

1 Project 2622 - PROPOSED

2 STATE WATER CONTROL BOARD

3 Amendment to Water Reclamation and Reuse Reg to promote enhance program
4 implementation

5
6 CHAPTER 740

7 WATER RECLAMATION AND REUSE REGULATION

8 Part I

9 Definitions and General Program Requirements

10 **9VAC25-740-10. Definitions.**

11 The following words and terms when used in this chapter shall have the following meanings
12 unless the context clearly indicates otherwise.

13 "Beneficial use" means both instream and offstream uses. Instream beneficial uses include,
14 but are not limited to, the protection of fish and wildlife resources and habitat, maintenance of
15 waste assimilation, recreation, navigation, and cultural and aesthetic values. The preservation of
16 instream flows for purposes of the protection of navigation, maintenance of waste assimilation
17 capacity, the protection of fish and wildlife resources and habitat, recreation, cultural and
18 aesthetic values is an instream beneficial use of Virginia's waters. Offstream beneficial uses
19 include, but are not limited to, domestic (including public water supply), agricultural uses,
20 electric power generation, commercial, and industrial uses.

21 "Biological nutrient removal (BNR)" means treatment that achieves an annual average of 8.0
22 mg/l total nitrogen (N) and 1.0 mg/l total phosphorus (P).

23 "Board" means the Virginia State Water Control Board or State Water Control Board.

1 "Bulk irrigation reuse" means reuse of reclaimed water for irrigation of an area greater than
2 five acres on one contiguous property.

3 ~~"Class I reliability" means a measure of reliability that requires a treatment works design to~~
4 ~~provide continuous satisfactory operation during power failures, flooding, peak loads, equipment~~
5 ~~failure, and maintenance shut-down. This class includes design features, such as additional~~
6 ~~electrical power sources, additional flow storage capacity, and additional treatment units that~~
7 ~~provide operation in accordance with the issued certificate or permit requirements.~~

8 "Conjunctive system" means a system consisting of a wastewater treatment works and
9 reclamation system having no or minimal separation of treatment processes between the
10 treatment works and the reclamation system.

11 "Controlled use" means a use of reclaimed water authorized in accordance with this chapter.

12 "Corrective action threshold" or "CAT" means a bacterial, turbidity or total residual chlorine
13 standard for reclaimed water at which measures shall be implemented to correct operational
14 problems of the reclamation system within a specified period, or divert flow from the reclamation
15 treatment process in accordance with this chapter.

16 "Design flow" means the capacity at which a treatment works is designed to reliably treat an
17 average 24-hour influent flow rate, assessed over a period of a month for all months of
18 operation within a year, including appropriate peak factors provided to meet applicable reliability
19 and redundancy requirements. The average 24-hour influent flow rate shall be based on
20 projected estimates of influent flow to be received by the treatment works.

21 "Designated design flow" means the design flow of a reclamation system that may be some
22 percentage of or equal to the design flow of a treatment works providing wastewater or partially
23 treated wastewater to the reclamation system to produce reclaimed water.

1 "Direct beneficial use" means the use of reclaimed water in a manner protective of the
2 environment and public health that involves transport of the reclaimed water from the point of
3 reclamation treatment and production to the point of use without an intervening discharge to
4 waters of the state.

5 "Direct injection" means the discharge of reclaimed water directly into groundwater.

6 "Direct potable reuse" means the discharge of reclaimed water directly into a drinking water
7 treatment facility or into a drinking water distribution system. This includes storage facilities
8 associated with the drinking water treatment facility or drinking water distribution system that are
9 not surface or ground waters of the state.

10 "Director" means the Director of the Department of Environmental Quality or an authorized
11 representative.

12 "Disinfection" means the destruction, inactivation, or removal of pathogenic microorganisms
13 by chemical, physical, or biological means. Disinfection may be accomplished by chlorination,
14 ozonation, or other chemical disinfectants; UV radiation; or other processes.

15 "Disposal" means the discharge of effluent to injection wells, effluent outfalls, subsurface
16 drain fields, or other facilities utilized primarily for the release of effluents into the environment
17 without deriving a direct beneficial use.

18 "Domestic sewage" means sewage derived from the normal family or household activities,
19 including drinking, laundering, bathing, cooking, heating, cleaning and flushing toilets.

20 "Drip irrigation" means the slow and uniform aboveground application of water to individual
21 plants and vegetated cover using tubing and drip devices or emitters. Drip irrigation may include
22 below-ground applications of reclaimed water as specified in 9VAC25-740-90 B.

23 "Effluent," unless specifically stated otherwise, means treated wastewater that is not reused
24 after flowing out of any treatment works.

1 "End user" means a person or entity that directly uses reclaimed water.

2 "Filtration" means the passing of wastewater through a conventional technology, such as
3 sand, anthracite or cloth; or an advanced technology, such as microfiltration, ultrafiltration,
4 nanofiltration or reverse osmosis membrane.

5 "Food crops commercially processed" means food crops that, prior to sale to the public or
6 others, have undergone chemical or physical processing sufficient to remove or destroy
7 pathogens.

8 "Food crops not commercially processed" means food crops that, prior to sale to the public
9 or others, have not undergone chemical or physical processing sufficient to remove or destroy
10 pathogens.

11 "Gray water" means untreated wastewater from bathtubs, showers, lavatory fixtures, wash
12 basins, washing machines, and laundry tubs. It does not include wastewater from toilets,
13 urinals, kitchen sinks, dishwashers, or laundry water from soiled diapers.

14 ~~"Ground water"~~ "Groundwater" means any water, except capillary moisture, beneath the
15 land surface in the zone of saturation or beneath the bed of any stream, lake, reservoir or other
16 body of surface water wholly or partially within the boundaries of this Commonwealth, whatever
17 the subsurface geologic structure in which such water stands, flows, percolates or otherwise
18 occurs.

19 "Harvested rainwater" means rainwater that has been collected off of a rooftop through a
20 system that concentrates the rooftop flow and conveys this to a storage device, container or
21 vessel with the intention of using this water before discharge to waterways via sanitary sewer
22 systems, septic tank or other onsite treatment and disposal systems, or a land based discharge.

23 "Indirect non-potable reuse" means the discharge of reclaimed water to a receiving surface
24 water for the purpose of intentionally augmenting a water source, followed by withdrawal from

1 the water source with or without mixing and transport to the withdrawal location, for reuse or
2 distribution for reuse other than indirect potable reuse.

3 "Indirect potable reuse" or "IPR" means the discharge of reclaimed water to a receiving
4 surface water for the purpose of intentionally augmenting a water supply source, with
5 subsequent withdrawal after mixing with the ambient surface water and transport to the
6 withdrawal location, followed by treatment and distribution for drinking water and other potable
7 water purposes.

8 ~~"Indirect reuse" means the use of reclaimed water subsequent to discharge to surface~~
9 ~~waters of the state, including wetlands, pursuant to a VPDES permit.~~

10 "Industrial wastewater" means wastewater resulting from any process of industry,
11 manufacture, trade or business, or from the development of any natural resources.

12 "Irrigation" means the application of water to land for plant use at a rate that undesirable
13 plant water stress does not occur.

14 "Landscape impoundment" means a body of water that contains reclaimed water, is not
15 intended for public contact, and is used primarily for aesthetic enjoyment. Landscape
16 impoundments include, but are not limited to, decorative pools, fountains, ponds and lagoons;
17 located outdoors or indoors.

18 "Level 1" means a degree of treatment at which reclaimed water has received, at a
19 minimum, secondary treatment with filtration and higher-level disinfection, and meets all other
20 applicable standards specified in 9VAC25-740-70.

21 "Level 2" means a degree of treatment at which reclaimed water has received, at a
22 minimum, secondary treatment and standard disinfection, and meets all other applicable
23 standards specified in 9VAC25-740-70.

24 "Municipal wastewater" means sewage.

1 ~~"Nonbulk irrigation reuse"~~ "Non-bulk irrigation reuse" means the reuse of reclaimed water for
2 irrigation of individual areas less than or equal to five acres.

3 ~~"Nonpotable water"~~ "Non-potable water" means any water, including reclaimed water, not
4 meeting the definition of potable water.

5 ~~"Nonsystem storage"~~ "Non-system storage" means storage for reclaimed water that is other
6 than system storage and is used at a location downstream of the service connection to the
7 reclaimed water distribution system to equalize flow to end users.

8 ~~"Nutrient management plan (NMP)"~~ "Nutrient management plan" or "NMP" means a plan
9 prepared by a nutrient management planner certified by the Department of Conservation and
10 Recreation to manage the amount, placement, timing, and application of plant nutrients from
11 liquid, solid or semisolid manures, fertilizers, biosolids, or other materials, for the purpose of
12 producing crops and reducing nutrient loss to the environment.

13 "Owner" means the Commonwealth or any of its political subdivisions including, but not
14 limited to, sanitation district commissions and authorities, and any public or private institution,
15 corporation, association, firm or company organized or existing under the laws of this or any
16 other state or country, or any officer or agency of the United States, or any person or group of
17 persons acting individually or as a group that owns, operates, charters, rents, or otherwise
18 exercises control over or is responsible for the production or distribution of reclaimed water, or
19 any facility or operation that produces or distributes reclaimed water.

20 "Permit" means an authorization, certificate, license, or equivalent control document issued
21 by the board to implement the requirements of this chapter.

22 "Point of compliance" or "POC" means a point at which compliance with the standards of this
23 chapter is required.

1 "Pollutants of concern" means any pollutants that might reasonably be expected to be
2 discharged to a publicly or privately owned treatment works in sufficient amounts to pass
3 through or interfere with the works, contaminate sludge generated by the works, cause
4 problems in the collection system of the works, or jeopardize the health of employees at the
5 works and the public.

6 "Potable water" means water fit for human consumption and domestic use that is sanitary
7 and normally free of minerals, organic substances, and toxic agents in excess of reasonable
8 amounts for domestic usage in the area served and normally adequate in quantity and quality
9 for the minimum health requirements of the persons served.

10 "Public access area" means an area that is intended to be accessible to the general public,
11 such as golf courses, cemeteries, parks, athletic fields, school yards, and landscape areas.
12 Public access areas include private property that is not open to the public at large, but is
13 intended for frequent use by many persons. Presence of authorized farm personnel or other
14 authorized treatment plant, utilities system, or reuse system personnel does not constitute
15 public access.

16 ~~"Reclamation" means the treatment of domestic, municipal or industrial wastewater or~~
17 ~~sewage to produce reclaimed water for a water reuse that would not otherwise occur.~~

18 ~~"Reclamation system" means a treatment works that treats domestic, municipal or industrial~~
19 ~~wastewater or sewage to produce reclaimed water for a water reuse that would not otherwise~~
20 ~~occur.~~

21 "Reclaimed water" means water resulting from the treatment of domestic, municipal or
22 industrial wastewater that is suitable for a water reuse that would not otherwise occur.
23 Specifically excluded from this definition is "gray water." For the purposes of this chapter,
24 "harvested rainwater" and "stormwater" are also excluded from this definition.

1 "Reclaimed water agent" means a person or entity that holds a permit to distribute reclaimed
2 water to one or more end users.

3 "Reclaimed water distribution system" means a network of pipes, pumping facilities, storage
4 facilities, and appurtenances designed to convey and distribute reclaimed water from one or
5 more reclamation systems to one or more end users.

6 "Reclamation" means the treatment of domestic, municipal or industrial wastewater or
7 sewage to produce reclaimed water for a water reuse that would not otherwise occur.

8 "Reclamation system" means a treatment works that treats domestic, municipal or industrial
9 wastewater or sewage to produce reclaimed water for a water reuse that would not otherwise
10 occur.

11 "Reject water storage" means storage for water diverted by a reclamation system or satellite
12 reclamation system that does not meet applicable reclaimed water standards.

13 "Reliability Class I" means a measure of reliability that requires a treatment works design to
14 provide continuous satisfactory operation during power failures, flooding, peak loads, equipment
15 failure, and maintenance shut-down. This class includes design features, such as additional
16 electrical power sources, additional flow storage capacity, and additional treatment units that
17 provide operation in accordance with the issued certificate or permit requirements. The
18 definition of Reliability Class I contained in this chapter is in addition to but does not supersede
19 the definition of Reliability Class I contained in the Sewage Collection and Treatment
20 Regulations (9VAC25-790).

21 "Reuse" or "water reuse" means the use of reclaimed water for a direct beneficial use, an
22 indirect potable reuse, an indirect non-potable reuse, or a controlled use in accordance with this
23 chapter.

1 "Reuse system" means an installation or method of operation that uses reclaimed water for
2 a water reuse in accordance with this chapter.

3 "Restricted access" means limited access by humans to areas where, ~~nonpotable~~ non-
4 potable water, including reclaimed water, is used, resulting in minimal or no potential for human
5 contact.

6 "Satellite reclamation system" or "SRS" means a conjunctive ~~wastewater treatment works~~
7 ~~and reclamation~~ system that operates within or parallel to a sewage collection system to treat a
8 portion of the available wastewater flow in the collection system to produce reclaimed water for
9 reuse. Satellite reclamation systems do not have a discharge to surface waters, but may return
10 their treatment process wastewater and residuals to the sewage collection system.

11 "Secondary treatment" means a biological treatment process for wastewater that achieves
12 the minimum level of effluent quality defined by the federal secondary treatment regulation in 40
13 CFR § 133.102 (2001).

14 "Service area" means a geographic area that receives reclaimed water from a reclaimed
15 water distribution system or directly from a reclamation system for approved reuses within that
16 area.

17 "Sewage" means the water-carried human wastes and nonwater-carried human excrement,
18 kitchen, laundry, shower, bath or lavatory wastes, separately or together with such
19 underground, surface, storm and other water and liquid industrial wastes as may be present
20 from residences, buildings, vehicles, industrial establishments or other places.

21 "Significant industrial user" or "SIU" shall have the meaning set forth in the VPDES Permit
22 Regulation (9VAC25-31-10).

23 "Source water" means untreated or partially treated wastewater supplied for reclamation.

1 "State waters" or "waters of the state" means all water, on the surface and under the ground,
2 wholly or partially within or bordering the Commonwealth or within its jurisdiction, including
3 wetlands.

4 "State Water Control Law or Law" means Chapter 3.1 (§ 62.1-44.2 et seq.) of Title 62.1 of
5 the Code of Virginia.

6 "Stormwater" means precipitation that is discharged across the land surface or through
7 conveyances to one or more waterways and that may include stormwater runoff, snow melt
8 runoff, and surface runoff and drainage.

9 "Supplemental irrigation" means irrigation, which in combination with rainfall, meets but does
10 not exceed the water necessary to maximize production or optimize growth of the irrigated
11 vegetation.

12 "Surface waters" means all waters in the Commonwealth, except ~~ground water~~ groundwater
13 as defined in § 62.1-255 of the Code of Virginia.

14 "System storage" means storage on or off the site and considered part of a reclamation
15 system, ~~satellite reclamation system~~ SRS, or reclaimed water distribution system that is used to
16 store reclaimed water produced by the reclamation system or ~~satellite reclamation system~~ SRS
17 and to equalize flow to or within a reclaimed water distribution system.

18 "Total Maximum Daily Load" or "TMDL" shall have the meaning set forth in the Water Quality
19 Planning Regulation (9VAC25-720).

20 "Treatment works" means any devices and systems used for the storage, treatment,
21 recycling or reclamation of sewage or liquid industrial waste, or other waste, or that are
22 necessary to recycle or reuse water, including intercepting sewers, outfall sewers, sewage
23 collection systems, individual systems, pumping, power and other equipment and their
24 appurtenances, extensions, improvements, remodeling, additions, or alterations thereof; or any

1 works, including land that will be an integral part of the treatment process or is used for ultimate
2 disposal of residues resulting from such treatment; or any other method or system used for
3 preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste or
4 industrial waste, including waste in combined sewer water and sanitary sewer systems.

5 "Underground aquifer" means an aquifer or portion of an aquifer that supplies any public
6 water system or that contains a sufficient quantity of groundwater to supply a public water
7 system, and currently supplies drinking water for human consumption, or that contains fewer
8 than 10,000 mg/l total dissolved solids and is not an exempted aquifer.

9 "Unintentional reuse" means the unintentional or unplanned use of reclaimed water
10 subsequent to discharge to surface waters of the state, including wetlands, pursuant to a
11 VPDES permit.

12 "Unrestricted access" means unlimited or minimally limited access by humans to areas
13 where ~~nonpotable~~ non-potable water, including reclaimed water, is used, resulting in a high
14 potential for human contact.

15 "User" means end user.

16 ~~"Virginia Pollution Abatement (VPA) Permit"~~ "Virginia Pollution Abatement Permit" or "VPA
17 Permit" means a document issued by the board, pursuant to the Virginia Pollution Abatement
18 Permit Regulation (9VAC25-32), authorizing pollutant management activities under prescribed
19 conditions.

20 ~~"Virginia Pollutant Discharge Elimination System (VPDES) Permit"~~ "Virginia Pollutant
21 Discharge Elimination System Permit" or "VPDES Permit" means a document issued by the
22 board, pursuant to the Virginia Pollutant Discharge Elimination System Permit Regulation
23 (9VAC25-31), authorizing, under prescribed conditions the potential or actual discharge of

1 pollutants from a point source to surface waters and the use or disposal of sewage sludge.
2 Under the approved state program, a VPDES permit is equivalent to an NPDES permit.

3 "Wastewater" means untreated liquid and ~~water-carried~~ water-carried industrial wastes and
4 domestic sewage from residential dwellings, commercial buildings, industrial and manufacturing
5 facilities and institutions.

6 "Water reclamation" means the reclamation of wastewater or treated effluent for reuse.

7 "Waterworks" means a system that serves piped water for drinking or domestic use to (i) the
8 public, (ii) at least 15 connections, or (iii) an average of 25 individuals for at least 60 days out of
9 the year. The term "waterworks" shall include all structures, equipment and appurtenances used
10 in the storage, collection, purification, treatment and distribution of pure water except the piping
11 and fixtures inside the building where such water is delivered.

12 **9VAC25-740-20. Purpose.**

13 In accordance with §§ 62.1-44.2, 62.1-44.3 and 62.1-44.15 of the Code of Virginia, it is the
14 purpose of this chapter to promote and encourage the reclamation of wastewater, here after
15 referred to as water reclamation, and water reuse in a manner that is protective of the
16 environment and public health, and as an alternative to discharging treated effluent to state
17 waters. For this purpose, the chapter establishes permitting requirements, general requirements
18 for design, operation and maintenance; quality standards, monitoring requirements, and
19 approved reuses for reclaimed water.

20 **9VAC25-740-30. Applicability and transition.**

21 A. The requirements of this chapter shall apply to water reclamation systems, reclaimed
22 water distribution systems, and water reuse unless specifically excluded under 9VAC25-740-50
23 A. The requirements shall apply to all new water reclamation systems, reclaimed water
24 distribution systems and, as applicable, water reuses for which Virginia Pollution Abatement

1 (VPA) or Virginia Pollutant Discharge Elimination System (VPDES) permit applications are
2 received after October 1, 2008. The requirements may also be applied to all existing permitted
3 facilities producing, distributing or using reclaimed water through a permit modification or
4 reissuance procedure and shall be applied when such facilities are to be modified or expanded
5 unless specifically excluded under 9VAC25-740-50 A. The owners of existing water reclamation
6 systems, reclaimed water distribution systems and, as applicable, water reuses that do not have
7 a VPA or VPDES permit shall submit a complete VPA or VPDES permit application or other
8 necessary information as prescribed under 9VAC25-740-40 within 180 days of being requested
9 by the board.

10 B. For the purposes of this chapter:

11 1. The incorporation of standards, monitoring requirements and special conditions for
12 water reclamation and reuse into a VPA permit shall be considered a minor modification
13 unless they alter other conditions of the permit specifically related to the pollutant
14 management activity for which the permit was originally issued.

