

DEQ's Water Reclamation and Reuse Program

**Presentation for the Eastern Virginia
Groundwater Management Advisory
Committee, Work Group #1**

December 7, 2015



Objective

Provide information on:

- Who regulates water reuse in Virginia
- DEQ's regulatory requirements for water reuse
- DEQ's program support for water reuse

What is:

- **reclaimed water**
- **water reuse**
- **reclamation system**
- **satellite reclamation system**
- **reclaimed water distribution system**

Who regulates water reclamation and reuse in Virginia?

DEQ

- municipal wastewater (sewage), industrial wastewater, and storm water

Virginia Department of Health

- onsite recycle of sewage on “experimental” basis
- provides guidelines - gray water and harvested rainwater

Department of Housing and Community Development

- indoor gray water and harvested rainwater
- indoor distribution of reclaimed water

Water reclamation and reuse is voluntary in Virginia

- **Market-based approach used to implement**
- **If implemented, regulatory requirements apply**

Water Reclamation and Reuse Regulation

(9 VAC 25-740)

Standards for Reclaimed Water

Reclaimed municipal wastewater

- Level 1 – suitable for public contact
- Level 2 – not suitable for public contact

Reclaimed industrial wastewater

- developed on a case-by-case basis

Standards for Reclaimed Water

- Level 1 treatment & disinfection > Level 2
- Level 1 standards more stringent than Level 2
 - Bacteria
 - BOD₅ or CBOD₅
- Levels 1 & 2 – same standards for TRC & pH
- Turbidity standard – Level 1 only
- TSS standard – Level 2 only

Reuses of Reclaimed Water

Listed in the regulation

OR

Approved case-by-case

Reuses Listed in Regulation

- **Involve reuse of reclaimed municipal wastewater**
- **Divided into reuse categories with minimum standard requirements**
 1. **Urban - Unrestricted Access (Level 1)**
 2. **Irrigation - Unrestricted Access (Level 1)**
 3. **Irrigation - Restricted Access (Level 2)**
 4. **Landscape Impoundments (Level 1 or 2)**
 5. **Construction (Level 2)**
 6. **Industrial (Level 1 or 2)**
- **May be subject to additional qualifiers or conditions contained in the regulation**

Reuses Approved Case-by-Case

- **Unlisted reuse or any reuse of reclaimed industrial wastewater**
- **Not exempted or excluded by regulation**
- **May require unique reclaimed water standards and monitoring requirements**
- **Require input from VDH on public health risks**

Landscape Impoundments with Potential for Public Access/Contact



Commercial Air Conditioning Systems



Industrial Cooling Water



Toilet/Urinal Flushing



Landscape Irrigation in Public Access Areas



Irrigation Reuse

- All must be supplemental irrigation
- May require a nutrient management plan or other tracking and reporting of nutrient loads
- Setback requirements:
 - For Level 1 or Level 2
 - May be reduced or eliminated for sites irrigated with Level 2

Irrigation Reuse vs. Land Treatment

- Both use water derived from wastewater
- Irrigation reuse per 9VAC25-740
 - With only reclaimed water
 - Primarily - meets water demands of irrigated vegetation
 - Secondarily - conserves potable water & may provide some nutrients
 - Site not intended to provide additional treatment; no groundwater monitoring required

Irrigation Reuse vs. Land Treatment (Continued)

- **Land Treatment (Irrigation) per 9VAC25-790**
 - With wastewater having minimum of secondary treatment
 - Primarily - method of treatment & disposal intended to meet nutrient demands of irrigated vegetation
 - Site typically provides additional wastewater treatment; groundwater monitoring required

DEQ Permitting for Water Reclamation and Reuse

- **Through VPDES and VPA Permit Programs**
- **Most end users**
 - **No permit required from DEQ**
 - **Must have service agreement/contract with reclaimed water agent**
- **Permit required for existing unpermitted or new facilities**
- **Grandfathering for existing facilities**
 - **permitted on or before 10/1/08**
 - **application required for expansion or modification**

Application for a Permit

- **General information**
- **Reclaimed Water Management (RWM) Plan**
- **Information specific to Indirect Potable Reuse (IPR)**

RWM Plan

To be submitted by reclaimed water agent and must include:

- **Description and map of service area**
- **Inventory of reclaimed and reject water storage**
- **Water balance – reclaimed water generated, stored, reused and discharged**
- **Example service agreements or contracts**
- **Education and notification program (Level 1)**
- **Cross-connection & backflow prevention program**
- **Procedures to maintain reclaimed water quality in distribution**
- **Nutrient management requirements (for irrigation reuse)**
- **Site plans (for bulk irrigation reuse sites)**
- **Auxiliary or back up plans (for certain conjunctive systems)**

