King County Suggested Edits to WAC 173-219-340

**WAC 173-219-340 Disinfection process standards.**

(1) Disinfection process: Class A ~~and Class B~~ reclaimed water. The engineering report must demonstrate, to the satisfaction of the lead agency, that the proposed disinfection method consistently provides the required level of adequate and reliable disinfection to help preserve water quality delivered to the use site. ~~All Class A reclaimed water generation disinfection processes must result in a minimum of 4 log virus removal or inactivation. The disinfection process may use any or all of the following~~Acceptable disinfection methods are:

(a) **Chlorine.** Where chlorine is used as the disinfectant in the treatment process a minimum chlorine residual of at least 1 mg/L, after a t10 contact time of at least thirty minutes, is required.

The lead agency may require additional protections including defined concentration (C), time (T), or chlorine concentration multiplied by (CT) values as needed to protect public health. The lead agency may require a tracer study to determine contact times.

(b) **Ultraviolet light.** The generator must design and install ultraviolet light disinfection processes that conform to recognized standards and engineering practices developed for use in reclaimed water facilities. Acceptable methods include the criteria in the most recent edition of:

(i) *Ultraviolet Disinfection, Guidelines for Drinking Water and Water Reuse, published by the National Water Research Institute* (NWRI) in collaboration with the American Water Works Association Research Foundation.

(ii) Ecology's *Criteria for Sewage Works Design* (orange book).

(iii) Water Environment Federation *MOP-8 Design of Municipal Wastewater Treatment Plants.*

(c) **Other disinfection methods.** Any other disinfection process proposed to the lead agency to meet the performance standard in this section must:

(i) Be in accordance with the most recent edition of ecology's *Criteria for Sewage Works Design* (orange book).

(ii) Demonstrate that the proposed process is equivalent to or better than chlorination or ultraviolet light treatment in this section.

(~~2~~iii) Validate~~ation of~~ virus inactivation or removal. ~~For Class A reclaimed water, v~~Virus inactivation ~~performance~~ or removal of the proposed disinfection ~~reactor~~ method must be documented ~~during design~~ by using one of the following:

(a) ~~**Chemical disinfection.** Validation of chemical disinfection process must include a tracer study at the facility subject to specific project conditions. Additional validations include:~~

Formatted: Indent: Left: 0.5"

Formatted: Indent: Left: 1"

Formatted: Indent: Left: 0.5"

Formatted: Indent: Left: 1"

Formatted: Indent: Left: 1.5"

~~(i)~~ A challenge study or pilot facility demonstration specific to the project conditions.
(b~~ii~~) An acceptable third-party challenge study or equipment verification study acceptable to the lead agency.
(c~~iii~~) Design and operation limits from other regulatory programs applied to the production of reclaimed or recycled water equivalent to Class A reclaimed water as deemed acceptable by the lead agency.

~~(b) **Ultraviolet disinfection.** Validation of ultraviolet disinfection processes by an acceptable bioassay study conforming to the most recent edition of *Ultraviolet Disinfection, Guidelines for Drinking Water and Water Reuse, published by the National Water Research Institute* (NWRI).~~

~~Third party validation studies that have been performed in off site qualified test facilities and in accordance with the NWRI/AWWARF guidelines are allowed if approved by the lead agency.~~

(d~~e~~) Existing reclaimed water facilities are exempt from the validation requirement unless a disinfection system is modified, replaced, or the facility expects an increase in hydraulic capacity.