15 ~~2.~~ Standards, monitoring requirements and special conditions for water reclamation and
16 reuse may be administratively authorized for a VPDES permit without a permit
17 modification unless they effectively alter other conditions of the permit specifically related
18 to the effluent discharge for which the permit was originally issued. The administrative
19 authorization shall have the full effect of the VPDES permit until such time that it is
20 incorporated into the VPDES permit through reissuance or major modification.

21 3. ~~Minor modification~~ Modification of a VPA or VPDES permit or the issuance of an
22 administrative authorization associated with a VPDES permit described in subdivisions 4
23 ~~and 2-B 1 and B 2~~ of this subsection shall require an application for a water reclamation
24 ~~and reuse project~~ in accordance with 9VAC25-740-100.

1 **9VAC25-740-40. Permitting requirements.**

2 A. The owner of the reclamation system and the owner of the reclaimed water distribution
3 system or the reclaimed water agent shall obtain a VPDES or VPA permit to produce and
4 distribute reclaimed water, unless otherwise excluded from the requirements of this chapter
5 under 9VAC25-740-50 A. Where both the reclamation system and the reclaimed water
6 distribution system are under common ownership and management, one permit may be issued
7 to the owner. Permit coverage may be provided through modification or reissuance of an
8 existing VPA permit, or reissuance of or administrative authorization for an existing VPDES
9 permit to include standards, monitoring requirements and special conditions that address water
10 reclamation and reuse.

11 B. The owner of a satellite reclamation system (SRS) shall obtain a VPA permit.
12 Alternatively and at the discretion of the board, a ~~satellite reclamation system~~ SRS may be
13 authorized under a VPA or VPDES permit issued to a wastewater treatment works that is under
14 common ownership or management with the ~~satellite reclamation system~~ SRS and receives
15 wastewater and residuals discharged by the ~~satellite reclamation system~~ SRS.

16 C. Each end user shall enter into a service agreement or contract with all reclaimed water
17 agents from which the end user receives reclaimed water prior to receipt of such water.
18 Monitoring and management of individual end users ~~of reclaimed water~~ shall be by the
19 ~~permittee~~ reclaimed water agents with whom the end users have a service connection, and
20 through the service agreements or contracts between the permittee reclaimed water agents and
21 the individual end users unless affected by a permit issued to an end user as described in
22 subsection F of this section.

23 D. Where a reclamation system and a reclaimed water distribution system that receives
24 reclaimed water from the reclamation system are under separate ownership and management,
25 and the reclaimed water distribution system does not distribute reclaimed water to end users

1 other than to the owner or management of that system, the reclaimed water distribution system
2 ~~shall~~may not require a permit provided a service agreement or contract is established between
3 the reclamation system and the reclaimed water distribution system.

4 E. A separate permit may be required for end users receiving reclaimed water directly from
5 more than one reclamation system, ~~satellite reclamation system,~~ SRS reclaimed water
6 distribution system, or a combination thereof. An end user may be authorized under the permit
7 issued to one of the reclamation systems, ~~satellite reclamation systems,~~ SRSs or reclaimed
8 water distribution systems that supply reclaimed water to the end user, provided the end user is
9 under common ownership or management with the permitted system.

10 F. Property irrigated with reclaimed water from a reclamation system, ~~satellite reclamation~~
11 ~~system~~ SRS or reclaimed water distribution system under common ownership or management
12 with that property, shall be regulated by the permit issued to the reclamation system, ~~satellite~~
13 ~~reclamation system~~ SRS or reclaimed water distribution system providing reclaimed water to the
14 irrigated property.

15 G. A reclamation system shall not discharge reclaimed or reject water to surface waters of
16 the state in lieu of providing storage, discharging to another permitted reuse system, if
17 applicable; returning reclaimed or reject water to a wastewater treatment works; or suspending
18 production of reclaimed water; without authorization to discharge under a VPDES Permit.

19 **9VAC25-740-45. Emergency authorization for the production, distribution or reuse of**
20 **reclaimed water.**

21 A. The board may issue an emergency authorization for the production, distribution or reuse
22 of reclaimed water when it finds that due to drought there is insufficient public water supply that
23 may result in a substantial threat to public safety. The emergency authorization may be issued
24 only after:

1 1. Conservation measures mandated by local or state authorities have failed to protect
2 public safety, and

3 2. The Virginia Department of Health has been notified of the application to issue an
4 emergency authorization and has been provided not less than 14 days to submit
5 comments or recommendations to the board on the application.

6 B. An emergency authorization may be issued in addition to an Emergency Virginia Water
7 Protection Permit (9VAC25-210) for a new or increased public water supply withdrawal.

8 C. An emergency authorization may be issued to only existing VPDES or VPA permitted
9 municipal treatment works that:

10 1. Are not currently authorized to produce, distribute or reuse reclaimed water in
11 accordance with 9VAC25-740-40;

12 2. Are currently capable of producing reclaimed water meeting minimum standard
13 requirements of 9VAC25-740-90 for proposed reuses listed in the application for an
14 emergency authorization; and

15 3. Do not have significant industrial users (SIUs), or do have SIUs and a pretreatment
16 program developed, approved and maintained in accordance with Part VII of the VPDES
17 Permit Regulation (9VAC25-31-730 through 9VAC25-31-900).

18 D. An emergency authorization may be issued for only reuses of reclaimed water deemed
19 necessary by the board. In no case shall an emergency authorization be issued in lieu of a
20 VPDES permit action for a reuse that involves a discharge of reclaimed water to surface waters.

21 E. An application for an emergency authorization issued pursuant to this section shall
22 provide the information specified in 9VAC25-740-105. No later than 180 days after the issuance
23 of an emergency authorization, the holder of the authorization shall apply for coverage under a
24 VPDES or VPA permit in accordance with 9VAC25-740-40. Thereafter, the emergency

1 authorization shall remain in effect until the board acts upon the application for the VPDES or
2 VPA permit in accordance with 9VAC25-740-30 B.

3 F. There shall be no public comment period for the issuance of an emergency authorization.

4 **9VAC25-740-50. Exclusions and prohibitions.**

5 A. Exclusions. Exclusion from the requirements of this chapter does not relieve any owner of
6 the operations identified below of the responsibility to comply with any other applicable federal,
7 state or local statutes, regulations or ordinances. The following are excluded from the
8 requirements of this chapter:

9 1. Activities permitted by the Virginia Department of Health (VDH), such as, but not
10 limited to, septic tank drainfield systems and other on-site sewage treatment and
11 disposal systems, and water treatment plant recycle flows. This exclusion does not apply
12 to alternative onsite sewage systems as defined in 12VAC5-613 with an average daily
13 sewage flow in excess of 1,000 gallons per day that are concurrently permitted by the
14 board and VDH to allow sewage reclamation and reuse in addition to onsite sewage
15 treatment and disposal.

16 2. Utilization of gray water, harvested rainwater or stormwater.

17 3. ~~Nonpotable~~ Non-potable water produced and utilized on-site by the same treatment
18 works for facilities permitted through a VPDES or VPA permit. This includes the use of
19 ~~nonpotable~~ non-potable water at the treatment works site for incidental landscape
20 irrigation that is not identified as land treatment defined in the Sewage Collection and
21 Treatment Regulations (9VAC25-790). The treatment works site shall include property
22 that is either contiguous to or in the immediate vicinity of the parcel of land upon which
23 the treatment works is located, provided such property is under common ownership or
24 management with the treatment works. This exclusion does not apply to ~~nonpotable~~ non-

1 potable water produced by treatment works authorized by the VPDES General Permit for
2 Domestic Sewage Discharges Less Than or Equal to 1,000 Gallons Per Day (9VAC25-
3 110).

4 4. Recycle flows within a treatment works.

5 5. Industrial effluents or other industrial water streams created prior to final treatment
6 and used for water re-circulation, recycle, or reuse systems located on the same
7 property as the industrial facility, provided:

8 a. The water used in these systems does not contain or is not expected to contain
9 pathogens or other constituents in sufficient quantities and with a potential for human
10 contact as may be harmful to human health;

11 b. These systems are closed or isolated to prevent worker contact with the water of
12 the systems; or

13 c. Other measures are in place, including but not limited to, applicable federal and
14 state occupational safety and health standards and requirements, to adequately
15 inform and protect employees from pathogens or other constituents that may be
16 harmful to human health in the water to be re-circulated, recycled or reused at the
17 facility.

18 6. Land treatment systems defined in the Sewage Collection and Treatment Regulations
19 (9VAC25-790). Such use of wastewater effluent, either existing or proposed, must be
20 authorized by a VPA or VPDES permit and must be on land owned or under the direct
21 long-term control of the permittee.

22 7. ~~Indirect~~ Unintentional reuse with the exception of indirect potable reuse projects
23 proposed after October 1, 2008 and indirect non-potable reuse projects proposed after
24 [effective date of amended regulation] .

1 8. Existing indirect potable reuse projects that upon October 1, 2008, are authorized by a
2 VPDES permit to discharge to surface waters of the state, and future expansions of
3 these projects.

4 9. Direct injection of reclaimed water into any underground aquifer authorized by EPA
5 under the Safe Drinking Water Act, Underground Injection Control Program (UIC), 40
6 CFR Part 144; or other applicable federal and state laws and regulations.

7 ~~Exclusion from the requirements of this chapter does not relieve any owner of the above~~
8 ~~operations of the responsibility to comply with any other applicable federal, state or local statute,~~
9 ~~ordinance or regulations.~~

10 B. Prohibitions. The following are prohibited under this chapter:

11 1. Direct potable reuse;

12 2. The reuse of reclaimed water ~~for any purpose inside a residential or domestic dwelling~~
13 ~~or a building containing a residential or domestic unit~~ distributed to one or two family
14 dwelling. This prohibition does not apply to reuses of reclaimed water outside of and on
15 the same property as one or two family dwellings where the reclaimed water is not
16 distributed to such reuses by way of plumbing within the dwellings;

17 3. The reuse of reclaimed water to fill residential swimming pools, hot tubs or wading
18 pools;

19 4. The reuse of reclaimed water for food preparation or incorporation as an ingredient
20 into food or beverage for human consumption;

21 5. Bypass of untreated or partially treated wastewater from the reclamation system or
22 any intermediate unit process to the point of reuse unless the bypass complies with
23 standards and requirements specified in 9VAC25-740-70 and is for essential
24 maintenance to assure efficient operation; ~~and~~

1 6. The return of reclaimed water to the reclaimed water distribution system after the
2 reclaimed water has been delivered to an end user; and

3 7. Reduction of the discharge from a VPDES permitted treatment works due to diversion
4 of source water flow for reclamation and reuse such that the physical, chemical or
5 biological properties of the receiving state waters are affected in a manner that would
6 cause a significant adverse impact to other beneficial uses.

7 **9VAC25-740-55. Variances.**

8 A. The board may grant a variance to this chapter for design, construction, operation or
9 maintenance requirements contained in the chapter by following the appropriate procedures set
10 forth in this section.

11 B. Any person or entity wishing to initiate a project for the production, distribution or reuse of
12 reclaimed water that is not excluded from the provisions of this chapter by 9VAC25-740-50, may
13 apply for a variance to design, construction, operation or maintenance requirements of the
14 chapter where requiring the project to comply with such requirements would be contrary to the
15 purpose of State Water Control Law, specifically § 62.1-44.2 of the Code of Virginia. The board
16 may grant a variance if it finds that the hardship imposed, which may be economic, outweighs
17 the benefits of the project and that the granting of such variance would not adversely impact
18 public health or the environment.

19 C. An application for a variance shall be made in writing and shall include the following:

20 1. A citation of the regulation from which a variance is requested;

21 2. The nature and duration of variance requested;

22 3. A statement of the hardship to the applicant and the anticipated impacts to public
23 health and welfare or the environment if a variance were granted;

1 4. Suggested conditions that might be imposed on the granting of a variance that would
2 limit any anticipated detrimental impacts on public health or the environment;

3 5. Other information, if any, believed to be pertinent by the applicant; and

4 6. Such other information as may be required to make the determination in accordance
5 with subsection B of this section.

6 D. The board shall act on any application for a variance submitted pursuant to this section
7 within 60 days of application receipt. In the board's decision to grant or deny a variance for a
8 project to produce, distribute or reuse reclaimed water, the board shall consider, at a minimum,
9 the following:

10 1. The effect that such a variance would have on the adequate operation of the project,
11 including operator safety (in accordance with the requirements of the Virginia
12 Department of Labor and Industry, Occupation Safety and Health Administration);

13 2. The cost and other economic considerations imposed by the regulatory requirement
14 for which the variance has been requested; and

15 3. The effect that such a variance would have on the protection of public health or the
16 environment.

17 E. Disposition of a variance request.

18 1. If the board proposes to deny a variance request submitted pursuant to this section,
19 the board shall provide the applicant an opportunity to an informal fact-finding
20 proceeding in accordance with § 2.2-4019 of the Code of Virginia. Thereafter, the board
21 may reject any application for a variance and shall notify the applicant in writing of this
22 decision and the basis for the rejection. The board's notice, in this case, constitutes a
23 case decision.

1 2. If the board proposes to grant a variance request submitted pursuant to this section,
2 the applicant shall be notified in writing of this decision. Such notice shall:

3 a. Identify the project for which the variance has been granted;

4 b. Describe the variance;

5 c. Specify the period of time for which the variance will be effective; and

6 d. State that the variance shall be terminated when the project comes into
7 compliance with the applicable design, construction, operation or maintenance
8 requirements of this chapter and may be terminated upon a finding by the board that
9 the project has failed to comply with any requirements or schedules issued in
10 conjunction with the variance.

11 3. The effective date of a variance described in subdivision E 2 of this subsection shall
12 be 15 days following the date of notice to the applicant.

13 F. All variances granted for the design, construction, operation or maintenance of a project
14 to produce, distribute or reuse reclaimed water are nontransferable. Any requirements of the
15 variance shall become part of the permit for the project subsequently issued, reissued or
16 modified by the board.

17 G. Where this chapter references the Sewage, Collection and Treatment Regulations
18 (9VAC25-790) for design, construction, operation or maintenance requirements affecting
19 components of a project to produce, distribute or reuse reclaimed water, an application for a
20 variance to such requirements shall be in accordance with variance procedures described in
21 9VAC25-790.

1 **9VAC25-740-60. Relationship to other board regulations.**

2 A. Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32). The VPA Permit
3 Regulation delineates the procedures and requirements to be followed in connection with the
4 VPA permits issued by the board pursuant to the State Water Control Law. ~~While any~~ Any
5 treatment works treating domestic, municipal or industrial wastewater that produces reclaimed
6 water or a facility that distributes reclaimed water in a manner that does not result in a discharge
7 to surface waters ~~is required to~~ shall obtain a VPA permit, ~~this chapter prescribes design,~~
8 Design, operation and maintenance standards prescribed by this chapter for water reclamation
9 and ~~water-reuse. These requirements~~ shall be incorporated into the VPA permit application and
10 the VPA permit when applicable. Water reclamation and reuse requirements contained in a VPA
11 permit shall be enforced through existing enforcement mechanisms of the ~~VPA~~ permit.

12 B. Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-
13 31). The VPDES Permit Regulation delineates the procedures and requirements to be followed
14 in connection with VPDES permits issued by the board pursuant to the Clean Water Act and the
15 State Water Control Law. ~~While any~~ Any treatment works treating domestic, municipal or
16 industrial wastewater that produces reclaimed water and has a discharge to a surface or a
17 ~~facility that distributes reclaimed water in a manner that results in~~ distribution system that has a
18 discharge to surface waters ~~is required to~~ shall obtain a VPDES permit, ~~this chapter prescribes~~
19 ~~design,~~ Design, operation and maintenance standards for water reclamation and reuse. ~~These~~
20 ~~requirements~~ shall be incorporated into the VPDES permit application and the VPDES permit
21 when applicable. Water reclamation and reuse requirements contained in a VPDES permit shall
22 be enforced through existing enforcement mechanisms of the ~~VPDES~~ permit.

23 C. Sewage Collection and Treatment Regulations (9VAC25-790). The Sewage Collection
24 and Treatment Regulations establish standards for the operation, construction, or modification

1 of a sewerage system or treatment works, including land treatment systems. This chapter
2 prescribes design, operation and maintenance standards for water reclamation and reuse.

3 D. Regulation for Nutrient Enriched Waters and Discharges within the Chesapeake Bay
4 Watershed (9VAC25-40). Sections 62.1-44.19:12 through 62.1-44.19:19 of the Code of Virginia,
5 which establishes the Regulation for Nutrient Enriched Waters and Discharges within the
6 Chesapeake Bay Watershed (9VAC25-40), allows for credit to be given for reductions in total
7 nitrogen and total phosphorus discharged loads through recycle or reuse of wastewater when
8 determining technology requirements associated with new or expanded discharges.

9 E. General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus
10 Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820).
11 The General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus
12 Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia regulates point
13 sources of nutrients and establishes a framework for nutrient credit trading and offsets. Water
14 reclamation and reuse provides an opportunity to reduce point source nutrient loads.

15 F. Local and Regional Water Supply Planning Regulation (9VAC25-780). The Local and
16 Regional Water Supply Planning Regulation requires every county, city, and town to develop a
17 water plan in accordance with established planning criteria. Where appropriate, the plan may
18 consider nontraditional means of increasing supplies such as interconnection, desalination,
19 recycling and reuse.

20 G. Water Withdrawal Reporting Regulation (9VAC25-200). The Water Withdrawal Reporting
21 Regulation requires industrial VPDES permittees to annually report to the board the source and
22 location of water withdrawals and the type of use information specified by 9VAC25-200. Where
23 the VPDES permitted discharge volume deviates by greater than \pm 10 percent of the water
24 withdrawal volume, the permittee is required to report the deviation.

