater for any allowable use other than its RIPDES-approved discharge into a water of the state, or (ii) use treated wastewater for those uses listed in Table 1 must follow this guidance. Only those uses specified in Table 1 will be considered by the DEM. The use of treated wastewater without DEM approval(s) is prohibited.

How to Apply

The supplier and user of treated wastewater effluent must attain an Order of Approval from the DEM's Office of Water Resources for the necessary systems and procedures for diversion, delivery and final use in accordance with the minimum technical criteria listed in Table 1. The application for an Order of Approval must be submitted by all parties involved in a specific project (i.e., the supplier of treated wastewater, the final user, etc.). The application must be made on forms provided by the Department and must include (at a minimum) the information requested on said application forms. Applicants are encouraged to request a pre-application meeting with representatives of the DEM for the coordination of application components.

Review Process

A detailed technical review will be conducted to determine the ability to comply with the general parameters in Table 1, as well as any project-specific requirements that may arise as part of the review process, especially as they relate to impacts on the waters of the state or public health. This procedure may include the Office of Water Resources coordinating with other regulatory agencies within DEM or other state agencies, and will include consideration of any proposed treatment systems or other control, distribution and water application technologies. Additional information may be required at any time during this technical review. The Office of Water Resources will, at a minimum, review the potential water quality impacts from: 1) excessive nutrient loadings to groundwater or receiving waters; 2) potential impacts to abutting property; and 3) public input from a public comment/hearing process to be organized by the applicant. Upon receipt and review of all necessary information, the Office will issue either a denial of the application or an Order of Approval, which may include project-specific requirements.

Fee

An application fee of $150 made payable to "Treasurer, State of Rhode Island" must be submitted with the application.

Public Notice

During the approval process the Department may require the applicant(s) to administer a thirty-day public notice and/or public hearing, or other appropriate meeting to gather input from abutters or other interested parties. The DEM may require the public hearing or meeting to be recorded by a professional stenographer. Following the close of the public comment period the Department will consider all comments received as part of its review of the application.

Contacts

Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908
(401) 222-4700

General Technical Requirements:

Wastewater being diverted from a source wastewater treatment facility must meet the following criteria, based on the intended use at the point of diversion or the point of use, as appropriate. Compliance with Chlorine Residual and Turbidity are to be met on a single sample basis. Compliance with TSS, BOD, Fecal Coliform and Nitrogen must be met on a five-day average, with the exception of requirements for non-contact cooling water discharged to the atmosphere (as detailed in Item 3 below). The DEM reserves the right to add additional sampling requirements based on individual application specifics. Sampling frequency will be determined as part of project review.

Table 1.	**Restricted Reuse: Irrigation only.**	**Unrestricted Reuse: Irrigation only**	**Non-Contact Cooling Water**	**Agricultural Reuse: Non-food crops only**
Description	The use of treated wastewater where public exposure is controlled. Examples: Golf courses or parks that have controlled times of operation.	The use of treated wastewater where public exposure is likely. Examples: Parks that have no fixed hours of operation; commercial landscaping.	The use of treated wastewater in cooling towers for industrial, non-contact heat-transfer with no discharge to state waters.	The use of treated wastewater for agricultural irrigation of non-food crops, such as turf, tree farms, etc.
Minimum Cl2 Residual, or UV dosage	0.5 mg/L (after 30-minute contact time) or 75 mJ/cm^2 (at max day flow rate)	1 mg/L (after 30-minute contact time) or100 mJ/cm^2 (at max day flow rate)	See 3(a)	0.5 mg/L (30-minute contact time), or 75 mJ/cm^2 (at max day flow rate)
Turbidity	2 NTU	2 NTU	NTU to correspond to 5mg/l (3b)	2 NTU
TSS	8 mg/L	5 mg/L	5 mg/L (3b)	8 mg/L
BOD	10 mg/L	10 mg/L	--	10 mg/L
Fecal Coliform	23/100 ml	2.2/100 ml	0.0/100 ml (3c)	23 /100 ml
Total Nitrogen	10 mg/L	10 mg/L	--	15 mg/L
Other Conditions	1. pH must be between 6 – 9; 2. Treated wastewater effluent that does not meet turbidity or chlorine residual limits can not be diverted for use.	1. pH must be between 6 – 9; 2. Treated wastewater effluent that does not meet turbidity or chlorine residual limits can not be diverted for use.	Storage or alternative water source adequate to maintain operation if TSS or fecal coliform is not in compliance.	1. pH must be between 6 – 9; 2. Treated wastewater effluent that does not meet turbidity or chlorine residual limits can not be diverted for use.
Other Requirements	1, 2	1, 2	3	1, 2, 4

Other requirements:

1. The user shall verify that proper signage is visible during periods of use, and until 20 days after the suspension of seasonal irrigation. All signage must be submitted for review as part of the application for an Order of Approval. Signage must: (a) state that reclaimed wastewater is in use and any visible waters should be avoided; (b) state any approved restrictions on times or conditions for reuse application; (c) include contact information for the RIDEM to report possible non-compliance; and (d) be placed in appropriately visible location or locations.

2. Setback distances from the perimeter of water use application: 200 feet from a for drilled (rock) driven or dug public well and 400 feet from gravel packed, gravel developed pubic well; 200 feet from a drinking water impoundment; and 100 feet from a commercial or residential and/or an outdoor public food or drinking establishment. Spray irrigation will be directed at all times in a manner which does not exceed stated setbacks. Application must be suspended immediately should any mist be carried by wind, or should surface runoff travel, into waters of the state, or over or onto adjacent private property or public roadways or other public access systems, such as bike paths and hiking trails, etc.

3. Parameters set forth are general requirements and values for cooling tower discharges and are based on air quality/human health protection. The DEM Office of Air Resources may require more stringent site-specific parameters and conditions. General requirements include compliance with RIAPC No.22 and any other applicable air regulations, as well as (a) (i) a total chlorine residual of 1.0 mg/l -3mg/l at the terminal point of the water reuse supply pipeline, (ii) a free chlorine residual of 0.5 mg/l -0.7 mg/l in the cooling tower basin, (iii) a minimum chlorine contact time of 3 hours (high efficiency drift eliminators so that drift is limited to 0.0005% of the circulating water flow), (iv) phosphorous treatment prior to filtration so that the nutrient load is minimized within the cooling tower basin if necessary, (v) the use of ultra-filtration to ensure compliance with the limits for TSS and fecal coliform unless there is adequate storage of treated water or an alternative water source, (vi) chromium-based biocides and/or chromium based fungicides are prohibited in the cooling tower; (b) TSS must be achieved prior to final chlorination on a continuous basis, as verified through continuous monitoring of turbidity (NTU monitoring is sufficient provided facility can show equivalence to 5 mg/l); and (c) the fecal coliform bacteria level at the terminal point of the cooling water pipeline must not exceed zero. This limit will be verified by a testing protocol specified in the air permit.

4. Parameters are general values based on water quality/health protection. DEM's Division of Agriculture may require more stringent site-specific parameters and conditions.