**Formatted:** Indent: Left: 1.5"

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 4 | 1 | 1 | 173-219-010 | Definitions | All the words defined should be assigned a number/subsection. |
| 5 | 2 | 1 | 173-219-010 | Definitions | The proposed rule repeats some but not all of the statutory definitions found in Ch. 90.46 RCW. Defining some statutory definitions in the rule, but not all, may lead to confusion. We recommend not repeating the statutory definitions and just reference. Or if the definitions from statute are used in the rule, use all of them. Secondly, a rule definition of a word defined in the statute can not be different than the statute. For example, "domestic wastewater" is defined in rule differently than in statute. |
| 6 | 3 | 3 | 173-219-010 | Definitions | For "groundwater" we suggest you use the same definition found in RCW 90.44.035(3) and or WAC 173-100-040(3) |
| 7 | 4 | 10 | 173-219-090(3) | Water rights protection | Subsection 3 states, "Existing water rights include any permits, claims, certificates, instream flows established by rule pursuant to chapters 90.22 and 90.54 RCW,...." A water right claim is not a water right. A claim under chapter 90.14 RCW is an assertion of a right. We suggest rule language that might say "vested rights asserted by a water right claim". Many basins have numerous water right claims in the Claims Register that ultimately will not become adjudicated rights. We should ensure that potential uses of reclaimed water are not precluded because of claims to a water right that are specious. And that any investigation of asserted claimed rights is limited to those that a tentative determination of validity might show a water right exists. |
| 8 | 5 | 11 | 173-219-090(4) | Water rights protection | If a mitigation plan is being submitted to mitigate for impairment to a senior water right holder, shouldn't there be documentation that the water right holder accepts the mitigation? This seems especially important if the mitigation is being accepted by a private water holder rather than a state-owned water right (e.g., instream flow rule). |
| 9 | 6 | 11 | 173-219-090(5) | Water rights protection | This subsection requires that a permit renewals must demonstrate compliance with RCW 90.46.130. We suggest this requirement be limited to the first permit renewal after a final rule is in place. It seems like a lot of extra work and not necessary for compliance with the code, to repeatedly demonstrate compliance with RCW 90.46.130. If the assessment is done for the initial permit and perhaps the first renewal for those permits issued prior to this rule-making, that should be sufficient. Given how slowly new water rights are created and that any new right created downstream of a permitted reclamation facility after it is generating reclaimed water is not going to be impaired, this additional analysis for each renewal is redundant. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 10 | 7 | 12 | 173-219-130 | Public meeting and hearing request | The rule should describe the differences, if any, between a "public meeting" and a "public hearing". If there is no difference, then use one term only. |
| 11 | 8 | 12 | 173-219-150(2) | Regulatory action for noncompliance | 173-219-150(2)(a) and subsection (c) should be combined to be one subsection given most of the language/idea is repetitive |
| 12 | 9 | 16 | 173-219-170 | Preplanning and project application | Subsection 2 references a fee payable to Health but nowhere in the rule is there a statement on what the fee is for filing an application. How would an entity know what the fee is for a reclaimed water permit? |
| 13 | 10 | 17 | 173-219-180 | Feasibility Analysis | It is unclear what potable distribution facilities mean. Pipes? Pump Stations? If the purpose of identifying potable water suppliers and sources is to identify reclaimed water service issues and cross-connection protection concerns, then it could be stated in plainer language to something to this effect: "List all potable water suppliers that provide water to the reclaimed water generation, storage and distribution facilities in addition to proposed reclaimed water use areas. Describe proposed methods to coordinate with potable water suppliers on reclaimed water service including cross-connection prevention actions in design and operation of the reclaimed water system." |
| 14 | 11 | 17 | 173-219-180(2) | Feasibility Analysis | As written, copies of all local state plans would need to be included with the feasibility analysis. This could easily be several boxes worth of documents or many dvds of plans that will not be read by the lead agencies. Recommend requiring that the feasibility analysis include a summary of discussion of reclaimed water in existing state and local plans: "Coordination of state and local planning": The use of reclaimed water must be considered and coordinated under other planning requirements in state law, including RCW 90.46.120 as well as other local codes and ordinances. List and briefly summarize recommendations regarding reclaimed water in relevant planning documents. Relevant planning documents include, but are not limited to the following..." |
| 15 | 12 | 17 | 173-219-180(2)e | Feasibility Analysis | The feasibility analysis is to consider groundwater and aquifer protection plans, under WAC 246-290-130, chapter 36.70A RCW, and WAC 365-190-100. WAC 246-290-130 has nothing to do with groundwater protection and is a wrong citation. We suggest a citation to RCW 90.44.400 and chapter 173-100 WAC instead. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 16 | 14 | 17 | 173-219-180(2)(d) | Feasibility Analysis | The proposed rule says, "A regional water supply plan or plans addressing water supply service by multiple water purveyors under RCW 90.46.120." RCW 90.46.120 is not an authority to conduct regional planning. Rather that section of the code requires coordination between a generator of reclaimed water and a regional plan, if there is one, and if the proposed use of reclaimed water is to augment or replace potable water supplies or to create the potential for the development of an additional new potable water supply. |