Part II

Reclaimed Water Treatment, Standards, Monitoring Requirements and Reuses**9VAC25-740-70. ~~Standards~~ Treatment and standards for reclaimed water.**

A. ~~Standards~~ Treatment and standards for reclaimed water are ~~as follows:~~ provided in Table

70-A.1. ~~Level 1:~~

a. ~~Secondary treatment with filtration and higher level disinfection.~~

b. ~~Bacterial standards:~~

~~(1) Fecal coliform*: monthly geometric mean** less than or equal to 14 colonies/100 ml; corrective action threshold at greater than 49 colonies/100 ml; or~~

~~(2) E. coli*: monthly geometric mean** less than or equal to 11 colonies/100 ml; corrective action threshold at greater than 35 colonies/100 ml; or~~

~~(3) Enterococci*: monthly geometric mean** less than or equal to 11 colonies/100 ml; corrective action threshold at greater than 24 colonies/100 ml.~~

c. ~~Total Residual Chlorine (TRC)***: corrective action threshold at less than 1.0 mg/l**** after a minimum contact time of 30 minutes at average flow or 20 minutes at peak flow~~

d. ~~pH 6.0-9.0 standard units.~~

e. ~~Five-day Biochemical Oxygen Demand (BOD₅): monthly average less than or equal to 10 mg/l; or Carbonaceous Biochemical Oxygen Demand CBOD₅****: monthly average less than or equal to 8 mg/l.~~

1 ~~f. Turbidity: Daily average of discrete measurements recorded over a 24-hour period~~
2 ~~less than or equal to 2 nephelometric turbidity units (NTU); corrective action~~
3 ~~threshold at greater than 5 NTU.~~

4 ~~2. Level 2:~~

5 ~~a. Secondary treatment and standard disinfection.~~

6 ~~b. Bacterial standards:~~

7 ~~(1) Fecal coliform*: monthly geometric mean** less than or equal to 200~~
8 ~~colonies/100ml; corrective action threshold at greater than 800 colonies/100 ml; or~~

9 ~~(2) E. coli*: monthly geometric mean** less than or equal to 126 colonies/100ml;~~
10 ~~corrective action threshold at greater than 235 colonies/100 ml; or~~

11 ~~(3) Enterococci*: monthly geometric mean** less than or equal to 35 colonies/100ml;~~
12 ~~corrective action threshold at greater than 104 colonies/100 ml.~~

13 ~~c. Total Residual Chlorine (TRC)***: corrective action threshold at less than 1.0~~
14 ~~mg/l**** after a minimum contact time of 30 minutes at average flow or 20 minutes at~~
15 ~~peak flow.~~

16 ~~d. pH 6.0-9.0 standard units.~~

17 ~~e. BOD₅: monthly average less than or equal to 30 mg/l; maximum weekly average~~
18 ~~45 mg/l; or CBOD₅****: monthly average less than or equal to 25 mg/l; maximum~~
19 ~~weekly average 40 mg/l.~~

20 ~~f. TSS: monthly average less than or equal to 30 mg/l; maximum weekly average 45~~
21 ~~mg/l.~~

22 ~~* After disinfection.~~

1 ~~** For the purpose of calculating the geometric mean, bacterial analytical results~~
 2 ~~below the detection level of the analytical method used shall be reported as values~~
 3 ~~equal to the detection level.~~

4 ~~*** Applies only if chlorine is used for disinfection.~~

5 ~~**** TRC less than 1.0 mg/l may be authorized by the board if demonstrated to~~
 6 ~~provide comparable disinfection through a chlorine reduction program in accordance~~
 7 ~~with the Sewage Collection and Treatment Regulations (9VAC25-790).~~

8 ~~***** Applies only if CBOD₅ is used in lieu of BOD₅.~~

9

<u>Table 70-A</u> <u>Treatment and Standards for Reclaimed Water</u>		
	<u>1. Level 1</u>	<u>2. Level 2</u>
<u>a. Treatment</u>	<u>Secondary treatment with filtration and higher-level disinfection.</u>	<u>Secondary treatment and standard disinfection.</u>
<u>b. Bacterial standards</u>	<u>(1) Fecal coliform¹: monthly geometric mean² less than or equal to 14 colonies/100ml; corrective action threshold at greater than 49 colonies/100 ml; or</u>	<u>(1) Fecal coliform¹: monthly geometric mean² less than or equal to 200 colonies/100ml; corrective action threshold at greater than 800 colonies/100 ml; or</u>
	<u>(2) E. coli¹: monthly geometric mean² less than or equal to 11 colonies/100 ml; corrective action threshold at greater than 35 colonies/100 ml; or</u>	<u>(2) E. coli¹: monthly geometric mean² less than or equal to 126 colonies/100 ml; corrective action threshold at greater than 235 colonies/100 ml; or</u>
	<u>(3) Enterococci¹: monthly geometric mean² less than or equal to 11 colonies/100 ml; corrective action threshold at greater than 24 colonies/100 ml.</u>	<u>(3) Enterococci¹: monthly geometric mean² less than or equal to 35 colonies/100 ml; corrective action threshold at greater than 104 colonies/100 ml.</u>
<u>c. Total Residual Chlorine(TRC)³</u>	<u>Corrective action threshold at less than 1.0 mg/l⁴ after a minimum contact time of 30 minutes at average flow or 20</u>	<u>Corrective action threshold at less than 1.0 mg/l⁴ after a minimum contact time of 30 minutes at average flow or 20</u>

	<u>minutes at peak flow.</u>	<u>minutes at peak flow.</u>
<u>d. pH</u>	<u>6.0 – 9.0 standard units</u>	<u>6.0 – 9.0 standard units</u>
<u>e. Five-day Biochemical Oxygen Demand (BOD₅)</u>	<u>(1) BOD₅: Monthly average less than or equal to 10 mg/l; or</u> <u>(2) Carbonaceous Biochemical Oxygen Demand (CBOD₅)⁵: monthly average less than or equal to 8 mg/l.</u>	<u>(1) BOD₅: Monthly average less than or equal to 30 mg/l; maximum weekly average 45 mg/l; or</u> <u>(2) Carbonaceous Biochemical Oxygen Demand (CBOD₅)⁵: monthly average less than or equal to 25 mg/l; maximum weekly average 40 mg/l.</u>
<u>f. Turbidity⁶</u>	<u>Daily average of discrete measurements recorded over a 24-hour period less than or equal to 2 nephelometric turbidity units (NTU); corrective action threshold at greater than 5 NTU.</u>	
<u>f. Total Suspended Solids (TSS)</u>		<u>Monthly average less than or equal to 30 mg/l; maximum weekly average 45 mg/l.</u>
¹ <u>After disinfection.</u> ² <u>For the purpose of calculating the geometric mean, bacterial analytical results below the detection level of the analytical method used shall be reported as values equal to the detection level.</u> ³ <u>Applies only if chlorine is used for disinfection.</u> ⁴ <u>TRC less than 1.0 mg/l may be authorized by the board if demonstrated to provide comparable disinfection through a chlorine reduction program in accordance with the Sewage Collection and Treatment Regulations (9VAC25-790).</u> ⁵ <u>Applies only if CBOD₅ is used in lieu of BOD₅.</u> ⁶ <u>Where ultraviolet radiation will be used for disinfection of Level 1 reclaimed water, other turbidity standards may apply in accordance with 9VAC25-740-110 A 2 a.</u>		

- 1
- 2 B. Point of compliance (POC).
- 3 1. Excluding the turbidity standard for Level 1 treatment, reclaimed Reclaimed water
- 4 produced by reclamation systems and SRSs for reuse shall meet all other applicable
- 5 standards in accordance with this chapter, excluding the turbidity standard for Level 1
- 6 treatment, at the point of compliance POC. The point of compliance POC for Level 1 and
- 7 Level 2 treatment shall be after all reclaimed water treatment and prior to discharge to a

1 reclaimed water distribution system. Where chlorination is used for disinfection of the
2 reclaimed water, the POC for the TRC standard shall be the monitoring location
3 specified in 9VAC25-740-80 A 2. ~~The point of compliance~~ POC for the turbidity standard
4 of Level 1 treatment shall be just upstream of disinfection.

5 2. Where the board determines that reclaimed water monitoring is required for a system
6 storage facility or a reclaimed water distribution system, the number and location of
7 POCs for these facilities shall be determined on a case-by-case basis and shall be
8 described in the following documents for approval by the board:

9 a. For system storage facilities other than those considered part of reclaimed water
10 distribution systems, in the operations and maintenance manual of the reclamation
11 system or SRS where the storage facility is located;

12 b. For reclaimed water distribution systems, including system storage facilities
13 considered part of these systems, in the Reclaimed Water Management plan
14 pursuant to 9VAC25-740-100 C 1 h; or

15 c. For both the system storage facility and reclaimed water distribution system when
16 under common ownership or management and within the same service area, in
17 either document described in subdivisions B 2 (a) or (b) of this subsection.

18 C. Reclaimed water that fails to comply with the standards shall be managed as follows:

19 1. Should reclaimed water reach the corrective action threshold (CAT) for turbidity in the
20 standard for Level 1, or for TRC in the standards for Level 1 or 2, whichever applies, the
21 operator of the reclamation system shall immediately initiate a review of treatment
22 operations and data to identify the cause of the CAT monitoring results to bring the
23 reclaimed water back into compliance with the standards. Resampling or diversion shall
24 occur within one hour of first reaching the CAT. Procedures for resampling, operational

1 review and diversion shall be as described in an approved operations and maintenance
2 manual for the reclamation system. If subsequent monitoring results of the resamples
3 collected within one hour of the first CAT monitoring results for turbidity or TRC continue
4 to reach the CAT of the standards, the reclaimed water shall be considered substandard
5 or reject water and shall be diverted to either storage for subsequent additional
6 treatment or retreatment, or discharged to another permitted reuse system requiring a
7 lower level of treatment not less than Level 2 or to a VPDES permitted effluent disposal
8 system provided the reject water meets the effluent limits of the permit. If the reclamation
9 system is unattended, the diversion of reject water shall be initiated and performed with
10 automatic equipment. There shall be no automatic restarts of distribution to reuse until
11 the treatment problem is corrected. Failure to divert the substandard or reject water after
12 one hour of CAT monitoring results shall be considered a violation of this chapter. Upon
13 resuming discharge of reclaimed water to the reclaimed water distribution system for
14 which the CAT was reached, resampling for turbidity or TRC shall occur within one hour
15 to verify proper treatment.

16 2. Should reclaimed water reach the CAT for bacteria (i.e., fecal coliform, E. coli or
17 enterococci) in the standards for Level 1 or 2, whichever applies, the operator of the
18 reclamation system shall immediately initiate a review of treatment operations and data
19 to identify the cause of the CAT monitoring results to bring the reclaimed water back into
20 compliance with the standards. Procedures for operational review shall be as described
21 in an approved operations and maintenance manual for the reclamation system. Two
22 consecutive bacterial monitoring results that reach the CAT of the standards shall be
23 considered a violation of this chapter.

24 3. Repeated, although temporary, failure to comply with all other standards by the
25 reclamation system may be considered a violation of this [—chapter determined by the

1 frequency and magnitude of the noncompliant monitoring results and other relevant
2 factors. Failure to resample after determination that monitoring results are not in
3 compliance with the standards, to make adjustments to the treatment process to bring
4 the reclaimed water back into compliance with the standards, or to divert substandard or
5 reject water in accordance with subdivision C 1 of this subsection shall be considered a
6 violation of this chapter.

7 D. Treatment or standards other than or in addition to the treatment and standards of
8 ~~9VAC25-740-70 A~~ in subsection A of this section may be necessary based on the quality and
9 character of the wastewater to be reclaimed or the intended reuse or reuses of the reclaimed
10 water. Such alternative or additional treatment or standards may be exempt from this chapter
11 unless required by the board to protect public health and the environment.

12 E. Standards for the reclamation of industrial wastewater will be determined on a case-by-
13 case basis relative to the proposed reuse or reuses of the reclaimed water and for the purpose
14 of protecting public health and the environment. Industrial wastewater may also be subject to
15 disinfection requirements of Level 1 or Level 2 if the industrial wastewater contains sewage or is
16 expected to contain organisms pathogenic to humans, such as, but not limited to, wastewater
17 from the production and processing of livestock and poultry. The point of compliance for
18 reclamation standards of industrial wastewater shall also be determined on a case-by-case
19 basis.

20 **9VAC25-740-80. Reclaimed water monitoring requirements for reuse.**

21 A. The monitoring requirements for the standards provided under 9VAC25-740-70 A, are as
22 follows:

23 1. Turbidity analysis;

1 a. Analysis shall be performed by a continuous, on-line turbidity meter equipped with
2 an automated data logging or recording device and an alarm to notify the operator
3 when the CAT for turbidity in the standard for Level 1 has been reached. Compliance
4 with the average turbidity standard shall be determined daily, based on the arithmetic
5 mean of hourly or more frequent discrete measurements recorded during a 24-hour
6 period. Monitoring for the turbidity CAT shall be continuous.

7 b. Should the on-line turbidity meter go out of service for either planned or unplanned
8 repair, the permittee shall be allowed to manually collect samples for turbidity
9 analysis at four-hour intervals up to a maximum of five days. Following the five-day
10 period of repair, continuous, on-line monitoring with a turbidity meter shall resume.

11 2. Sampling and analysis for residual concentrations of disinfectants, including total
12 residual chlorine (TRC):

13 a. ~~Shall for~~ For Level 1₂:

14 (1) Shall be continuous on-line monitoring, equipped with an automated data logging
15 or recording device and an alarm to notify the operator when the CAT for the
16 disinfectant has been reached. For disinfectants other than chlorine, continuous on-
17 line monitoring shall be provided at the point of compliance monitoring. For TRC,
18 continuous on-line monitoring shall be provided at the end of the contact tank or
19 contact period. Monitoring for the TRC CAT shall be continuous.

20 (2) Should the on-line disinfectant monitoring equipment go out of service for either
21 planned or unplanned repair, the permittee shall be allowed to manually collect
22 samples for disinfectant analysis at four-hour intervals up to a maximum of five days.
23 Following the five-day period of repair, continuous, on-line disinfectant monitoring
24 shall resume.

1 b. ~~Shall for~~ For Level 2, shall be based on the designated design flow of the
2 reclamation system and be the same sampling type and frequency as specified for
3 sewage treatment works in the Sewage Collection and Treatment Regulations
4 (9VAC25-790). For chemical disinfectants other than TRC, monitoring shall be
5 provided at the point of compliance ~~monitoring~~ in accordance with 9VAC25-740-70

6 B. For TRC, monitoring shall be provided at the end of the contact tank or contact
7 period.

8 3. Sampling for TSS and BOD₅ or CBOD₅ shall be at least weekly or more frequently
9 based on the designated design flow of the reclamation system, and shall be the same
10 sampling type and frequency as specified for sewage treatment works in the Sewage
11 Collection and Treatment Regulations (9VAC25-790). Compliance with the monthly
12 average TSS and BOD₅ or CBOD₅ standards shall be determined monthly, based on the
13 arithmetic mean of all samples collected during the month. Compliance with the
14 maximum weekly average TSS and BOD₅ or CBOD₅ standards shall be determined
15 monthly, using the same procedures applied in the VPDES Permit program for point
16 source discharges.

17 4. Sampling for fecal coliform, E. coli or enterococci:

18 a. Shall for Level 1, be grab samples collected at a time when wastewater
19 characteristics are most representative of the treatment facilities and disinfection
20 processes for water reuse, and at the ~~following~~ frequencies provided in Table 80-A.
21 Compliance with the geometric mean standards for fecal coliform, E. coli or
22 enterococci shall be determined monthly, based on all bacteriological monitoring
23 results for that month. Monitoring of the CAT for fecal coliform, E. coli or enterococci
24 shall be based on the bacteriological monitoring results determined for each day a
25 sample is collected.

1

<u>Table 80-A</u>	
Reclamation System Designated Design Flow (MGD) ⁽¹⁾	Bacterial Sampling Frequency ⁽²⁾
>0.500	Daily with the ability to reduce to no less than four days per week ⁽³⁾
0.050 to 0.500	Four days per week with the ability to reduce to no less than three days per week ⁽³⁾
<0.050	Three days per week with no reduction allowed
<p>⁽¹⁾<u>MGD means million gallons per day.</u></p> <p>⁽²⁾<u>For reclamation systems treating municipal wastewater, bacterial samples shall be collected between 10 a.m. and 4 p.m. to coincide with peak flows to the reclamation system. An exception to this requirement may be approved upon demonstration to the board that peak flows to the reclamation system occur outside this period.</u></p> <p>⁽³⁾<u>Monitoring frequency may be reduced after demonstrating compliance with bacterial standards for Level 1 and adequate correlation between bacterial monitoring results and measurements for surrogate disinfection parameters, such as TRC and turbidity.</u></p>	

2 ⁽¹⁾MGD means million gallons per day.

3 ⁽²⁾For reclamation systems treating municipal wastewater, bacterial samples shall be collected
 4 between 10 a.m. and 4 p.m. to coincide with peak flows to the reclamation system. An exception
 5 to this requirement may be approved upon demonstration to the board that peak flows to the
 6 reclamation system occur outside this period.

7 ⁽³⁾Monitoring frequency may be reduced after demonstrating compliance with bacterial
 8 standards for Level 1 and adequate correlation between bacterial monitoring results and
 9 measurements for surrogate disinfection parameters, such as TRC and turbidity.

10 Compliance with the geometric mean standards for fecal coliform, E. coli or
 11 enterococci shall be determined monthly, based on all bacteriological monitoring
 12 results for that month. Monitoring of the CAT for fecal coliform, E. coli or enterococci

1 ~~shall be based on the bacteriological monitoring results determined for each day a~~
2 ~~sample is collected.~~

3 b. Shall for Level 2, be based on the designated design flow of the reclamation
4 system and be the same sampling type and frequency as specified for sewage
5 treatment works in the Sewage Collection and Treatment Regulations (9VAC25-
6 790). Compliance with the geometric mean standard and monitoring of the CAT for
7 fecal coliform, E. coli or enterococci shall be in accordance with the same
8 procedures specified for Level 1 in subdivision A 4 a of this ~~section~~ subsection.

9 5. Samples for pH shall be grab samples collected at least daily. Compliance with the
10 range of the pH standard shall be determined daily based on the pH of the samples.

11 B. Samples collected for TSS, BOD₅ or CBOD₅, and fecal coliform, E. coli or enterococci
12 analyses, shall be analyzed by laboratory methods accepted by the board.

13 C. A reclamation system that produces reclaimed water intermittently or seasonally shall
14 monitor only when the reclamation system discharges to a reclaimed water distribution system,
15 a non-system storage facility, or directly to a reuse.

16 D. Monitoring of reclaimed water held in system storage for a period greater than 24 hours
17 at a reclamation system or SRS may be required by the board where the system storage facility
18 discharges to a reclaimed water distribution system, a non-system storage facility, or directly to
19 a reuse; and conditions exist at the facility to degrade the reclaimed water to a quality failing to
20 comply with applicable minimum reclaimed water standards for the intended reuses of that
21 water. When monitoring of reclaimed water in or from system storage is required, monitoring
22 parameters and frequencies shall be determined by the board on a case-by-case basis.

1 ~~D-E.~~ Monitoring other than or in addition to that described under 9VAC25-740-80 A may be
 2 required for treatment of reclaimed water that is provided pursuant to 9VAC25-740-70 D and
 3 9VAC25-740-70 E.

4 **9VAC25-740-90. Minimum standard requirements for reuses of reclaimed water.**

5 A. Minimum standard requirements for reclaimed water shall be determined, in part, by the
 6 reuse or reuses of that water. For specific reuses, the minimum standard requirements of
 7 reclaimed water are as follows: provided in Table 90-A.