New Items in the Regulation

(as of 1/29/14)

- **Prohibition against significant adverse impacts to beneficial uses of receiving waters due to water reclamation and reuse**
- **Requirement for information to assess and avoid significant adverse impacts to beneficial uses**

Cumulative Impact Analysis (CIA)

- **Determines potential for significant adverse impacts**
- **For new or increased diversion of discharge**
- **Performed by DEQ's Office of Water Supply (OWS)**
 - **at request of project owner/applicant**
 - **prior to submitting application for project**
- **CIA results summary or other correspondence from OWS to be submitted with application**
- **Potential for significant adverse impacts requires special conditions in permit**

Factors Affecting Impacts of Water R/R on Beneficial Uses

- **Types of reuses proposed – non-consumptive vs. consumptive**
- **Relative volume of discharge diverted vs. receiving water**
- **Number, proximity and type of other beneficial uses down stream**
- **Presence or absence of tidal influence on the receiving water**

Other New Items in the Regulation

- **Variances**

From specific regulatory requirements under limited conditions

- **Emergency authorizations for the production, distribution or reuse of reclaimed water**

Under limited conditions due to drought, and temporary

Other Important Requirements of the Regulation

- Reclaimed water monitoring
- Design criteria for reclamation systems, satellite reclamation systems and distribution systems
- Construction
- Operator and system reliability
- Operation and maintenance
- Management of pollutants from significant industrial users
- Access control and advisory signs
- Generator and distributor reporting

Groundwater Recharge with Reclaimed Water

- **May be permitted by EPA's Underground Injection Control (UIC) Program if by injection wells**
- **If issued UIC permit, excluded from requirements of Water Reclamation and Reuse Regulation**
- **VPA Permit is not required provided DEQ approves EPA's decision to issue UIC permit**
- **EPA would consult VDH ODW on potential impacts to potable water supply wells and human health**

DEQ Support for Water R/R

- **DEQ online Water R/R Program page**
- **Program implementation guidance**
- **Dedication of staff resources through VPDES & VPA Permit Programs**
- **Funding**



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Virginia Department of Environmental Quality

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Richmond, VA 23218

Contact Us:

1-(804) 698-4000
1-800-592-5482 (Toll Free in VA)

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Water Reclamation and Reuse

In Virginia, the reclamation of either municipal or industrial wastewater and reuse of the reclaimed water is regulated in accordance with the [Water Reclamation and Reuse Regulation \(9VAC25-740\)](#). Facilities that will typically require a permit for water reclamation and reuse include reclamation systems, satellite reclamation systems and reclaimed water distributions systems. End users of the reclaimed water will rarely be required to obtain a permit.

A reclamation system associated with a wastewater treatment facility (WWTF) that has or will have a surface water discharge will be covered under the [Virginia Pollutant Discharge Elimination System \(VPDES\) permit](#) issued to the WWTF. A reclamation system associated with a WWTF that does not or will not have a surface water discharge will be covered under the [Virginia Pollution Abatement \(VPA\) permit](#) issued to the WWTF. Satellite reclamation systems and reclaimed water distribution systems that are independently owned or managed will generally require a VPA permit.

A cumulative impact analysis (CIA) must be considered for all new or expanding water reclamation and reuse projects that have the potential to reduce the discharge of a VPDES permitted WWTF to surface waters. This applies to WWTFs that divert a portion or all of their discharge to a reclamation system, and to sewage collection systems that divert a portion of the sewage that they convey to a satellite reclamation system to produce reclaimed water for reuse. CIAs for proposed water reclamation and reuse projects are performed by DEQ's Office of Water Supply with information provided by the owner of each project. The Office of Water Supply (OWS) will, in consultation with an applicant, determine the need for completion of a CIA based upon the scale of the reduction in the VPDES permitted discharge in relation to the receiving stream(s). To request a CIA

Featured Topics

- Amendments to the Water Reclamation and Reuse Regulation went into effect on January 29, 2014. Revised program guidance to implement the amended regulation will be available in the near future.

Additional Resources

WaterReuse Organization

Guidelines for Water Reuse (US EPA, 2012)

Water Reuse: Using Reclaimed Water for Irrigation (VCE, Publ. # 452-014)

Salinity Management Guide (WaterReuse Assoc., 2007)

Water Reclamation and Reuse - Frequently Asked Questions (DEQ, 2014)

Requirements Applicable to Irrigation Reuse of Reclaimed

DEQ Funding for Water R/R Projects

- **Projects that:**
 - **Are publicly owned**
 - **Involve treatment & reuse of municipal wastewater or sewage**

- **Virginia Clean Water Revolving Loan Fund (VCWRLF)**

- **Water Quality Improvement Fund (WQIF)**

DEQ's Water Reclamation and Reuse Program

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Questions?