| 17 | 15 | 17 | 173-219-180(2)(e) | Feasibility Analysis | The proposed rule states, " Groundwater and aquifer protection plans, under WAC 246-290-130, chapter 36.70A RCW, and WAC 365-190-100." Is WAC 246-290-130 the right reference? It appears that section of rule has nothing to do with groundwater protection plans or aquifer protection plans. We suggest you reference groundwater protection plans under RCW 90.44.400 and or chapter 173-100 WAC which do relate to and authorize the existing groundwater protection areas and plans. |
| 18 | 16 | 20 | 173-219-180(2)c(ii) | Engineering report | It is unclear what "system facilities" means in this section? Are maps in the engineering report supposed to show all potable water pipelines, pump stations? Or is intent to show only potable sources of supply (e.g., wells, surface water intakes)? |
| 19 | 17 | 20 | 173-219-180(2)(i) | Engineering report | Delete "and consistent with pressurized distribution systems in the most recent edition of health's Water System Design Manual." Not all reclaimed water distribution systems are pressurized (including King County's Brightwater reclaimed water distribution system) and there is no requirement that a reclaimed water system must be pressurized for non-potable uses. |
| 20 | 18 | 20 | 173-219-180(2)(g) | Engineering report | This provision reads that it applies only to surface water augmentation projects. If so, recommend moving this to fall under 2 (t) so that it aligns with other required elements of an Engineering Plan for surface water augmentation projects. . |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 21 | 19 | 22 | 173-219-210(2)(t)(iv) | Engineering report | The proposed rule states, "(iv) If the intended beneficial use is for an instream flow per chapter 90.22 RCW, a draft or final mitigation plan is required." We recommend citing chapter 90.54 RCW as additional statutory basis for instream flow rules. Second, a mitigation plan is only required if the reclaimed water is being used to mitigate for new consumptive out-of-stream uses. It is conceivable that an entity wants to use the reclaimed water for surface water augmentation or instream flow enhancement just to improve flows. In those cases is a "mitigation plan" required? Also there will likely be a need for other mitigation plan documentation needed for water right permits that are subsequently issued using the surface water augmentation water as mitigation source water. We recommend these changes to the last sentence to capture these thoughts: "If the intended beneficial use is to mitigate for flow impairments to instream flows established under 90.54 and 90.22 RCW, a draft mitigation plan is required to be submitted with the Engineering Plan. A final mitigation plan must be submitted with the reclaimed water permit application. Additional mitigation plan documentation may be required as part of the water rights application process for new water right applications that will use the surface water augmentation for mitigation water. " |
| 22 | 20 | 22 | 173-219-210(2)(v) | Engineering report | Shouldn't the Engineering Report also require documentation on the anticipated volume of recovered water and the feasibility of recovering the water? Additionally, does a reclaimed water ASR project also require project proponents to file an obtain an ASR permit? Or does the reclaimed water permit suffice for authorization from the state? The ASR WAC (173-157) should be referenced and the relationship between ASR permit and the reclaimed water permit should be discussed in the rule and the Purple Book. |
| 23 | 21 | 23 | 173-219-210(2)(t)(x) | Engineering report | Subsection (x) provides, "Conveyance in waters of state. For projects proposing conveyance in waters of the state, ecology must approve the conveyance report portion of the engineering report." However, there is nothing in Section 210 requiring a conveyance report portion of an engineering report. It would be helpful for Ecology to provide any standards or qualifications to using waters of the state for conveyance of reclaimed water and the generator subsequently withdrawing the reclaimed water back out of the water of the state. |
| 24 | 22 | 24 | 173-219-240(2)€ | Operations and maintenance | This provision should provide more detail on what notification procedures to potable water systems entails. Is it general communications on the program or does it only relate to permit violations? Will this be specified in the permit? It seems most important to include contact information for all affected agencies including affected potable water suppliers in the O & M manual. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 25 | 23 | 29 | 173-219-270(7)€ | Reclaimed water permit terms and conditions | Again, helpful to clarify the relationship between ASR authorized in a reclaimed water permit and the ASR WAC for ASR permits. See comment on WAC 173-219-210(2)(v). |
| 26 | 24 | 30 | 173-219-270(11) | Reclaimed water permit terms and conditions | This subsection provides, "Water rights impairment. The permit must require proof of continuing compliance with RCW 90.46.130, including the ecology final determination of impairment and adequacy of compensation or mitigation and, if necessary, enforceable provisions to ensure compensation or mitigation is implemented by the permittee." We question whether or not Ecology has an interest and or authority to determine the adequacy of any compensation offered by a generator of reclaimed water to any private water right holder. RCW 90.46.130 does not provide authority to Ecology with regard to private water rights. This idea of determining adequacy of compensation for State held rights is reasonable, but not reasonable for private transactions. If compensation or mitigation for any impairment is agreed to by the holder of the affected private water right, then Ecology should not be involved nor determine if the compensation is adequate. |
| 27 | 25 | 30 | 173-219-290 | Use Agreements | Should include provision on adding new users. The language from the 2015 draft rule was good and workable for both regulatory agencies and reclaimed water generators and distributors. Add: " (3) Template Use Agreements. A template use agreement may be submitted to the lead agencies for review and approval. Template Use Agreements must be approved by the agencies prior to implementation. (4) Adding new users. The reclaimed water permit may include conditions authorizing the addition of new users or similar uses without reopening the permit. For adding new users to previously authorized kinds of uses, a copy of the use agreement should be submitted to the regulator agencies prior to use. If the use has not been previously authorized, the permittee must provide a new user agreement for approval by the lead agency before the new use can begin. " |