<u>Table 90-A</u> <u>Minimum Standard Requirements for Reuses of Reclaimed Water</u>		
Reuse Category	Reuse	Minimum Standard Requirements ^a
1. Urban – Unrestricted Access	All types of landscape irrigation in public access areas (i.e., golf courses, cemeteries, public parks, school yards and athletic fields) Toilet flushing ^b —nonresidential Fire fighting or protection and fire suppression ^b in nonresidential buildings Outdoor domestic or residential reuse (i.e., lawn watering and noncommercial car washing) ^b Commercial car washes Commercial air conditioning systems	Level 1
2. Irrigation – Unrestricted Access ^{b,c}	Irrigation for any food crops not commercially processed, including crops eaten raw	Level 1
3. Irrigation – Restricted Access ^{b, c, d, e}	Irrigation for any food crops commercially processed	Level 2
	Irrigation for nonfood crops and turf, including fodder, fiber and seed crops; pasture for foraging livestock; sod farms; ornamental nurseries; and silviculture	
4. Landscape Impoundments ^{df}	Potential for public access or contact	Level 1
	No potential for public access or	Level 2

<u>Table 90-A</u> <u>Minimum Standard Requirements for Reuses of Reclaimed Water</u>		
Reuse Category	Reuse	Minimum Standard Requirements ^a
	contact	
5. Construction ^e	Soil compaction Dust control Washing aggregate Making concrete <u>Irrigation to establish vegetative erosion control^g</u>	Level 2
6. Industrial ^e	Commercial laundries <u>Ship ballast^h</u>	Level 1
	Livestock watering ^{fi} Aquaculture ^{gi} Stack scrubbing Street washing Boiler feed Ship ballast Once-through cooling ^{hk} Recirculating cooling towers ^{hk}	Level 2
<p>^a<u>For reclaimed industrial wastewater, minimum standards required shall be determined on a case-by-case basis relative to the proposed reuse or reuses.</u></p> <p>^b<u>These reuses of reclaimed water are prohibited in accordance with 9VAC25-740-50 B 2 where they would involve the distribution of reclaimed water to a one or two family dwelling in order to occur.</u></p> <p>^c<u>Reclaimed water treated to Levels 1 or 2 may be used for surface irrigation, including spray irrigation. Reclaimed water treated to Level 2 may be used for spray irrigation if the area to be irrigated restricts access to the public and has appropriate setbacks in accordance with 9VAC25-740-170. Reclaimed water treated to Level 1 or 2 may be used for irrigation of food crops eaten raw, excluding root crops, only when there will be no direct contact (or indirect contact via aerosol carry) between the reclaimed water and edible portions of the crop.</u></p> <p>^d<u>For irrigation with reclaimed water treated to Level 2, the following shall be prohibited unless Level 1 disinfection is provided:</u></p> <ol style="list-style-type: none"> <u>1. Grazing by milking animals on the irrigation reuse site for 15 days after irrigation with reclaimed water ceases, and</u> <u>2. Harvesting, retail sale or allowing access by the general public to ornamental nursery stock or sod farms for 14 days after irrigation with reclaimed water ceases.</u> <p>^e<u>Worker contact with reclaimed water treated to Level 2 shall be minimized. Level 1 disinfection shall be provided when worker contact with reclaimed water is likely.</u></p>		

<u>Table 90-A</u> Minimum Standard Requirements for Reuses of Reclaimed Water		
Reuse Category	Reuse	Minimum Standard Requirements ^a
<p>^f<u>Landscape impoundments may also be used to store reclaimed water for other subsequent reuses of that reclaimed water, such as irrigation, if included in an inventory of reclaimed water storage facilities submitted to the board pursuant to 9VAC25-740-110 C 15.</u></p> <p>^g<u>Irrigation with reclaimed water to establish vegetative cover at a construction site shall be subject to requirements for irrigation reuse specified in 9VAC25-740-100 C. Continued irrigation of the same site following construction completion shall be subject to the minimum standard requirements of reuse categories 1, 2 or 3 contained in this table, determined by the intended reuse of the irrigated site.</u></p> <p>^h<u>Reuse of reclaimed water for ship ballast shall also comply with applicable federal regulations and standards governing the use and discharge of ship ballast.</u></p> <p>ⁱ<u>Level 1 disinfection shall be provided when the reclaimed water is consumed by milking livestock.</u></p> <p>^j<u>Level 1 disinfection shall be provided for aquaculture production of fish to be consumed raw, such as for sushi.</u></p> <p>^k<u>Windblown spray generated by once-through cooling or recirculating cooling towers using reclaimed water treated to Level 2, shall not reach areas accessible to workers or the public unless Level 1 disinfection is provided. See also setback requirements in 9VAC25-740-170 for open cooling towers.</u></p>		

- 1 ~~^aFor reclaimed industrial wastewater, minimum standards required shall be determined on a~~
2 ~~case-by-case basis relative to the proposed reuse or reuses.~~
- 3 ~~^bReclaimed water treated to Levels 1 or 2 may be used for surface irrigation, including spray~~
4 ~~irrigation. Reclaimed water treated to Level 2 may be used for spray irrigation if the area to be~~
5 ~~irrigated restricts access to the public and has appropriate setbacks in accordance with~~
6 ~~9VAC25-740-170. Reclaimed water treated to Level 1 or 2 may be used for irrigation of food~~
7 ~~crops eaten raw, excluding root crops, only when there will be no direct contact (or indirect~~
8 ~~contact via aerosol carry) between the reclaimed water and edible portions of the crop.~~
- 9 ~~^cFor irrigation with reclaimed water treated to Level 2, the following shall be prohibited unless~~
10 ~~Level 1 disinfection is provided:~~
- 11 ~~1. Grazing by milking animals on the irrigation reuse site for 15 days after irrigation with~~
12 ~~reclaimed water ceases, and~~

1 ~~2. Harvesting, retail sale or allowing access by the general public to ornamental nursery~~
2 ~~stock or sod farms for 14 days after irrigation with reclaimed water ceases.~~

3 ~~^dLandscape impoundments may also be used to store reclaimed water for other subsequent~~
4 ~~reuses of that reclaimed water, such as irrigation, if included in an inventory of reclaimed water~~
5 ~~storage facilities submitted to the board pursuant to 9VAC25-740-110 C 15.~~

6 ~~^eWorker contact with reclaimed water treated to Level 2 shall be minimized. Level 1 disinfection~~
7 ~~shall be provided when worker contact with reclaimed water is likely.~~

8 ~~^fLevel 1 disinfection shall be provided when the reclaimed water is consumed by milking~~
9 ~~livestock.~~

10 ~~^gLevel 1 disinfection shall be provided for aquaculture production of fish to be consumed raw,~~
11 ~~such as for sushi.~~

12 ~~^hWindblown spray generated by once-through cooling or recirculating cooling towers using~~
13 ~~reclaimed water treated to Level 2, shall not reach areas accessible to workers or the public~~
14 ~~unless Level 1 disinfection is provided. See also setback requirements in 9VAC25-740-170 for~~
15 ~~open cooling towers.~~

16 B. For any type of reuse not addressed in this chapter listed in subsection A of this section,
17 including, but not limited to, indirect potable reuse and below-ground drip irrigation reuse, that is
18 newly proposed after October 1, 2008, indirect non-potable reuse that is newly proposed after
19 [effective date of amended regulation] ; or any reuse of reclaimed industrial water, including
20 reuses listed in subsection A of this section, the board may prescribe specific reclaimed water
21 standards and monitoring requirements needed to protect public health and the environment.
22 When establishing these requirements for the proposed reuse, the board shall consider the
23 following factors:

- 1 1. The risk of the proposed reuse to public health with specific input from the Virginia
2 Department of Health;
- 3 2. The degree of public access and human exposure to reclaimed water by the proposed
4 reuse;
- 5 3. The reclaimed water treatment necessary to prevent nuisance conditions by the
6 proposed reuse;
- 7 4. The reclaimed water treatment necessary for the proposed reuse to comply with this
8 and other applicable regulations of the board;
- 9 5. The potential for improper or unintended use of the reclaimed water;
- 10 6. Other federal or state laws, regulations and guidelines that would apply to the
11 proposed reuse;
- 12 7. The similarity of the proposed reuse to reuses listed in this chapter with regard to
13 potential impact to public health and the environment;
- 14 8. Whether the proposed reuse may be excluded or prohibited by 9VAC25-740-50; and
- 15 9. For new indirect potable reuse proposals, residence or transport time, mixing ratios,
16 and other relevant information deemed necessary by the board.

17 C. For any indirect potable reuse (IPR) project that is newly proposed after [effective date of
18 amended regulation] , the following are required:

- 19 1. A multiple barrier approach shall be used in the planning, design and operation of the
20 project. Multiple barriers to be employed for the project shall be described in the
21 application for a permit in accordance with 9VAC25-740-100 D.
- 22 2. All reclaimed water generated by a reclamation system for IPR shall meet, at a
23 minimum, Level 1 reclaimed water standards, reclaimed water standards developed

1 pursuant to subsection B of this section and any other standards that may apply,
2 including but not limited to, the Water Quality Standards (9VAC25-260) and Total
3 Maximum Daily Loads (TMDLs). Where there is more than one standard for the same
4 pollutant, the more stringent standard shall apply.

5 3. The public health risks of and the need to impose new or more stringent reclaimed
6 water standards for an IPR project shall be re-evaluated with specific input from the
7 Virginia Department of Health upon each renewal of the permit issued to the reclamation
8 system that produces reclaimed water for the project. Factors to be considered in the re-
9 evaluation shall include, at a minimum, applicable factors contained in subsection B of
10 this section.

11 4. All reclamation systems identified as a component of an IPR project in accordance
12 with 9VAC25-740-100 D 1, including pump stations that are part of the reclamation
13 systems, shall meet reliability requirements specified in 9VAC25-740-130 C.

14 5. VPDES permitted treatment works that have SIUs and provide source water for
15 reclamation and subsequent IPR shall, if required, have a pretreatment program or a
16 program equivalent to a pretreatment program in accordance with 9VAC25-740-150 E.

17 Part III

18 Application and Technical Requirements

19 **9VAC25-740-100. Application for permit.**

20 A. The need for an owner to obtain a permit or modification or reissuance of an existing
21 permit from the board for a proposed or an existing reclamation system, reclaimed water
22 distribution system, satellite reclamation system (SRS), or, as applicable, water reuse, shall be
23 determined in accordance with 9VAC25-740-30. Where required, permit coverage for these
24 systems or activities shall be provided in accordance with 9VAC25-740-40, contingent upon

1 receipt of a complete application from the owner. The application shall contain supporting
2 documentation and information required by subsections B and C of this section.

3 B. General information. For projects that involve water reclamation and the distribution of
4 reclaimed water, the following information shall be submitted with an application for a permit.
5 Information required for this subsection may be provided by referencing specific information
6 previously submitted to the board unless changes have occurred that require the submission of
7 new or more current information. For projects that involve exclusively the distribution of
8 reclaimed water, information for only subdivisions B 1, 2, and 5 of this subsection shall be
9 submitted with an application for a permit.

10 1. A description of the design and a site plan showing operations and unit processes of
11 the proposed project, including and as applicable, treatment, storage, distribution, reuse
12 and disposal facilities, and reliability features and controls. Treatment works, reclamation
13 systems and reclaimed water distribution systems previously permitted need not be
14 included, unless they are directly tied into the new units or are critical to the
15 understanding of the complete project. Design approaches shall be consistent with
16 accepted engineering practice and any applicable state regulations;

17 2. A general location map, showing orientation of the project with reference to at least
18 two geographic features (e.g., numbered roads, named streams or rivers, etc.). A
19 general location map for a reclaimed water distribution system may be included in the
20 map of a service area required in accordance with subdivision C 1 a of this section;

21 3. Information regarding each wastewater treatment works that diverts or will divert
22 ~~effluent or~~ source water to the reclamation system to be permitted, including:

23 a. All unit processes used for the treatment of wastewater at the facility prior to
24 diversion to the reclamation system,

- 1 b. Any ~~significant industrial users defined in 9VAC25-31-10 SIUs~~ that indirectly
2 discharge to the wastewater treatment works; and
- 3 c. Analyses of the ~~effluent or~~ source water to be diverted by the facility to the
4 reclamation system.
- 5 4. Information regarding the sewage collection system that diverts or will divert sewage
6 to the ~~satellite reclamation system~~ SRS to be permitted, including:
- 7 a. The name of the sewage collection system and the owner of that system;
- 8 b. Any ~~significant industrial users (SIUs) defined in 9VAC25-31-10 SIUs~~ that
9 discharge directly or indirectly to the collection line from which sewage will be
10 diverted to the ~~satellite reclamation system~~, SRS excluding any downstream SIUs
11 whose discharge has no potential to backflow to the ~~satellite reclamation system~~
12 SRS intake. This information shall include the location of the SIUs and distance
13 between the SIUs and the ~~satellite reclamation system~~ SRS along the sewage
14 collection line or lines; and
- 15 c. Characterization of the sewage to be diverted from the sewage collection system
16 to the ~~satellite reclamation system~~ SRS at the point of diversion. Analysis of the
17 sewage may be required where SIUs described in subdivision B_4 b of this
18 subsection discharge to the sewage collection system.
- 19 5. Information regarding each reclamation system or ~~satellite reclamation system~~ SRS to
20 be permitted, including:
- 21 a. The standards specified in 9VAC25-740-70 A to be achieved;
- 22 b. Any other physical, chemical, and biological characteristics and constituent
23 concentrations that may affect the intended reuse of the reclaimed water with respect
24 to adverse impacts to public health or the environment; and

- 1 c. ~~Design~~Designated design flow.
- 2 6. For the purpose of determining any significant adverse impacts to other beneficial
3 uses, information regarding the VPDES permitted wastewater treatment works or the
4 sewage collection system that proposes a new or increased diversion of source water to
5 a reclamation system or SRS for the production of reclaimed water, including:
- 6 a. The latitude and longitude of the treatment works discharge location to a surface
7 water or the SRS return discharge location in the sewage collection system;
- 8 b. The mean monthly discharge of the treatment works or the SRS for each month
9 during the most recent 60 or more consecutive months at the time of application, or
10 where this information is not available, estimated values for the mean monthly
11 discharge of the treatment works or the SRS for each month during a period of 12
12 consecutive months;
- 13 c. The maximum monthly diversion of source water from the treatment works to a
14 reclamation system or from the sewage collection system to a SRS for each month
15 during a period of 12 consecutive months;
- 16 d. Pertaining only to sewage collection systems that provide source water, the name
17 of the treatment works at the terminus of the sewage collection system; and
- 18 e. The information specified in subdivisions B 5 a, b and c of this subsection for each
19 increase in source water diverted by the treatment works or the sewage collection
20 system to a reclamation system or SRS, respectively, among multiple increases to
21 occur in planned phases, and the anticipated dates of the phased increases.
- 22 7. Information describing measures to be immediately implemented for the management
23 of wastewater and reclaimed water by a conjunctive system in the event that primary
24 reuses of reclaimed water generated by the system cease or fail, and where the system:

- 1 a. Relies primarily or completely on water reclamation and reuse to eliminate
2 wastewater;
- 3 b. relies on:
- 4 (1) Irrigation as the primary or only reuse of reclaimed water, or
5 (2) One or more large end users, each consuming a significant volume of reclaimed
6 water, such that the ability of the conjunctive system to manage wastewater would
7 be adversely impacted if any such end user were to discontinue receiving reclaimed
8 water from the conjunctive system; and
- 9 c. Does not have the ability to implement two or more of the options described in
10 9VAC25-740-110 C 1.

11 8. Information required per subdivision B 7 of this subsection shall be included in the
12 Reclaimed Water Management plan described in subsection C of this section where the
13 conjunctive system is acting as a reclaimed water agent by directly distributing reclaimed
14 water to an end user or end users, including an end user that is also the applicant or
15 permittee.

16 ~~6.-9.~~ Information, if applicable, regarding any type of proposed reuse not listed in this
17 chapter, by which the board can evaluate the need to prescribe specific reclaimed water
18 treatment and monitoring requirements in accordance with 9VAC25-740-90 B; and
19 ~~Information required for subsection B of this section may be provided by referencing~~
20 ~~specific information previously submitted to the board unless changes have occurred~~
21 ~~that require the submission of new or more current information.~~

22 C. Reclaimed water management (RWM) plan.

1 1. A RWM plan shall be submitted in support of a permit applications-application for a
2 new or expanded reclamation ~~systems, system, satellite reclamation systems-SRS~~ or
3 reclaimed water distribution ~~systems that provide~~ system acting as a reclaimed water
4 agent by directly distributing reclaimed water to an end user or end users, including an
5 end user that is also the applicant or permittee. A RWM plan shall not be required for a
6 reclamation system that distributes reclaimed water exclusively for indirect potable
7 reuse. The RWM plan shall contain the following:

8 a. A description and map of the expected service area to be covered by the RWM
9 plan for the term of the permit for the project (i.e., five years for a VPDES or 10 years
10 for a VPA permit). The map shall identify all reuses according to reuse categories
11 shown in 9VAC25-740-90 A or other categories for reuses that are or shall be
12 authorized pursuant to 9VAC25-740-90 B, and their locations within the service area.
13 The map shall also identify and show the location of all public potable water supply
14 wells and springs, and public water supply intakes, within the boundaries of the
15 service area. The description and map of the service area shall be updated by the
16 permittee with each permit renewal.

17 b. A current inventory of impoundments, ponds or tanks that are used for system
18 storage of reclaimed water and, as applicable, reject water storage under the control
19 of the permittee, and ~~non-system~~ non-system storage located within the service area
20 of the RWM plan in accordance with 9VAC25-740-110 C 15.

21 c. A water balance that accounts for the volumes of reclaimed water to be generated,
22 stored, reused and discharged (i.e., through a VPDES permitted outfall, back to a
23 sewage collection system, or otherwise disposed). The water balance shall include
24 projected volumes of seasonal and annual reclaimed water demand for each reuse
25 category.

1 d. An example of service agreements or contracts to be established by the applicant
2 or permittee with end users regarding implementation of and compliance with the
3 RWM plan. A service agreement or contract shall contain conditions and
4 requirements specified in subdivisions C.3 b and c of this subsection and in 9VAC25-
5 740-170 that apply to the particular planned reuse of each end user. Terms of the
6 agreement shall require property owners to report to the applicant or permittee all
7 potable and ~~non-potable~~ non-potable water supply wells on their property and to
8 comply with appropriate setback distances for wells where reclaimed water will be
9 used on the same property. Within the agreement or contract, the applicant or
10 permittee shall also reserve the right to perform routine or periodic inspections of an
11 end user's reclaimed water reuses and storage facilities, and to terminate the
12 agreement or contract and withdraw service for any failure by the end user to comply
13 with the terms and conditions of the agreement or contract if corrective action for
14 such failure is not taken by the end user.

15 e. A description of monitoring of end users—by the applicant or permittee to verify
16 compliance with the terms of their agreements or contracts. Monitoring shall include,
17 at a minimum, metering the volume of reclaimed water consumed by end users.

18 f. An education and notification program required in accordance with 9VAC25-740-
19 170 A.

20 g. A cross-connection and backflow prevention program that:

21 (1) Evaluates the potential for cross-connections of the reclaimed water distribution
22 system to a potable water system and backflow to the reclaimed water distribution
23 system from industrial end users;

1 (2) Evaluates the public health risks associated with possible backflow from industrial
2 end users;

3 (3) Describes inspections to be performed by the applicant or permittee at the time
4 end users connect to the reclaimed water distribution system and periodically
5 thereafter to prevent cross-connections to a potable water system and backflow from
6 industrial end users as determined necessary through the program evaluation; and

7 (4) Insures that cross-connection and backflow prevention design criteria specified in
8 9VAC25-740-110 B for reclaimed water distribution systems are implemented.

9 (5) A-Requires a backflow prevention device shall be required on the reclaimed water
10 service connection to an industrial end user, unless evaluation by the cross-
11 connection and backflow prevention program determines that there is minimal risk to
12 public health associated with possible backflow from the industrial end user or that
13 there will be no backflow from the industrial end user capable of contaminating the
14 reclaimed water supply.

15 h. A description of how the quality of reclaimed water in the reclaimed water
16 distribution system shall be maintained to meet and, if determined necessary by the
17 board, monitored to verify compliance with the standards—minimum standard
18 requirements specified in 9VAC25-740-90 for the intended reuse or reuses of the
19 reclaimed water in accordance with 9VAC25-740-90, excluding CAT standards.
20 Where monitoring of reclaimed water in the distribution system is required,
21 monitoring parameters and frequencies shall be determined by the board on a case-
22 by-case basis.

23 i. Information specified in subdivision B 7 of this section for conjunctive systems
24 described in subdivision B 8 of this section.

1 ~~i-j~~ Where the applicant or permittee is the provider of reclaimed water, the exclusive
2 end user of that reclaimed water and is not otherwise excluded under 9VAC25-740-
3 50 A, information for only subdivisions C 1 a, b and c of this ~~section~~subsection is
4 required.

5 2. All irrigation reuses of reclaimed water shall be limited to supplemental irrigation.

6 3. Nutrient management requirements for irrigation reuse will be established in the RWM
7 plan according to the concentration of total N and total P in the reclaimed water
8 compared to "Biological Nutrient Removal (BNR)" as defined in 9VAC25-740-10.

9 a. Except as specified in subdivision C 4 of this subsection, a nutrient management
10 plan (NMP) shall not be required for irrigation reuse of reclaimed water treated to
11 achieve BNR or nutrient levels below BNR.

12 b. For bulk irrigation reuse of reclaimed water not treated to achieve BNR, a NMP
13 shall be required of the end user.

14 (1) Where the applicant or permittee is the end user, the NMP shall be submitted
15 with the RWM plan to the board and shall be the responsibility of the applicant or
16 permittee to properly implement.

17 (2) Where the end user is other than the applicant or permittee, the NMP shall be
18 required as a condition of the service agreement or contract specified in subdivision
19 C 1 d of this ~~section~~subsection between the applicant or permittee and the end user.

20 The end user shall be responsible for obtaining, maintaining and following a current
21 NMP; providing a copy of the most current NMP to the applicant or permittee prior to
22 initiating bulk irrigation reuse of reclaimed water; and providing proof of compliance
23 with the NMP at the request of the permittee.

1 c. For ~~nonbulk~~ non-bulk irrigation reuse of reclaimed water not treated to achieve
2 BNR, a NMP shall not be required. However, the RWM plan shall describe other
3 measures to be implemented by the applicant or permittee to manage nutrient loads
4 by ~~nonbulk~~ non-bulk irrigation reuse of reclaimed water not treated to achieve BNR
5 within the service area. These shall include, but are not limited to the following:

6 (1) The inclusion of language in the service agreement or contract specified in
7 subdivision C 1 d of this ~~section~~ subsection, explaining proper use of the reclaimed
8 water by the end user for the purpose of managing nutrients;

9 ~~(2) Reclaimed water metering of individual nonbulk irrigation end users;~~

10 ~~(3)~~ (2) Routine distribution of literature not less than annually, to individual ~~nonbulk~~
11 non-bulk irrigation end users addressing the proper use of reclaimed water for
12 irrigation in accordance with 9VAC25-740-170 A; and

13 ~~(4)~~ (3) Monthly monitoring of N and P loads by ~~nonbulk~~ non-bulk irrigation reuses to
14 the service area of the RWM plan based on the total monthly metered use non-bulk
15 irrigation reuse of reclaimed water for the service area and the monthly average
16 concentrations of total N and total P in the reclaimed water. Results of this
17 monitoring shall be included in the annual report to the board submitted in
18 accordance with 9VAC25-740-200 C.

19 4. Independent of the reclaimed water nutrient content, a NMP shall be required for a
20 bulk irrigation reuse site where:

21 a. A wastewater treatment works, reclamation system, ~~satellite reclamation system~~
22 SRS or reclaimed water distribution system and the irrigation reuse site or sites are
23 under common ownership or management, and

24 b. In addition to irrigation reuse:

1 (1) There is no option to dispose of the reclaimed water through a VPDES permitted
2 discharge, or

3 (2) There is an option to dispose of the reclaimed water through a VPDES permitted
4 discharge, but the VPDES permit does not allow discharge of the full nutrient load
5 under design flow (e.g., a treatment works with a VPDES permitted discharge
6 implements water reclamation and reuse in lieu of providing treatment to meet
7 nutrient effluent limits at design flow).

8 ~~5. The A NMP required per subdivision C 4 of this subsection~~ shall be approved by the
9 DCR and submitted with the RWM plan to the board. The applicant or permittee shall be
10 responsible for proper implementation of the NMP.

11 ~~5.6.~~ If required for a specific irrigation reuse, the NMP shall be prepared by a nutrient
12 management planner certified by the DCR and shall be maintained current in
13 accordance with the Nutrient Management Training and Certification Regulations,
14 4VAC5-15. A copy of the NMP for each irrigation reuse site shall be maintained at the
15 site or at a location central to all sites covered by the plan. Another copy shall be
16 provided to and retained by the applicant or permittee.

17 ~~6.7.~~ A site plan is required for each bulk irrigation reuse site and area of proposed
18 expansion to an existing irrigation reuse site, displayed on the most current USGS
19 topographic maps (7.5 minutes series, where available) and showing the following:

20 a. The boundaries of the irrigation site;

21 b. The location of all potable and ~~nonpotable~~ non-potable water supply wells and
22 springs, public water supply intakes, occupied dwellings, property lines, areas
23 accessible to the public, outdoor eating, drinking and bathing facilities; surface

1 waters, including wetlands; limestone rock outcrops and sinkholes within 250 feet of
2 the irrigation site; and

3 c. Setbacks areas around the irrigation site in accordance with 9VAC25-740-170.

4 ~~Where expansion of an existing irrigation site is anticipated, the same information~~
5 ~~shall be provided for the area of proposed expansion.~~

6 ~~7.8.~~ The site plan for a bulk irrigation reuse site shall be prepared by:

7 a. The applicant or permittee for submission with the RWM plan to the board when
8 the irrigation site is under common ownership or management with a wastewater
9 treatment works, a reclamation system ~~or~~ satellite reclamation system SRS or
10 reclaimed water distribution system from which it receives reclaimed water for
11 irrigation; or

12 b. The bulk irrigation end user for submission with the service agreement or contract
13 between the end user and the applicant or permittee when the irrigation site is not
14 under common ownership or management with a wastewater treatment works, a
15 reclamation system ~~or~~ satellite reclamation system SRS or reclaimed water
16 distribution system from which it receives reclaimed water for irrigation.

17 ~~8.9.~~ For the addition of new end users or new reuses not contained in the original RWM
18 plan submitted with the application for a permit, the permittee shall submit to the board
19 for approval an amendment to the RWM plan identifying the new end users or new
20 reuses ~~not less than 30 days~~ prior to connection and reclaimed water service to ~~these~~
21 the new end users or initiating the new reuses. For each new end user or new reuse, the
22 permittee shall also provide all applicable information required by subsection C of this
23 section. Amendment of the RWM plan for the addition of new end users or new reuse
24 after the issuance or reissuance of the permit shall not be considered a modification of

1 the permit unless the new end users or new reuses will require the addition of different
2 reclaimed water standards, monitoring requirements and conditions not contained in the
3 permit.

4 D. Indirect potable reuse (IPR). For an application to permit an IPR project, the following
5 additional information shall be submitted by the applicant or permittee to the board:

6 1. Identification of the following components of an IPR project:

7 a. The reclamation system that will produce reclaimed water discharged to the water
8 supply source (WSS);

9 b. The WSS to which the reclamation system identified in subdivision D 1 a of this
10 subsection will discharge reclaimed water.

11 c. The waterworks that will withdraw water from the WSS identified in subdivision D 1
12 b of this subsection to produce potable water.

13 2. Identification of all uses in addition to IPR of the WSS identified in subdivision D 1 of
14 this subsection. Such uses shall be those deemed acceptable by the Virginia
15 Department of Health or the Waterworks Regulation (12VAC5-590).

16 3. A description of multiple barriers to be implemented by the reclamation system,
17 waterworks or both to produce water of a quality suitable for IPR. Multiple barriers shall
18 include, at a minimum:

19 a. Source control and protection. This involves the control of contaminants with
20 potential to adversely impact public health by preventing or minimizing the entry of
21 these contaminants into the wastewater collection system prior to reclamation or the
22 WSS prior to withdrawal by the waterworks. Source control and protection shall, at a
23 minimum, address pretreatment requirements for SIUs in accordance with 9VAC25-
24 740-150 E and education requirements in accordance with 9VAC25-740-170 A 1,

1 and shall describe other measures to reduce the introduction of contaminants from
2 domestic sources that may include, but are not limited to, community collection
3 programs for hazardous wastes and unused pharmaceuticals.

4 b. Effective and reliable treatment. This involves the use of treatment processes at
5 both the reclamation system and the waterworks that, in combination with any
6 natural attenuation provided by the environmental buffer to be described per
7 subdivision D 3 c of this subsection, shall reliably achieve the water quality
8 necessary for IPR. A description of reclamation system treatment processes for IPR
9 may be satisfied by referencing application information submitted in accordance with
10 subsection B of this section.

11 c. Environmental buffers and natural attenuation. This involves the use of an
12 environmental buffer, such as a surface water used as a WSS source, to provide
13 further removal or degradation of certain contaminants when exposed to naturally
14 occurring physical, chemical and biological processes in the environment over time.

15 d. Monitoring programs. This involves monitoring at progressive stages of treatment
16 or barriers of the project to verify that they are working effectively and reliably to
17 achieve the necessary water quality for IPR.

18 e. Responses to adverse conditions. To address those circumstances where the
19 reclamation system of the IPR project experiences a catastrophic treatment failure
20 that cannot be corrected by subsequent treatment or barriers, or fails to produce
21 reclaimed water meeting the standards or limits at the point of discharge to the WSS,
22 the application for the IPR project shall contain:

23 (1) A contingency plan that describes all alternatives to be implemented in lieu of
24 discharging the substandard reclaimed water to the WSS.

1 (2) A notification program for the reclamation system of the IPR project and as
2 described in 9VAC25-740-170 A 2.

3 4. An evaluation of the combined effectiveness of all the barriers described in
4 subdivision D 3 of this subsection to achieve the water quality necessary for IPR.

5 5. Any information deemed necessary by the board to establish reclaimed water
6 standards and monitoring requirements for the IPR project in accordance with 9VAC25-
7 740-90 B. This shall include, but is not limited to, residence or transport times, mixing
8 ratios and other applicable modeling of the reclamation system discharge or
9 contaminants introduced by the discharge to the WSS.

10 6. A water balance for the reclamation system that accounts for the volumes of
11 reclaimed water to be generated, stored, discharged to the WSS, and withdrawn for IPR.

12 7. Any change by the reclamation system to provide reclaimed water for other reuses or
13 end users in addition to IPR shall require submission of a RWM plan in accordance with
14 subdivision C 1 of this subsection. The water balance for the RWM plan shall include the
15 water balance required per subdivision D 6 of this subsection for the IPR project.

16 8. A copy of the contractual agreement established between the reclamation system and
17 the waterworks of the IPR project, identifying the responsibilities of each party to
18 implement multiple barriers described in accordance with subdivision D 3 of this
19 subsection, unless the reclamation system and waterworks are under common
20 ownership or management.

21

22 **9VAC25-740-105. Application for an emergency authorization.**

23 A. An application for an emergency authorization as described in 9VAC25-740-45 shall
24 include information addressing the following:

- 1 1. Contact information of the applicant or permittee including name, mailing address,
2 telephone number, and if applicable, fax number and electronic mail address;
- 3 2. Name of the city or county where the emergency production, distribution and reuse of
4 reclaimed water shall occur;
- 5 3. Recent and current water use including monthly water use in the previous calendar
6 year and weekly water use in the previous six months prior to the application. The
7 application shall identify the sources of such water and also identify any water
8 purchased from other water suppliers;
- 9 4. A description of the severity of the public water supply emergency, including for
10 reservoirs, an estimate of days of remaining supply at the current rates of use and
11 replenishment; for wells, current production; for intakes, current streamflow;
- 12 5. A description of mandatory water conservation measures taken or imposed by the
13 applicant or permittee and the dates when the measures were implemented. For the
14 purposes of obtaining an emergency authorization, mandatory water conservation
15 measures shall include, but are not limited to, the prohibition of lawn and landscape
16 watering, non-commercial vehicle washing, the watering of recreation fields, refilling of
17 swimming pools, and the washing of paved surfaces;
- 18 6. An estimate of water savings realized by implementing mandatory water conservation
19 measures;
- 20 7. Documentation that the applicant or permittee has exhausted all public water supply
21 management actions that would minimize the threat to public welfare, safety and health,
22 and would avoid the need to obtain an emergency authorization. This may include
23 among other actions, the acquisition of an Emergency Virginia Water Protection Permit
24 (9VAC25-210) for a new or increased withdrawal;

- 1 8. Any other information demonstrating that public water supply conditions are a
2 substantial threat to public health or safety;
- 3 9. Name, address and permit number of the municipal treatment works that proposes to
4 produce, distribute or reuse reclaimed water under the emergency authorization;
- 5 10. A statement confirming that the municipal treatment works:
- 6 a. Does not have SIUs, or
- 7 b. Has SIUs and a pretreatment program developed, approved and maintained in
8 accordance with Part VII of the VPDES Permit Regulation (9VAC25-31-730 through
9 9VAC25-31-900);
- 10 11. Information regarding the design and operation of the treatment works,
11 demonstrating that the facility is currently capable of producing reclaimed water meeting
12 minimum standard requirements of 9VAC25-740-90 for reuses listed in the application
13 pursuant to subdivision A 12 of this subsection;
- 14 12. Information specified in 9VAC25-740-100 B 3 d regarding the diversion of source
15 water from the treatment works to reclamation and reuse;
- 16 13. A list of proposed reuses for reclaimed water produced by the municipal treatment
17 works and an explanation of how these reuses will protect public health and safety under
18 the current public water supply conditions;
- 19 14. A description of the system that will be used to distribute reclaimed water from the
20 municipal treatment works to the intended reuses; and
- 21 15. A signed and dated certification statement in accordance with signatory
22 requirements of the VPDES Permit Regulation (9VAC25-31) or the VPA Permit

1 Regulation (9VAC25-32), whichever applies to the permit issued to the municipal
2 treatment works.

3 B. The application for a permit described in 9VAC25-740-100 may be used as an application
4 to issue an emergency authorization where the permit application contains the information
5 required in subsection A of this section.

6 **9VAC25-740-110. Design criteria.**

7 A. Reclamation system.

8 1. The design of systems for the reclamation of municipal wastewater or ~~the effluent~~
9 source water derived from a municipal wastewater treatment works shall adhere to the
10 standards of design and construction specified in the Sewage Collection and Treatment
11 Regulations (9VAC25-790) and other applicable engineering standards and regulations.
12 Design standards for reclamation systems of industrial wastewater or ~~the effluent source~~
13 water derived from an industrial wastewater treatment works shall be determined and
14 evaluated on a case-by-case basis.

15 2. Ultraviolet (UV) disinfection for reclamation systems:

16 a. For Level 1 reclaimed water:

17 (1) Designs for UV disinfection shall be validated in accordance with NWRI
18 Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, Second
19 Edition (2003) (Guidelines) to meet a UV design dosage greater than or equal to
20 100,000 uWsec/cm² (MS-2 dose) under peak flow and a minimum UV transmittance
21 of 55 percent at 254 nm. A lower UV disinfection dosage may be authorized by the
22 board if demonstrated to meet at least one of the bacteria standards for Level 1
23 specified in 9VAC25-740-70 A, and where microbial testing is used to validate the
24 efficacy of the UV disinfection dose in accordance with the Guidelines. For the lower

1 disinfection dose, the board may develop reclaimed water turbidity standards and
2 minimum UV transmittance requirements that are unique to the UV disinfection
3 process of the reclamation system.

4 (2) The UV disinfection system shall be designed to supply the minimum dose
5 specified in subdivision 2 a (1) of this subsection at all times. The system may be
6 automated to immediately adjust the UV disinfection dosage in response to changes
7 in the UV system influent reclaimed water flow and quality.

8 b. UV disinfection for Level 2 reclaimed water shall be designed, constructed and
9 operated in accordance with the Sewage Collection and Treatment Regulations
10 (9VAC25-790) for UV disinfection of secondary effluent.

11 B. Reclaimed water distribution system.

12 1. All reclaimed water distribution systems shall be designed and constructed in
13 accordance with this chapter and applicable sections of the Sewage Collection and
14 Treatment Regulations (9VAC25-790) pertaining to force mains, so that:

15 a. Reclaimed water does not come into contact with or otherwise contaminate a
16 potable water system;

17 b. The structural integrity of the system is provided and maintained; and

18 c. The capability for inspection, maintenance, and testing is maintained.

19 2. For a reclaimed water distribution system, the following shall be implemented as part
20 of the cross-connection and backflow prevention program submitted with the RWM plan:

21 a. There shall be no direct cross-connections between the reclaimed water
22 distribution system and a potable water supply system.

1 b. The reclaimed water distribution system shall be in compliance with the cross
2 connection control and backflow prevention requirements of Article 3 (12VAC590-
3 580 et seq.) of Part II of the Commonwealth of Virginia Waterworks Regulations;
4 and, when applicable, the reclaimed water distribution system shall also be in
5 compliance with the Virginia Statewide Building Code (13VAC5-63), and local
6 building and plumbing codes.

7 c. Potable water may be used to supplement reclaimed water for a reuse, provided
8 there is an air gap separation of at least eight inches between the potable water and
9 the reclaimed water or a reduced pressure principle backflow prevention device
10 installed at the potable water service connection to the reuse. The installation of the
11 reduced pressure principal backflow prevention device shall allow for proper
12 inspection and testing of the device.

13 d. Reclaimed water shall not be returned to the reclaimed water distribution system
14 after the reclaimed water has been delivered to an end user.

15 3. In-ground reclaimed water distribution pipelines shall be installed and maintained to
16 achieve minimum separation distance and configurations as follows:

17 a. No reclaimed water distribution pipeline shall pass within 50 feet of a potable
18 water supply well, potable water supply spring or water supply intake that are part of
19 a regulated waterworks. The same separation distance shall be required between a
20 reclaimed water distribution pipeline and a nonpublic or private potable water supply
21 well or spring, but may be reduced to not less than 35 feet provided special
22 construction and pipe materials are used to obtain adequate protection of the potable
23 water supply.

1 b. Reclaimed water distribution pipeline shall be separated horizontally by at least 10
2 feet from a water main. The distance shall be measured edge-to-edge. When local
3 conditions prohibit this horizontal separation, the reclaimed water distribution pipeline
4 may be laid closer provided that the water main is in a separate trench or an
5 undisturbed earth shelf located on one side of the reclaimed water distribution
6 pipeline and the bottom of the water main is at least 18 inches above the top of the
7 reclaimed water distribution pipeline. Where this vertical separation cannot be
8 obtained, the reclaimed water distribution pipeline shall be constructed of water pipe
9 material in accordance with AWWA specifications and pressure tested in place
10 without leakage prior to backfilling. The hydrostatic test shall be conducted in
11 accordance with the AWWA standard (ANSI/AWWA C600-05, effective December 1,
12 2005) for the pipe material, with a minimum test pressure of 30 psi.

13 c. Distribution pipeline that conveys Level 1 reclaimed water shall be separated
14 horizontally by at least two feet from a sewer line. The distance shall be measured
15 edge-to-edge. When local conditions prohibit this horizontal separation, the
16 reclaimed water distribution pipeline may be laid closer provided that the sewer line
17 is in a separate trench or an undisturbed earth shelf located on one side of the
18 reclaimed water distribution pipeline and the bottom of the reclaimed water
19 distribution pipeline is at least 18 inches above the top of the sewer line. Where this
20 vertical separation cannot be obtained, either the reclaimed water distribution
21 pipeline or the sewer line shall be constructed of water pipe material in accordance
22 with AWWA specifications and pressure tested in place without leakage prior to
23 backfilling. The hydrostatic test shall be conducted in accordance with the AWWA
24 standard (ANSI/AWWA C600-05, effective December 1, 2005) for the pipe material,
25 with a minimum test pressure of 30 psi.

1 d. Reclaimed water distribution pipeline shall cross under water main such that the
2 top of the reclaimed water distribution pipeline is at least 18 inches below the bottom
3 of the water main. When local conditions prohibit this vertical separation, the
4 reclaimed water distribution pipeline shall be constructed of AWWA specified water
5 pipe and pressure tested in place without leakage prior to backfilling, in accordance
6 with the provisions of the Sewage Collection and Treatment Regulations (9VAC25-
7 790). Where reclaimed water distribution pipeline crosses over water main, the
8 reclaimed water distribution pipeline shall:

9 (1) Be laid to provide a separation of at least 18 inches between the bottom of the
10 reclaimed water distribution pipeline and the top of the water main.

11 (2) Be constructed of AWWA approved water pipe and pressure tested in place
12 without leakage prior to backfilling, in accordance with the provisions of the Sewage
13 Collection and Treatment Regulations (9VAC25-790).

14 (3) Have adequate structural support to prevent damage to the water main.

15 (4) Have joints placed equidistant and as far as possible from the water main joints.

16 e. Sewer line shall cross under distribution pipeline that conveys Level 1 reclaimed
17 water such that the top of the sewer line is at least 18 inches below the bottom of the
18 reclaimed water distribution pipeline. When local conditions prohibit this vertical
19 separation, the sewer line shall be constructed of AWWA specified water pipe and
20 pressure tested in place without leakage prior to backfilling, in accordance with the
21 provisions of the Sewage Collection and Treatment Regulations (9VAC25-790).
22 Where sewer line crosses over distribution pipeline that conveys Level 1 reclaimed
23 water, the sewer line shall:

- 1 (1) Be laid to provide a separation of at least 18 inches between the bottom of the
2 sewer line and the top of the reclaimed water distribution pipeline.
- 3 (2) Be constructed of AWWA approved water pipe and pressure tested in place
4 without leakage prior to backfilling, in accordance with the provisions of the Sewage
5 Collection and Treatment Regulations (9VAC25-790).
- 6 (3) Have adequate structural support to prevent damage to the reclaimed water
7 distribution pipeline.
- 8 (4) Have joints placed equidistant and as far as possible from the reclaimed water
9 distribution pipeline joints.
- 10 f. No reclaimed water distribution pipeline shall pass through or come into contact
11 with any part of a sewer manhole. Distribution pipeline that conveys Level 1
12 reclaimed water shall be separated horizontally by at least two feet from a sewer
13 manhole whenever possible. The distance shall be measured from the edge of the
14 pipe to the edge of the manhole structure. When local conditions prohibit this
15 horizontal separation, the manhole shall be of watertight construction and tested in
16 place.
- 17 4. No setback distance is required to any nonpotable water supply well and no vertical or
18 horizontal separation distances are required between above-ground reclaimed water
19 pipelines and potable water, sewer or wastewater pipelines.
- 20 5. All reclaimed water outlets shall be of a type, or secured in a manner, that permits
21 operation by authorized personnel. Public access to reclaimed water outlets shall be
22 controlled in areas where reclaimed water outlets are accessible to the public as follows:

1 a. If quick connection couplers are used on above-ground portions of the reclaimed
2 water distribution system, they shall differ materially from those used on the potable
3 water supply.

4 b. Use of above-ground hose bibs, spigots or other hand-operated connections that
5 are standard on local potable water distribution systems shall be prohibited for use
6 on the local reclaimed water distribution system. If above-ground hose bibs, spigots
7 or other hand-operated connections are used on the reclaimed water distribution
8 system, they must differ materially from those used on the local potable water
9 distribution system and must be clearly distinguishable as reclaimed water
10 connections (i.e., painted purple, valve operation with a special tool) so as not to be
11 mistaken for potable water connections. Where below-grade vaults are used to
12 house reclaimed water connections, the connections in the vault may have standard
13 potable water distribution system thread and bib size services provided the bib
14 valves can be operated only by a special tool. The below-grade vaults shall also be
15 labeled as being part of the reclaimed water distribution system (i.e., painted purple,
16 labeled).

17 6. Existing potable water, distribution systems, sewer and wastewater ~~pipelines~~
18 collection systems, and irrigation distribution systems may be converted for use as
19 reclaimed water distribution ~~pipelines~~ systems. ~~The~~ Not less than 90 days prior to such
20 conversions, excluding the conversion of irrigation distribution systems that are not
21 under common ownership or management with reclamation systems, SRSs or reclaimed
22 water distribution systems providing reclaimed water to the irrigation distribution
23 systems, the following information shall be submitted to the board for approval of the
24 conversion:

25 a. A system conversion plan that contains:

- 1 ~~a. The (1) Information on the location and identification of the facilities to be~~
2 converted;
- 3 ~~b. The (2) Information on the location of all connections to the facilities to be~~
4 converted;
- 5 ~~c. A description of measures to be taken to ensure that existing connections will be~~
6 ~~eliminated;~~
- 7 ~~d. Description (3) A description of procedures to be used to ensure that all~~
8 connections and cross-connections shall be eliminated. This may include physical
9 inspections, dye testing, or other testing procedures;
- 10 ~~e. Description of marking, signing, labeling, or color coding to be used to identify the~~
11 ~~converted facility as a reclaimed water transmission facility;~~
- 12 (4) A description of the physical and operational modifications necessary to convert
13 the existing system to a reclaimed water distribution system that shall comply with
14 applicable design criteria in subsections B and C of this section, and the operations
15 and maintenance requirements of 9VAC25-740-140 D 2;
- 16 ~~f. Description (5) A description of cleaning and disinfection procedures to be followed~~
17 before the converted facilities will be placed into operation for reclaimed water
18 distribution. For the conversion of existing sewer and wastewater collection systems,
19 cleaning and disinfection of the system shall be conducted in accordance with
20 AWWA standards (ANSI/AWWA C651-05, effective June 1, 2005). Procedures to
21 dispose of flush water from cleaning or disinfection shall be those described in the
22 operations and maintenance manual of the system for the disposal of flush water
23 from maintenance activities;

1 ~~g. Assessment~~ (6) An assessment of the physical condition and integrity of facilities
2 to be converted; and

3 ~~h. (7)~~ Reasonable assurance that cross-connections will not result, public health will
4 be protected, and the integrity of potable water, wastewater, and reclaimed water
5 systems will be maintained when the conversion is made.

6 b. An operations and maintenance manual for the system converted to a reclaimed
7 water distribution system in accordance with 9VAC25-740-140 B, containing, at a
8 minimum, the items specified in 9VAC25-740-140 D.

9 7. Tank trucks may be used to transport and distribute reclaimed water only if the
10 following requirements are met:

11 a. The truck is not used to transport potable water that is used for drinking water or
12 food preparation;

13 b. The truck is not used to transport waters or other fluids that do not meet the
14 requirements of this chapter, unless the tank has been evacuated and properly
15 cleaned prior to the addition of the reclaimed water;

16 c. The truck is not filled through on-board piping or removable hoses that may
17 subsequently be used to fill tanks with water from a potable water supply; and

18 d. The reclaimed water contents of the truck are clearly identified as nonpotable
19 water on the truck.

20 8. Reclaimed water distribution systems shall have the following identification,
21 notification and signage:

22 a. ~~All reclaimed~~ Reclaimed water piping with an outer diameter greater than or equal
23 to one inch, installed in-ground after [effective date of amended regulation] or above-

1 ground shall have display the words "CAUTION: RECLAIMED WATER - DO NOT
2 DRINK" embossed, integrally stamped, or otherwise affixed to the piping, and shall
3 be identified by one or more of the following methods:

4 ~~(1) Painting the piping purple (Pantone 522) and stamping the piping with the~~
5 ~~required caution statement on opposite sides of the pipe, repeated at intervals of~~
6 ~~three feet or less.~~

7 ~~(2) (1) Using stenciled~~ Stenciling or stamping the pipe piping with two- to three-inch
8 letters on opposite sides of the ~~pipe, piping,~~ placed at intervals of three to four feet.
9 For ~~pipes piping~~ less than two inches in and greater than or equal to one inch outer
10 diameter, lettering shall be at least 5/8 inch, placed on opposite sides of the ~~pipe,~~
11 piping and repeated at intervals of one foot.

12 ~~(3) (2)~~ Wrapping the piping with purple (Pantone 522) polyethylene vinyl wrap or
13 adhesive tape, placed longitudinally at three-foot intervals. The width of the wrap or
14 tape shall be at least three inches, and shall display the required caution statement
15 in either white or black lettering.

16 ~~(4) (3)~~ Permanently affixing purple (Pantone 522) vinyl adhesive tape on top of the
17 piping, parallel to the axis of the pipe, piping, fastened at least every 10 feet to each
18 pipe section, and continuously for the entire length of the piping. The width of the
19 tape shall be at least three inches, and shall display the required caution statement
20 in either white or black lettering.

21 (4) Using an alternate method that assures the caution statement will be displayed to
22 provide an equivalent degree of public notification and protection if approved by the
23 board.

1 b. Additional methods, if provided, to identify reclaimed water piping with an outer
2 diameter greater than or equal to one inch (e.g., permanently color coding the piping
3 Pantone 522 purple), shall not obscure any portion of the caution statement required
4 pursuant to subdivision B 8 a of this subsection.

5 c. Reclaimed water piping with an outer diameter less than one inch shall require the
6 following:

7 (1) Where installed in-ground after [effective date of amended regulation] or above
8 ground, the piping shall be permanently color coded purple (Pantone 522).
9 Longitudinal purple striping of the piping may be allowed provided the cumulative
10 width of the stripes is greater than or equal to 25 percent of the outer pipe diameter.

11 (2) Where installed within a building or structure, the piping shall have in addition to
12 color coding required per subdivision B 8 c (1) of this subsection, the words
13 “CAUTION: RECLAIMED WATER – DO NOT DRINK” embossed, stenciled,
14 stamped, or affixed with adhesive tape on the piping, placed on opposite sides of the
15 piping and repeated at intervals of one foot. Lettering of the caution statement shall
16 be of a size easily read by a person with normal vision at a distance of two feet.

17 b. d. All visible, other above-ground portions of the reclaimed water distribution
18 system including reclaimed water piping, valves, outlets (including fire hydrants) and
19 other appurtenances shall be ~~colored~~ color coded, taped, labeled, tagged or
20 otherwise marked to notify the public and employees that the source of the water is
21 reclaimed water, not intended for drinking or food preparation. For reclaimed water
22 treated to Level 2, such notification shall also inform employees to practice good
23 personal hygiene for incidental contact with reclaimed water and the public to avoid
24 contact with the reclaimed water.

1 ~~e.~~e Each mechanical appurtenance of a reclaimed water distribution system shall be
2 colored purple and legibly marked "RECLAIMED WATER" to identify it as a part of
3 the reclaimed water distribution system and to distinguish it from mechanical
4 appurtenances of a potable water distribution system or a wastewater collection
5 system.

6 ~~d. Existing underground distribution or collection pipelines and appurtenances~~
7 ~~retrofitted for the purpose of distributing reclaimed water shall be colored coded,~~
8 ~~taped, labeled, tagged or otherwise identified as described in subdivisions 8 a, b and~~
9 ~~c of this subsection. This identification need not extend the entire length of the~~
10 ~~retrofitted reclaimed water distribution system but is required within 10 feet of~~
11 ~~locations where the distribution system crosses a potable water supply line or~~
12 ~~sanitary sewer line.~~

13 ~~e.~~f Valve boxes for reclaimed water distribution systems shall be painted purple.
14 Valve covers for reclaimed water distribution lines shall not be interchangeable with
15 potable water supply valve covers.

16 g. Existing potable water distribution systems, sewer or wastewater collection
17 systems, or irrigation distribution systems that are converted to reclaimed water
18 distribution systems in accordance with subdivision B 6 of this subsection after
19 [effective date of amended regulation], shall be retrofitted to meet identification,
20 notification and signage requirements of subdivision B 8 of this subsection with the
21 following exceptions:

22 (1) For converted systems requiring the submission of a conversion plan and an
23 operations and maintenance manual in accordance with subdivision B 6 of this
24 subsection, existing in-ground converted piping shall be retrofitted to a distance of

1 not less than 10 feet from locations where the piping crosses or is crossed by a
2 potable water supply line or sanitary sewer line.

3 (2) For all other converted systems, identification, notification and signage
4 requirements specified in subdivision B 8 of this subsection for in-ground piping shall
5 not apply.

6 9. All reclaimed water distribution systems shall be maintained to minimize losses and to
7 ensure safe and reliable conveyance of reclaimed water such that the reclaimed water
8 will not be degraded below the standards, excluding CAT standards, required for the
9 intended reuse or reuses in accordance with 9VAC25-740-90.

10 C. Storage requirements.

11 1. To ensure reliable reclamation system operation in accordance with the requirements
12 of this chapter, all reclamation systems shall have the ability to implement one or more
13 of the following options:

14 a. Store reclaimed water;

15 b. Discharge reclaimed water to another permitted reuse system, if applicable;

16 c. Discharge reclaimed water to surface waters of the state under a VPDES permit;

17 d. Suspend all or a portion of water reclamation for planned periods; or

18 e. In the case of a satellite reclamation system, discharge reclaimed water into the
19 sewage collection system from which it received water for reclamation.

20 2. Storage for reclaimed water shall be required only when ~~subdivision 1 b, c, or d~~
21 subdivisions C 1 b, c, or d of this subsection or, as applicable, subdivision C 1 e of this
22 subsection are not available or approved by the board.

1 3. Separate, off-line storage shall be provided for reject water of the reclamation system
2 unless the reject water can be diverted to another permitted reuse system, discharged to
3 surface waters of the state under a VPDES permit, returned directly to an appropriate
4 point of treatment in the reclamation system, or in the case of a satellite reclamation
5 system, sent to the sewage collection system from which the reclamation system
6 received water for reclamation. Where reject water is stored, provisions shall be
7 incorporated into the design of the reclamation system to distribute the reject water from
8 storage to other parts of the reclamation system for additional or repeated treatment.

9 4. Storage for reject water may also be used for emergency storage to ensure Reliability
10 ~~Class I reliability~~ of the reclamation system in accordance with 9VAC25-740-130.

11 5. Reject water and reclaimed water may be stored in water-tight tanks placed above-
12 ground or in-ground. Labeling of tanks used for reject water storage, system storage or
13 ~~non-system~~ non-system storage shall be in accordance with 9VAC25-740-160 B, and
14 shall, at a minimum, identify the contents of each tank as either reject water or reclaimed
15 water.

16 6. For all impoundments or ponds that are used for reject water storage or system
17 storage, with the exception of impoundments and ponds specified in subdivision C 7 of
18 this subsection, the following are required:

19 a. A minimum two-foot freeboard shall be maintained at all times. Any emergency
20 discharge or overflow device and the disposition of the overflow discharge shall be
21 identified in the engineering report.

22 b. There shall be a minimum two-foot separation distance between the bottom of the
23 impoundment or pond and the seasonal high water table.

1 c. The impoundment or pond shall have a properly designed and installed synthetic
2 liner of at least 20 mils thickness or a compacted soil liner of at least one foot
3 thickness. Synthetic liners shall be installed in accordance with the manufacturer's
4 specifications and recommendations. The soil liner shall be composed of separate
5 lifts not to exceed six inches. The maximum coefficient of permeability for the
6 synthetic and soil liners shall not exceed 1×10^{-6} cm/sec and 1×10^{-7} cm/sec,
7 respectively. A plan of quality assurance and quality control which substantiates the
8 adequacy of the liner and its installation shall be included in or shall accompany the
9 preliminary engineering report or supporting documentation for the CTC.
10 Documentation of quality assurance and quality control activities on liner installation
11 along with permeability test results, shall be submitted with the statement of
12 construction completion to the board.

13 d. If the requirements of ~~subdivision~~ subdivisions C.6 b or c of this subsection cannot
14 be met, the board may allow use of the impoundment or pond for storage provided
15 that a groundwater monitoring plan for the facility is submitted to the board for review
16 and approval. The plan shall identify the direction of groundwater flow and the
17 proposed location and depth of groundwater monitoring wells at the location of the
18 impoundment or pond, parameters to be monitored, a monitoring schedule, and
19 procedures for proper sample collection and handling.

20 e. The design of the impoundment or pond shall prevent the entry of surface water or
21 storm water runoff from outside the facility embankment or berm.

22 f. Where the embankment of the impoundment or pond is composed of soil, the
23 embankment shall have:

24 (1) A top width of at least five feet;

- 1 (2) Interior and exterior slopes no steeper than one foot vertical to three feet
2 horizontal unless alternate methods of slope stabilization are used;
- 3 (3) Shallow-rooted vegetative cover or other soil stabilization to prevent erosion; and
4 (4) Erosion stops and water seals installed on all piping that penetrates the
5 embankment.
- 6 g. There shall be routine maintenance of the impoundment or pond liner,
7 embankments and access areas.
- 8 h. Impoundments and ponds shall be sited to avoid areas of uneven subsidence,
9 sinkholes, or unstable soils unless provisions are made for their correction. Results
10 from field and laboratory tests from an adequate number of test borings and soil
11 samples shall be the basis for computations pertaining to permeability and stability
12 analyses.
- 13 i. Impoundments or ponds shall not be located on a floodplain unless protected from
14 inundation or damage by a 100-year frequency flood event.
- 15 j. There shall be a minimum setback distance measured horizontally from the
16 perimeter of the storage impoundment or pond to potable water supply wells and
17 springs, and public water supply intakes, of 100 feet for storage of Level 1 reclaimed
18 water and 200 feet for storage of Level 2 reclaimed water or reject water.
- 19 7. Reject water storage and system storage impoundments or ponds that exist upon
20 October 1, 2008, shall be exempt from the design, construction, and operation
21 requirements specified in subdivision C6 of this subsection until such time these
22 facilities are modified or expanded, or unless they have failed to comply with other
23 existing regulatory or permitting requirements.

1 8. The capacity of reject water storage and system storage facilities, including
2 impoundments, ponds or tanks, shall be as follows:

3 a. For reject water, the capacity of the storage facility shall, at a minimum, be the
4 volume equal to the ~~average daily permitted~~ designated design flow of the
5 reclamation system unless other options exist for immediate disposal or retreatment
6 of the reject water in addition to storage.

7 b. For reclaimed water, the capacity of the storage facility shall be determined by the
8 seasonal variability in demand, intended reuses with intermittent, variable demand,
9 such as fire protection or fighting; and the availability of other options to generate or
10 manage reclaimed water as specified in subdivision C.1 of this subsection.

11 (1) Where there is no or minimal seasonal variability in demand and no other options
12 are available for alternative generation or management of all or a portion of the
13 reclaimed water, the capacity of the storage facility shall, at a minimum, be the
14 volume equal to three times that portion of ~~reclaimed water average daily~~ the
15 reclamation system designated design flow for which no other options to generate or
16 manage the reclaimed water from the reclamation system are permitted.

17 (2) Where there is seasonal variability in demand and no other options are available
18 for alternative generation or management of all or a portion of the reclaimed water
19 during periods of low seasonal demand, storage facilities shall have sufficient
20 storage capacity to assure the retention of the reclaimed water under conditions and
21 circumstances that preclude reuse. The methods, assumptions and calculations
22 used to determine the system storage requirements shall be provided and justified in
23 the preliminary engineering report or supporting documentation for the CTC.
24 Analytical means of determining system storage requirements, such as water
25 balance calculations or computer hydrological programs, shall be used and shall

1 account for all water inputs into the system. Analysis shall be based on site-specific
2 data. Irrigation efficiencies or rainfall efficiencies shall not be used in storage volume
3 determinations.

4 9. Requirements specified in subdivision C_6 of this subsection shall not apply to ~~lakes,~~
5 impoundments or ponds used for ~~nonsystem~~ non-system storage with the exception of
6 those specified in subdivision C_11 of this subsection.

7 10. Landscape impoundments may also be used for ~~nonsystem~~ non-system storage of
8 reclaimed water prior to another subsequent reuse, such as irrigation.

9 11. Impoundments or ponds used for ~~nonsystem~~ non-system storage of reclaimed water,
10 including landscape impoundments, for subsequent irrigation reuse on sites under
11 common ownership or management with the reclamation system or satellite reclamation
12 system that provides reclaimed water to the sites, shall comply with the design,
13 construction and operation requirements specified in subdivision C_6 of this subsection.

14 12. For ~~lakes,~~ impoundments or ponds used for ~~nonsystem~~ non-system storage of
15 reclaimed water, the following setback distances shall apply:

16 a. There shall be a 50-foot minimum setback distance measured horizontally from
17 the perimeter of the ~~lake,~~ impoundment or pond to property lines.

18 b. For an impoundment or pond with a liner meeting the requirements specified in
19 subdivision C_6 c of this subsection, there shall be a minimum setback distance
20 measured horizontally from the perimeter of the storage impoundment or pond to
21 potable water supply wells and springs, and public water supply intakes, of 100 feet
22 for storage of Level 1 reclaimed water and 200 feet for storage of Level 2 reclaimed
23 water.

1 c. For an unlined impoundment or pond, there shall be a minimum setback distance
2 measured horizontally from the perimeter of the storage impoundment or pond to
3 potable water supply wells and springs, and public water supply intakes, of 200 feet
4 for storage of Level 1 reclaimed water and 400 feet for storage of Level 2 reclaimed
5 water.

6 13. Where more than one setback distance applies to storage for reclaimed water or
7 reject water, the greater setback distance shall govern.

8 14. ~~All Reclaimed water system storage facilities, including landscape impoundments~~
9 ~~used for nonsystem storage,~~ shall be designed and operated to prevent a discharge to
10 surface waters of the state except in the event of a storm greater than the 25-year 24-
11 hour storm. Reclaimed water non-system storage facilities, including landscape
12 impoundments used for non-system storage, shall be designed and operated to prevent
13 a discharge to surface waters of the state except in the event of a storm greater than the
14 10-year, 24-hour storm.

15 15. Permittees shall maintain current inventories of reject water storage, system storage
16 and ~~nonsystem~~ non-system storage facilities located within the service area of the RWM
17 plan. An inventory or a revised inventory shall be submitted as part of the RWM plan in
18 the permit application. For the addition of new storage facilities to an inventory after
19 permit issuance, the permittee shall submit to the board an amended inventory at least
20 30 days before reclaimed water will be introduced into the new storage facilities. An
21 inventory of reject water storage, system storage and ~~nonsystem~~ non-system storage
22 facilities shall include the following:

23 a. Name or identifier for each storage facility;

24 b. Location of each storage facility (including latitude and longitude);

1 c. Function of each storage facility (i.e., reject water storage, system storage or
2 nonsystem storage);

3 d. Type of each storage facility (i.e., covered tank, uncovered tank, lined pond,
4 unlined pond, etc.); and

5 e. Location (latitude and longitude) and distance of the nearest potable water supply
6 well and spring, and public water supply intake, to each storage facility within 450
7 feet of that facility.

8 16. Storage requirements as specified in this subsection shall not apply to reclaimed
9 water storage facilities provided at the site of an industrial end user where such facilities
10 are regulated by an existing water permit issued by the board to the industrial end user,
11 or the industrial end user is also the generator of reclaimed water stored in the facilities
12 and is excluded under 9VAC25-740-50 A.

13 **9VAC25-740-120. Construction requirements.**

14 A. Preliminary engineering report and pilot study.

15 1. A preliminary engineering report shall be submitted for new water reclamation projects
16 and for modification or expansion of existing reclamation systems, ~~satellite reclamation~~
17 systems ~~SRSs~~ and reclaimed water distributions systems. At the request of the applicant
18 or permittee, the board may waive the need for a preliminary engineering report or
19 portions of a preliminary engineering report for modification or expansion of an existing
20 reclamation system, ~~satellite reclamation system~~ SRS or reclaimed water distributions
21 system based on the scope of the proposed project.

22 2. A pilot study shall be required where treatment is proposed for a reclamation system
23 of an IPR project.

24 a. The pilot study shall demonstrate the ability of selected treatment processes to:

1 (1) Meet, at a minimum, the reclaimed water standards prescribed for the IPR project
2 in accordance with 9VAC25-740-90 C, and

3 (2) Generate a consistent and reliable supply of reclaimed water for the IPR project.

4 b. The pilot study shall quantify and characterize the quality of source water provided
5 for reclamation and reclaimed water generated by the treatment processes of the
6 reclamation system for a period of not less than 365 days unless reduced by the
7 board in accordance with subdivision A 2 d of this subsection.

8 c. At the request of the applicant or permittee, the board may reduce the pilot study
9 duration specified in subdivision A 2 b of this subsection or the pilot study scope
10 where the following are met:

11 (1) The applicant or permittee provides a detailed plan of study for the board's review
12 and approval before initiating the pilot study, and

13 (2) The detailed plan of study justifies to the satisfaction of the board that a pilot
14 study of shorter duration or reduced scope will be sufficient to achieve the
15 requirements of subdivision A 2 a of this subsection. For the purpose of reducing the
16 duration or scope of a pilot study, results of previous pilot studies and operating
17 experiences of similar water reclamation and IPR projects may be used as part of the
18 demonstration required pursuant to subdivision A 2 a of this subsection.

19 d. Results of the pilot study shall be submitted to the board for review.

20 B. Certificate to construct and certificate to operate.

21 1. No owner shall cause or allow the construction, expansion or modification of a
22 reclamation system or ~~satellite reclamation system-SRS~~ except in compliance with a
23 certificate to construct (CTC) from the board unless otherwise provided for by this
24 chapter. Furthermore, no owner shall cause or allow any reclamation system or ~~satellite~~

1 ~~reclamation system~~ SRS to be operated except in compliance with a certificate to
2 operate (CTO) issued by the board, which authorizes the operation of the reclamation
3 system or ~~satellite reclamation system~~ SRS unless otherwise provided for by this
4 chapter. The need for a CTC and CTO for modifications shall be determined by the
5 board on a case-by-case basis. Conditions may be imposed on the issuance of any CTC
6 or CTO, and no reclamation system or ~~satellite reclamation system~~ SRS may be
7 constructed, modified, or operated in violation of these conditions.

8 2. CTC.

9 a. Upon approval of the proposed design by the board, including any submitted plans
10 and specifications, if required, the board will issue a CTC to the owner of such
11 approval to construct or modify his reclamation system or ~~satellite reclamation~~
12 ~~system~~ SRS in accordance with the approved plans and specifications.

13 b. Any deviations from the approved design or the submitted plans and specifications
14 significantly affecting hydraulic conditions (flow profile), unit operations capacity, the
15 functioning of the reclamation system or ~~satellite reclamation system~~, SRS, or the
16 quality of the reclaimed water, must be approved by the board before any such
17 changes are made.

18 3. CTO.

19 a. Upon completion of the construction or modification of the reclamation system or
20 ~~satellite reclamation system~~, SRS, the owner shall submit to the board a Statement
21 of Construction Completion signed by a licensed professional engineer stating that
22 the construction work has been completed in accordance with the approved plans
23 and specifications, or revised only in accordance with subdivision B_2 b of this
24 subsection. This statement shall be based upon inspections of the reclamation

1 system or ~~satellite reclamation system~~ SRS during and after construction or
2 modifications that are adequate to ensure the truth of the statement.

3 b. Upon receipt of the construction completion statement, the board may issue a final
4 CTO. However, the board may delay the granting of the CTO pending inspection, or
5 satisfactory evaluation of reclaimed water test results, to ensure that the work has
6 been satisfactorily completed.

7 c. A conditional CTO may be issued specifying final approval conditions, with specific
8 time periods for completion of unfinished work, revisions to the operations and
9 maintenance manual, or other appropriate items. The board may issue a conditional
10 CTO to owners of a reclamation system or ~~satellite reclamation system~~ SRS for
11 which the required information for completion of construction has not been received.
12 Such CTOs will contain appropriate conditions requiring the completion of any
13 unfinished or incomplete work including subsequent submission of the statement of
14 completion of construction.

15 d. ~~Consideration will be given to issuance of an~~ An interim CTO may be issued to
16 individual unit operations of the treatment system so as to allow utilization of these
17 unit operations prior to completion of the total project. A final CTO shall be issued
18 upon verification that the requirements of this chapter have been complied with.

19 e. Within 30 days after placing a new or modified reclamation system or ~~satellite~~
20 ~~reclamation system~~ SRS into operation, the board may require reclaimed water
21 produced ~~should~~ by the system to be sampled and tested in a manner sufficient to
22 demonstrate compliance with approved specifications and permit requirements. The
23 board shall be notified of the time and place of the tests, and shall be sent the results
24 of the tests for evaluation as part of the final CTO.

1 f. Within 90 days of placing the new or modified reclamation system or ~~satellite~~
2 ~~reclamation system~~ SRS into operation, the owner shall submit a new or revised
3 operations and maintenance manual for the water reclamation system, ~~satellite~~
4 ~~reclamation system,~~ SRS, or both, ~~as applicable, to be if~~ covered by the same
5 permit. The manual shall contain information as specified in 9VAC25-740-140.

6 g. The board may amend or reissue a CTO where there is a change in the manner of
7 treatment or the source of water that is reclaimed at the permitted location, or for any
8 other cause incidental to the protection of the public health and welfare, provided
9 notice is given to the owner.

10 **9VAC25-740-130. Operator requirements and system reliability.**

11 A. Operator requirements. In accordance with the Virginia Board for Waterworks and
12 Wastewater Works Operators Regulations (18VAC160-20), each reclamation system shall be
13 assigned a classification based on the treatment processes used to reclaim water and the
14 design capacity of the facility. The classification of both the reclamation system and the operator
15 in responsible charge shall be the same as that specified in the Sewage Collection and
16 Treatment Regulations (9VAC25-790) for sewage treatment works with similar treatment
17 processes and design capacities. The reclamation system shall be manned while in operation
18 and under the supervision of the operator in responsible charge unless the system is equipped
19 with remote monitoring and, as applicable, automated diversion of substandard or reject water
20 in accordance with 9VAC25-740-70 C 1 a.

21 B. Reliability Class I ~~reliability~~ as defined in 9VAC25-740-10 is required for Level 1
22 reclamation systems ~~and~~, satellite reclamation systems and for pump stations considered part
23 of these systems, unless there is a permitted alternate treatment ~~or~~, discharge or disposal
24 system available ~~that has~~ with sufficient capacity to handle any reclaimed water flows that do

1 not meet the reclaimed water standards of this chapter or performance criteria established in the
2 operations and maintenance manual.

3 C. Reliability Class I, as defined in 9VAC25-740-10, is required for a reclamation system
4 identified as a component of an IPR project in accordance with 9VAC25-740-100 D 1, including
5 pump stations that are part of the reclamation system. No exception or variance shall be
6 granted for this requirement.

7 ~~C.~~D. For independent reclamation systems and systems consisting of an industrial
8 wastewater treatment works and reclamation system, the applicability of Reliability Class I
9 ~~reliability~~ requirements as specified in the Sewage Collection and Treatment Regulations
10 (9VAC25-790), shall be determined by the board for each proposed or existing system.

11 ~~D.~~E. The board may approve alternative measures to achieve Reliability Class I reliability
12 specified in the Sewage Collection and Treatment Regulations (9VAC25-790) and this chapter if
13 the applicant or permittee can demonstrate in the engineering report, using accepted and
14 appropriate engineering principles and practices, that the alternative measures will achieve a
15 level of reliability equivalent to Reliability Class I reliability.

16 **9VAC25-740-140. Operations and maintenance.**

17 A. The permittee shall develop and submit to the board an operations and maintenance
18 manual in accordance with 9VAC25-740-120 B 3 f for each reclamation system, ~~satellite~~
19 ~~reclamation system~~ SRS, or combination of these facilities covered by the same permit. The
20 permittee shall maintain the manual and any changes in the practices and procedures followed
21 by the permittee shall be documented and submitted to the board within 90 days of the effective
22 date of the changes.

23 B. For each reclaimed water distribution system, the permittee shall develop an operations
24 and maintenance manual to be made available at a location central to the system. The

1 permittee shall maintain the manual and include any changes in the practices and procedures
2 followed by the permittee in the manual. The operations and maintenance manual for a
3 reclaimed water distribution system may be included in the operations and maintenance manual
4 described in subsection A of this section where the reclaimed water distribution system and a
5 reclamation system or ~~satellite reclamation system~~, SRS, or all these facilities are covered by
6 the same permit.

7 C. For a reclamation system authorized under the permit of a wastewater treatment works
8 that provides flow to the reclamation system, the operations and maintenance manual of the
9 reclamation system may be made a part of the operations and maintenance manual for the
10 wastewater treatment works.

11 D. The operations and maintenance manual is a set of detailed instructions developed to
12 facilitate the operator's understanding of operational constraints and maintenance requirements
13 for the reclamation system, ~~satellite reclamation system~~, SRS or reclaimed water distribution
14 system; and the monitoring and reporting requirements specified in the permit issued for each
15 system. The scope and content of the manual will be determined by the complexity of the
16 system or systems described by the manual.

17 1. For a reclamation system or ~~satellite reclamation system~~, SRS, the operations and
18 maintenance manual shall, at a minimum, contain the following:

19 a. A description of unit treatment processes within the reclamation system or ~~satellite~~
20 ~~reclamation system~~, SRS and step-by-step instructions for the operation of these
21 processes;

22 b. Routine maintenance and schedules of maintenance for each unit treatment
23 process in the system;

- 1 c. The criteria used to make continuous determinations of the acceptability of the
2 reclaimed water being produced and shall include set points for parameters
3 measured by continuous on-line monitoring equipment;
- 4 d. Descriptions of sampling and monitoring procedures and record keeping that
5 comply with the requirements of this chapter and any applicable permit conditions;
- 6 e. The physical steps and procedures to be followed by the operator when
7 substandard water is being produced, including resampling and operational review in
8 accordance with 9VAC25-740-70 C;
- 9 f. The physical steps and procedures to be followed by the operator when the
10 treatment works returns to normal operation and acceptable quality reclaimed water
11 is again being produced;
- 12 g. Procedures to be followed during a period when an operator is not present at the
13 treatment works;
- 14 h. Information necessary for the proper management of sludge or residuals from
15 reclamation treatment that is not specifically requested in the application for a
16 VPDES or VPA permit; and
- 17 i. A contingency plan to eliminate or minimize the potential for untreated or
18 inadequately treated water to be delivered to reuse areas. The plan shall, as
19 applicable, reference and coordinate with the education and notification program
20 specified in 9VAC25-740-170 A for any release of untreated or inadequately treated
21 water to the reclaimed water distribution system.
- 22 2. For a reclaimed water distribution system, the operations and maintenance manual
23 shall, at a minimum, contain the following:

- 1 a. A map of the distribution system, a description of all components within the
2 distribution system, and step-by-step instructions for the operation of specific
3 mechanical components;
- 4 b. Routine and unplanned inspection of the distribution system, including required
5 inspections for the cross-connection and backflow prevention program as specified in
6 9VAC25-740-100 C 1 g;
- 7 c. Routine maintenance and schedules of maintenance for all components of the
8 distribution system. Maintenance shall include, but is not be limited to, initial and
9 routine flushing of the distribution system, measures to prevent or minimize
10 corrosion, fouling and clogging of distribution lines; and detection and repair of
11 broken distribution lines, flow meters or pumping equipment; and
- 12 d. Procedures to:
- 13 (1) handle—Handle and dispose of any wastes ~~or wastewater~~ generated by
14 maintenance of the distribution system in a manner protective of the environment;:
- 15 (2) Prevent the discharge of reclaimed or flush water from distribution system
16 maintenance activities to:
- 17 (a) Storm drains,
- 18 (b) State waters unless otherwise authorized by the board, and
- 19 (c) Sanitary sewers unless allowed under local sewer use ordinances and authorized
20 by the board; and
- 21 (3) Collect and, as applicable, retreat reclaimed water or treat flush water from
22 distribution system maintenance activities for a subsequent reuse or use approved
23 by the board.

1 E. The permittee shall review and revise the operations and maintenance manual, as
2 needed and appropriate, to ensure that the manual contains procedures and criteria addressing
3 the requirements of subsection D of this section for satisfactory system performance. Any
4 revision to the manual shall be reviewed and approved by the board.

5 F. The permittee of a reclamation system, ~~satellite reclamation system~~, SRS, or reclaimed
6 water distribution system shall be responsible for making the facility protective of the
7 environment and public health at all times, including periods of inactivation or closure. Included
8 in the operations and maintenance manual for the reclamation system, ~~satellite reclamation~~
9 ~~system~~, SRS, or reclaimed water distribution system, the permittee shall submit a plan for
10 inactivation or closure of the facility, specifying what steps will be taken to protect the
11 environment and public health.

12 G. Where ~~a reclamation system or satellite reclamation system~~ and a bulk irrigation reuse
13 ~~site or sites are~~ is under common ownership or management with a reclamation system or SRS
14 that generates reclaimed water applied to the site, the operations and maintenance manual for
15 the reclamation system or ~~satellite reclamation system~~ SRS shall include the following:

- 16 1. Measurements and calculations used to determine supplemental irrigation rates of
17 reclaimed water for the irrigation reuse sites;
- 18 2. Operating procedures of the irrigation system;
- 19 3. Routine maintenance required for the continued design performance of the irrigation
20 system and reuse sites;
- 21 4. Identification and routine maintenance of reclaimed water storage facilities dedicated
22 to bulk irrigation reuse;
- 23 5. Schedules for harvesting and crop removal at the irrigation reuse sites;
- 24 6. An inventory of spare parts to be maintained for the irrigation system; and

1 7. Any other information essential to the operation of the irrigation system and reuse
2 sites in accordance with the requirements of this chapter.

3 **9VAC25-740-150. Management of pollutants from significant industrial users.**

4 A. A reclamation system that receives ~~effluent~~ source water from a wastewater treatment
5 works having ~~significant industrial users (SIUs) as defined by the VPDES Permit Regulation~~
6 ~~(9VAC25-31-10)~~, SIUs shall not be permitted to produce reclaimed water ~~treated to meeting~~
7 ~~Level 1 or for reuse in areas accessible to the public or where human contact with the reclaimed~~
8 ~~water is likely~~ standards, unless ~~the wastewater treatment works providing effluent to the~~
9 ~~reclamation system is:~~

10 1. ~~A~~ The wastewater treatment works providing source water to the reclamation system
11 is a publicly owned treatment works (POTW) as defined in the VPDES Permit Regulation
12 (9VAC25-31-10), that and has a pretreatment program required by and developed,
13 approved and maintained in accordance with procedures described in Part VII of the
14 VPDES Permit Regulation (9VAC25-31-730 through 9VAC25-31-900); or

15 2. ~~Any other POTW or privately owned treatment works as defined in the VPDES Permit~~
16 ~~Regulation (9VAC25-31-10), with either a VPA or VPDES permit that has developed a~~
17 ~~program to manage pollutants of concern discharged by SIUs, equivalent to a~~
18 ~~pretreatment program required in the VPDES Permit Regulation for qualifying~~
19 ~~POTWs.~~ The reclamation system has evaluated source water from the treatment works
20 for pollutants of concern discharged by SIUs to the treatment works, and has confirmed
21 that such pollutants shall not interfere with the ability of the wastewater treatment works
22 to produce source water suitable for the production of reclaimed water meeting Level 1
23 standards and any other standards required in accordance with 9VAC25-740-70 D. All
24 such evaluations by the reclamation system shall be submitted to the board for review
25 and approval, and shall be repeated for each new SIU that proposes to discharge to the

1 treatment works prior to commencing such discharge. The reclamation system shall
2 maintain a current inventory of SIUs discharging to the treatment works.

3 B. The permittee of a reclamation system authorized to produce reclaimed water treated to
4 Level 1 ~~or for reuse in areas accessible to the public or where human contact is likely,~~ shall
5 establish a contractual agreement with all ~~wastewater~~ treatment works providing ~~effluent or~~
6 source water to the reclamation system unless the reclamation system and the treatment works
7 are authorized by the same permit. The purpose of the contractual agreement shall be to ensure
8 ~~that reclaimed water discharged from the reclamation system is safe for use in areas accessible~~
9 ~~to the public or where human contact is likely. The contractual agreement shall, at a minimum,~~
10 require the treatment works to notify the reclamation system of all SIUs that discharge to the
11 treatment works. ~~Prior to~~ Upon execution of the contractual agreement, a ~~draft~~ copy of the
12 ~~contract agreement shall be provided to the Board for review and approval. A contractual~~
13 ~~agreement will not be required where the permittee of the reclamation system is also the~~
14 ~~permittee of the wastewater treatment system that provides effluent or source water to the~~
15 ~~reclamation system~~ board.

16 C. A satellite reclamation system (SRS) that receives municipal wastewater or sewage from
17 a sewage collection system pipeline with contributions from SIU discharges, excluding any SIUs
18 whose discharge has no potential to reach the SRS intake, shall not be permitted to produce
19 reclaimed water meeting Level 1 standards, unless the SRS has evaluated pollutants of concern
20 discharged by the SIUs and has confirmed that such pollutants shall not interfere with the ability
21 of the SRS to produce reclaimed water meeting Level 1 standards and any other standards
22 required in accordance with 9VAC24-740-70 D. All such evaluations by the SRS shall be
23 submitted to the board for review and approval, and shall be repeated for each new SIU as
24 described above that proposes to discharge to the sewage collection system prior to
25 commencing such discharge. The SRS shall maintain a current inventory of all SIUs that

1 discharge pollutants of concern to the sewage collection system capable of reaching the intake
2 of the SRS.

3 D. The permittee of a SRS authorized to produce reclaimed water treated to Level 1, shall
4 establish a contractual agreement with the sewage collection system providing sewage to the
5 SRS. The contractual agreement shall, at a minimum, require the sewage collection system to
6 notify the SRS of all SIUs that discharge to the sewage collection system. Upon execution of the
7 contractual agreement, a copy of the agreement shall be provided to the board.

8 E. Any VPDES permitted treatment works with SIUs that provides source water for
9 reclamation and subsequent indirect potable reuse shall have the following:

10 1. For publicly owned treatment works, a pretreatment program where required by the
11 VPDES Permit Regulation or deemed necessary by the board, in accordance with
12 procedures described in Part VII of the VPDES Permit Regulation (9VAC25-31-730
13 through 9VAC25-31-900).

14 2. For all other treatment works, a program equivalent to a pretreatment program as
15 described in Part VII of the VPDES Permit Regulation (9VAC25-31-730 through
16 9VAC25-31-900), if deemed necessary by the board.

17 **9VAC25-740-160. Access control and advisory signs.**

18 A. There shall be no uncontrolled public access to reclamation systems, ~~satellite reclamation~~
19 ~~systems-SRSs~~ and system storage facilities. Access to any wastewater treatment works directly
20 associated with a reclamation system or ~~satellite reclamation system-SRS~~ shall be controlled in
21 accordance with the Sewage, Collection and Treatment Regulations (9VAC25-790). System
22 storage ponds shall be enclosed with a fence or otherwise designed with appropriate features to
23 discourage the entry of animals and unauthorized persons.

1 B. Where advisory signs or placards are required as described in subsections C and D of
2 this section or 9VAC25-740-110 C 5 for above-ground storage facilities, each sign shall state, at
3 a minimum, "CAUTION: RECLAIMED WATER – DO NOT DRINK" and have the equivalent
4 standard international symbol for non potable water. The size of the sign and lettering used shall
5 be such that it can be easily read by a person with normal vision at a distance of 50 feet.
6 Alternate signage and wording that assures an equivalent degree of public notification and
7 protection may be accepted by the board.

8 C. For all reuses of reclaimed water treated to Level 2, fencing around the site boundary is
9 not required but public access shall be restricted ~~and advisory~~. Advisory signs shall be posted
10 around reuse areas or reuse site boundaries. ~~The advisory signs, and~~ shall additionally state
11 the nature of the reuse and no trespassing. ~~Fencing around the site boundary is not required.~~

12 D. ~~Advisory~~ For all reuses of reclaimed water treated to Level 1, advisory signs or placards
13 ~~for all reuses of reclaimed water treated to Level 1~~ shall be posted within and at the boundaries
14 of reuse areas. The advisory signs or placards shall additionally state the nature of the reuse.
15 Examples of some notification methods that may be used by permittees include posting
16 advisory signs at entrances to residential neighborhoods where reclaimed water is used for
17 landscape irrigation and posting advisory signs at the entrance to a golf course and at the first
18 and tenth tees.

19 E. Advisory signs shall be posted adjacent to impoundments or ponds, including landscape
20 impoundments, used for ~~non-system~~ non-system storage of reclaimed water.

21 F. For industrial reuses, advisory signs shall be posted around those areas of the industrial
22 site where reclaimed water is used and at the main entrances to the industrial site to notify
23 employees and the visiting public of the reclaimed water reuse. Access control beyond what is
24 normally provided by the industry is not required.

1 **9VAC25-740-170. Use area requirements.**

2 A. Education and notification program. An education and notification program (program)
3 shall be developed and submitted with the RWM Plan in accordance with 9VAC25-740-100 C 1
4 for reuses that require Level 1 reclaimed water, will be in areas accessible to the public, or are
5 likely to have human contact. For indirect potable reuse (IPR) projects that do not require a
6 RWM plan, the program shall be submitted with the application to permit the project in
7 accordance with 9VAC25-740-100 D. The program shall be the responsibility of the permittee to
8 implement.

9 1. Education. ~~The purpose of the education component of the program is to ensure that~~
10 shall:

11 a. For end users and the public likely to have contact with reclaimed water, provide
12 information:

13 (1) To ensure that they are informed of the origin, nature, and characteristics of the
14 reclaimed water; the manner in which the reclaimed water can be used safely; and
15 uses for which the reclaimed water is prohibited or limited. ~~The program shall~~
16 ~~describe all modes of communication to be used to educate and inform, including,~~
17 ~~but not limited to, meetings, distribution of written information, the news media (i.e.,~~
18 ~~news papers, radio, television or the internet), and advisory signs as described in~~
19 ~~9VAC25-740-160. Program education for;~~

20 (2) To individual end users shall be, at the time of their initial connection to the
21 reclaimed water distribution system and, which may be provided in the service
22 agreement or contract with the permittee established in accordance with 9VAC25-
23 740-100 C 1 d, and

1 ~~(3) For nonbulk irrigation reuse of reclaimed water not treated to achieve BNR,~~
2 ~~education of individual end users shall be, at a minimum, annually~~ To individual end
3 users, annually or more often after the reclaimed water distribution system is placed
4 into operation. ~~for non-bulk irrigation reuse of reclaimed water not treated to achieve~~
5 BNR.

6 b. For IPR projects, provide information to generators of source water for reclamation
7 and IPR that are other than SIUs. This information shall describe methods and
8 practices to avoid or reduce the introduction of contaminants from domestic and
9 commercial sources into the wastewater collection system prior to reclamation, and
10 shall be provided to individual generators annually or more often after the
11 reclamation system is placed into operation.

12 c. Describe all modes of communication to be used to educate and inform, including,
13 but not limited to, meetings, distribution of written information, the news media (i.e.,
14 news papers, radio, television or the internet), and advisory signs as described in
15 9VAC25-740-160.

16 2. Notification. The notification component of the program shall contain procedures to
17 notify end users and the affected public of ~~treatment failures at the reclamation system~~
18 discharges of substandard reclaimed water to reuse that can adversely impact human
19 health, or ~~result in the loss of reclaimed water service~~ due to planned or unplanned
20 causes.

21 a. Notifications required for discharge of substandard reclaimed water to reuse.

22 (1) For reuses other than IPR. Where treatment of the reclaimed water fails more
23 than once during a seven-day period to comply with Level 1 disinfection or other
24 standards developed in accordance with 9VAC25-740-70 D or 9VAC25-740-70 E for

1 the protection of human health, and the non-compliant reclaimed water has been
2 discharged to ~~the~~ a reclaimed water distribution system or directly to a reuse, the
3 permittee shall notify the end user of the treatment failures and advise the end user
4 of precautions to be taken to protect ~~public~~ human health when using the reclaimed
5 water in areas accessible to the public or where human contact with the reclaimed
6 water is likely. These precautions shall be implemented for a period of seven days or
7 greater depending on the frequency and magnitude of the treatment failure.

8 (2) For IPR. Where treatment of the reclaimed water fails at any time to comply with
9 standards specified in 9VAC25-740-90 C and is discharged to the water supply
10 source (WSS), the permittee shall notify the owner or management of the
11 waterworks that withdraws water from the affected WSS of the time, duration,
12 volume and pollutant characteristics of the non-compliant discharge within a period
13 of less than or equal to half the shortest determined travel time between the
14 reclamation system discharge and the waterworks intake, but in no case greater than
15 eight hours. Such notification shall be implemented for a period of seven days or
16 greater depending on the frequency and magnitude of the non-compliant reclaimed
17 water discharge and the ability of subsequent multiple barriers as described in the
18 permit application of the IPR project, to mitigate the impact of the discharge on the
19 WSS.

20 b. Notifications required for loss of service.

21 (1) For reuses other than IPR. Where reclaimed water service to end users will be
22 interrupted due to planned causes, such as scheduled maintenance or repairs, the
23 permittee shall provide advance notice to end users of the anticipated date and
24 duration of the interrupted service. Where reclaimed water service to end users is
25 disrupted by unplanned causes, such as an upset at the reclamation system, the

1 permittee shall notify end users and the affected public of the disrupted service if it
2 can not or will not be restored within eight hours of discovery.

3 (2) For IPR. Where the discharge of the reclamation system to the WSS will be
4 interrupted due to planned causes, such as scheduled maintenance or repairs, the
5 permittee shall provide advance notice to the owner or management of the
6 waterworks that withdraws water from the WSS of the anticipated date, duration and
7 cause for the interrupted discharge. Where the discharge of the reclamation system
8 is interrupted by unplanned causes, such as an upset at the reclamation system, the
9 permittee shall notify the waterworks owner or management of the interrupted
10 discharge if the discharge cannot or will not be restored within eight hours of initial
11 occurrence.

12 c. The notification component of the program shall describe all modes of
13 communication that may be used to provide the notifications specified in subdivisions
14 A 2 a and A 2 b of this subsection. Modes of communication may include, but are not
15 limited to, those described in subdivision A 1 c of this subsection for the education
16 component of the education and notification program.

17 B. Reclaimed water shall be used in a manner that is consistent with this chapter and with
18 the conditions of the VPDES or VPA permit, such that public health and the environmental shall
19 be protected.

20 C. Reclaimed water delivered to end users shall ~~be of acceptable quality~~ comply with
21 reclaimed water standards required for the intended reuses at the point of delivery to end users.

22 D. There shall be no nuisance conditions resulting from the distribution, use, or storage of
23 reclaimed water.

24 E. For all irrigation reuses of reclaimed water, the following shall be required:

1 1. There shall be no application of reclaimed water to the ground when it is saturated,
2 frozen or covered with ice or snow, and during periods of rainfall.

3 2. The chosen method of irrigation shall minimize human contact with the reclaimed
4 water.

5 3. Reclaimed water shall be prevented from coming into contact with drinking fountains,
6 water coolers, or eating surfaces.

7 F. For bulk irrigation reuse of reclaimed water, the following shall be required:

8 1. Irrigation systems shall be designed, installed and adjusted to:

9 a. Provide uniform distribution of the reclaimed water over the irrigation site;

10 b. Prevent ponding or pooling of reclaimed water at the irrigation site;

11 c. Facilitate maintenance and harvesting of irrigated areas and precludes damage to
12 the irrigation system from the use of maintenance or harvesting equipment;

13 d. Prevent aerosol carry-over from the irrigation site to areas beyond the setback
14 distances described in subsection H of this section; and

15 e. Prevent clogging from algae or suspended solids.

16 2. All pipes, pumps, valve boxes and outlets of the irrigation system shall be designed,
17 installed, and identified in accordance with 9VAC25-740-110 B.

18 3. Any reclaimed water runoff shall be confined to the irrigation reuse site unless
19 authorized by the board.

20 G. Overspray of surface waters, including wetlands, from irrigation or other reuses of
21 reclaimed water is prohibited.

22 H. Setback distances for irrigation reuses of reclaimed water.

1 1. For sites irrigated with reclaimed water treated to Level 1, the ~~following~~ setback
2 distances provided in Table 170-H1 are required:

3 ~~a. Potable water supply wells and springs, and public water supply intakes – 100 feet~~

4 ~~b. Nonpotable water supply wells – 10 feet~~

5 ~~c. Limestone rock outcrops and sinkholes – 50 feet~~

6

<u>Table 170-H1</u> <u>Setback Distances for Irrigation Reuses of Reclaimed Water Treated to Level 1</u>	
<u>a. Potable water supply wells and springs, and public water supply intakes</u>	<u>100 feet</u>
<u>b. Non-potable water supply wells</u>	<u>10 feet</u>
<u>c. Limestone rock outcrops and sinkholes</u>	<u>50 feet</u>

7

8 2. For sites irrigated with reclaimed water treated to Level 1, no setback distances are
9 required from occupied dwellings and outdoor eating, drinking and bathing facilities.
10 However, aerosol formation shall be minimized within 100 feet of occupied dwellings and
11 outdoor eating, drinking and bathing facilities through the use of low trajectory nozzles
12 for spray irrigation, above-ground drip irrigation, or other means.

13 3. For sites irrigated with reclaimed water treated to Level 2, the ~~following~~ setback
14 distances provided in Table 170-H2 are required:

15 ~~a. Potable water supply wells and springs, and public water supply intakes – 200 feet~~

16 ~~b. Nonpotable water supply wells – 10 feet~~

17 ~~c. Surface waters, including wetlands – 50 feet~~

18 ~~d. Occupied dwellings – 200 feet~~

1 e. ~~Property lines and areas accessible to the public – 100 feet~~

2 f. ~~Limestone rock outcrops and sinkholes – 50 feet~~

3

<u>Table 170-H2</u> <u>Setback Distances for Irrigation Reuses of Reclaimed Water Treated to Level 2</u>	
<u>a. Potable water supply wells and springs, and public water supply intakes</u>	<u>200 feet</u>
<u>b. Non-potable water supply wells</u>	<u>10 feet</u>
<u>c. Surface waters, including wetlands</u>	<u>50 feet</u>
<u>d. Occupied dwellings</u>	<u>200 feet</u>
<u>e. Property lines and areas accessible to the public</u>	<u>100 feet</u>
<u>f. Limestone rock outcrops and sinkholes</u>	<u>50 feet</u>

4

5 4. For sites irrigated with reclaimed water treated to Level 2, the setback distances may
6 be reduced as follows:

7 a. Up to but not exceeding ~~50%~~ 50 percent from occupied dwellings and areas
8 accessible to the public if it can be demonstrated that alternative measures shall be
9 implemented to provide an equivalent level of public health protection. Such
10 measures shall include, but are not limited to, disinfection of the reclaimed water
11 equivalent to Level 1, application of the reclaimed water by methods that minimize
12 aerosol formation (e.g., low trajectory nozzles for spray irrigation, above-ground drip
13 irrigation), installation of permanent physical barriers to prevent migration of aerosols
14 from the reclaimed water irrigation site, or any combination thereof. Written consent

1 of affected landowners is required to reduce setback distances from occupied
2 dwellings.

3 b. Up to ~~400%~~ 100 percent from property lines with written consent from adjacent
4 landowners.

5 c. To but not less than 100 feet from potable water supply wells and springs, or
6 public water supply intakes if it can be demonstrated that disinfection of the
7 reclaimed water is equivalent to Level 1 and there are no other constituents of the
8 reclaimed water present in quantities sufficient to be harmful to human health.

9 d. To but not less than 25 feet from surface waters, including wetlands, where
10 reclaimed water shall be applied by methods that minimize aerosol formation (e.g.,
11 low trajectory nozzles for spray irrigation, above-ground drip irrigation); or permanent
12 physical barriers are installed to prevent the migration of aerosols from the reclaimed
13 water irrigation site to surface waters.

14 5. Application of reclaimed water shall not occur during winds of sufficient strength to
15 cause overspray or aerosol drift into or beyond the buffer zones or setbacks specified in
16 subdivisions H 1, 2, 3 and 4 of this subsection.

17 ~~5-6.~~ For irrigation reuses where more than one setback distance may apply, the greater
18 setback distance shall govern.

19 ~~6-7.~~ Unless specifically stated otherwise, all setback distances shall be measured
20 horizontally.

21 I. Minimum separation distances for in-ground reclaimed water distribution pipelines
22 specified in 9VAC25-740-110 B 3, shall apply to in-ground piping for irrigation systems of
23 reclaimed water.

1 J. A setback distance of 100 feet horizontally shall be maintained from indoor aesthetic
2 features (i.e., decorative waterfalls or fountains) that use reclaimed water treated to Level 1, to
3 adjacent indoor public eating and drinking facilities where the aesthetic features have the
4 potential to create aerosols and eating and drinking facilities are within the same room or
5 building space.

6 K. A setback distance of 300 feet horizontally shall be provided from an open cooling tower
7 to the site property line where reclaimed water treated to Level 2 is used in the tower. No
8 setback distance shall be required from an open cooling tower to the site property line where a
9 drift or mist eliminator is installed and properly operated or reclaimed water treated to Level 1
10 disinfection standards is used in the tower. Treatment of the reclaimed water to Level 1
11 disinfection standards may be provided by the industrial end user through the contract or
12 agreement established by the permittee in accordance with 9VAC25-740-100 C 1 d.

13 **9VAC25-740-180. Operational flow requirements.**

14 A. When the monthly average flow into a reclamation system or ~~satellite reclamation system~~
15 SRS reaches ~~95%~~ 95 percent of the designated design capacity flow authorized by the VPDES
16 or VPA permit issued to that system for each month of any three-month period, the permittee
17 shall within 30 days notify the board in writing and within 90 days submit a plan of action for
18 ensuring continued compliance with the terms of the permit.

19 ~~1-B.~~ The plan of action described in subsection A of this section shall include the necessary
20 steps and a prompt schedule of implementation for controlling any current problem, or any
21 problem that could be reasonably anticipated, resulting from high flows entering the reclamation
22 system or ~~satellite reclamation system~~ SRS.

23 ~~2-C.~~ Upon receipt of the permittee's plan of action described in subsection A of this section,
24 the board shall notify the owner whether the plan is approved or disapproved. If the plan is

1 disapproved, such notification shall state the reasons and specify the actions necessary to
2 obtain approval of the plan.

3 ~~3-D.~~ Failure to timely submit an adequate plan of action in accordance with subsection A of
4 this section shall be deemed a violation of the permit.

5 ~~4-E.~~ Nothing herein shall in any way impair the authority of the board to take enforcement
6 action under § 62.1-44.15, 62.1-44.23, or 62.1-44.32 of the Code of Virginia.

7 **9VAC25-740-190. Recordkeeping.**

8 A. Operating records shall be maintained at the reclamation system or a central depository
9 within the reclaimed water distribution system for a period as specified in the VPDES or VPA
10 permit issued to the facility. Operating records shall include all analyses specified in this
11 chapter, records of operational problems, alarm failures, unit process and equipment
12 breakdowns, diversions to reject storage or emergency storage, discharge to another permitted
13 reuse system requiring a lower level of treatment, or disposal via a permitted effluent discharge;
14 and all corrective or preventive action taken.

15 B. A monthly summary of operating records as specified under subsection A of this section
16 shall be maintained at the facility.

17 **9VAC25-740-200. Reporting.**

18 A. Permittees of water reclamation systems and ~~satellite reclamation systems~~ SRSs shall
19 submit a monthly monitoring report to the board. The report shall include monitoring results for
20 parameters contained in the VPDES or VPA permit to demonstrate compliance with applicable
21 reclaimed water standards of this chapter.

22 B. Interruption or loss of reclaimed water supply or discharge of any untreated or partially
23 treated water that fails to comply with standards specified in the VPDES or VPA permit to the
24 service area of intended reuse, shall be reported in accordance with procedures specified in the

1 permit. This report shall also contain a description of any notification provided in accordance
2 with 9VAC25-740-170 A 2.

3 C. Permittees of reclaimed water distribution systems shall submit an annual report to the
4 board on or before February 10 of the following year. The annual report shall, at a minimum:

5 1. Estimate the volume of reclaimed water distributed to the service area of the RWM
6 plan, reported as monthly totals for a 12-month period from January 1 through
7 December 31;

8 2. Provide for reclaimed water not treated to achieve BNR that is used within the service
9 area of the RWM plan, the monthly average concentrations of total N and total P in the
10 reclaimed water, an estimate of the monthly total volume of reclaimed water used for
11 ~~non-bulk~~ non-bulk irrigation and for bulk irrigation, the monthly total nutrient loads (N and
12 P) to the service area resulting from ~~non-bulk~~ non-bulk irrigation reuse and from bulk
13 irrigation reuse, and the area in active reuse for ~~non-bulk~~ non-bulk irrigation and for bulk
14 irrigation within the service area, all reported for a 12-month period from January 1
15 through December 31; and

16 3. Provide a summary of ongoing education and notification program activities, including
17 copies of education materials, as required by 9VAC25-740-170 A.

18 **9VAC25-740-210. Delegation of authority.**

19 The director or the director's designee may perform any act of the board provided under this
20 chapter, except as limited by § 62.1-44.14 of the Code of Virginia.

21 **FORMS (9VAC25-740)**

22 Water Reclamation and Reuse Addendum to an Application for a Virginia Pollutant
23 Discharge Elimination System Permit or a Virginia Pollution Abatement Permit, 6/1/2009.

1 DOCUMENTS INCORPORATED BY REFERENCE (9VAC25-740)

2 Installation of Ductile-Iron Water Mains and Their Appurtenances, ANSI/AWWA C600-05
3 (Revision of ANSI/AWWA C600-99), effective December 1, 2005, American Water Works
4 Association.

5 NWRI Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, Second
6 Edition (2003).

7 Disinfecting Water Mains, ANSI/AWWA C651-05, Effective June 1, 2005, American Water
8 Works Association.

9 Certification Statement:

10 I certify that this regulation is full, true, and correctly dated.

11 _____ (Signature of certifying official)

12 Name and title of certifying official:_____

13 Name of agency:_____

14 Date:_____