| 28 | 26 | 31 | 173-219-310 | Cross-connection control | This section is very difficult to read and track. Therefore, we recommend a reorganization and reordering if the cross-connection control section centered around two primary goals of cross-connection control: protecting potable water from cross-connection with reclaimed water and protecting reclaimed water from lower quality water. See supplemental document for the exact wording and replacement. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 29 | 27 | 31 | 173-219-310(d) | Cross-connection control | We recommend that this requirement for notice to a potable water purveyor be limited to connections within the water service area of potable water systems: "Reclaimed water distributors must provide the local water purveyor written notification prior to providing reclaimed water service to any property within the potable water service area to ensure compliance with the Drinking Water Rules (WAC 246-290-490)." |
| 30 | 28 | 32 | 173-219-310(2)(a)i-iv | Cross-connection control | We recommend moving these reference documents to the Purple Book. See also revised comment in the supplemental suggested revisions to 173-219-310 document. |
| 31 | 29 | | 173-219-320(3) | Cross-connection control | We don't feel that a developing a cross-connection program to protect reclaimed water from lower quality water needs to follow all the cited elements from the drinking water cross connection control requirements. We question whether all elements are applicable to the level of risk of contamination to reclaimed water in comparison to drinking water. For instance, adopting a local ordinance for a cross-connection control program is laborious and doesn't make sense since so many of cross-connection controls to protect reclaimed water are located at our facilities we would be adopting a regulation to regulate ourselves which seems unnecessary. Additionally, we question whether a CCS or associated drinking water cross-connection control guidance is appropriate for reclaimed water applications as cross-connection of a potable water source is a much higher risk that protecting non-potable sources. Following all of the recommend elements we may overly cautious compared to public health risk. Therefore, we recommend deleting this subsection and tasking the RAC to work specific reclaimed water protection guidance in the refinement of the Purple Book. |
| 32 | 30 | 35 | 173-219-320 | Class A and B reclaimed water | Class A and Class B requirements should be separated into two sections. It is confusing to have them both in the same section since it implies Class B water must achieve 4-log virus removal. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 33 | 31 | 35 | 173-219-320(2) | Class A and B reclaimed water | The draft rule contains several references requiring 4-log virus removal/inactivation. It is unclear what the basis is for this requirement. The only reference we could find were for 4-log virus removal/inactivation came from the Safe Drinking Water Act treatment regulations. While we understand the need to disinfect for public health, we question the appropriateness of applying drinking water standards to non-potable water sources.<br>Furthermore, requiring reclaimed water systems using traditional treatment processes such as those listed in (2) (a), (b), and (c) to demonstrate 4-log virus removal/inactivation places a burden on the recycled water generator to conduct a demonstration study. Many reclaimed water systems may not have the financial means to fund a study and for those that do, it may be impractical to perform since seeding the source water with an indicator virus would likely be needed to determine virus removal. Additionally, virus testing is not typically performed by in house laboratories. Does Ecology intend to provide credits for conventional treatment processes so that systems can determine compliance with the virus requirement? To do so would likely require significant effort.<br>Requiring 4-log virus removal/inactivation will have a major impact to existing systems and the benefit of imposing the requirement is unclear. The USEPA's 2012 Guidelines for Water Reuse state "there have been no documented cases based on limited epidemiological studies of viral disease resulting from water reuse operations in the United States." (https://nepis.epa.gov/Adobe/PDF/P100FS7K.pdf)<br>Suggestion: remove 4-log virus removal/inactivation requirement for 2 a-c. We agree that adding more protective virus removal/inactivation for Class A + reclaimed water would be more appropriate. |
| 34 | 32 | 36 | 173-219-330 | Table 2: Class A and B performance Standards | Remove reference to virus removal for reasons stated previously |
| 35 | 33 | 37 | 173-219-340 | Disinfection process standards | The statement "All Class A reclaimed water generation disinfection processes must result in a minimum of 4-log virus removal or inactivation" implies that 4-log removal/inactivation must be achieved in the disinfection process only. Is this the intent?<br>Suggestion: remove 4 –log virus removal from this section, see supplemental document with proposed wording and reordering of this section. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 36 | 34 | 37 | 173-219-340 | Disinfection process standards | The following statement is very confusing: "The disinfection process may use any or all of the following." Does this mean that the 4-log virus removal/inactivation requirement is assumed to be achieved if a system is using one of the disinfection processes listed in (a) or (b)?<br>Suggestion: Change wording to "Acceptable disinfection methods are:" Also see supplemental rewritten section |
| 37 | 35 | 37 | 173-219-340(1)(a) | Disinfection process standards | (1)(a) The chlorine residual requirement is silent on the form of chlorine residual. Unless a wastewater plant is consistently fully nitrifying, and therefore has RW source water low in ammonia, the chlorine residual will primarily be in the form of chloramines (measured as total chlorine), not free chlorine. Extremely high doses of chlorine would be necessary to achieve breakpoint chlorination in order to obtain a free chlorine residual. By remaining silent on the type of chlorine residual required, it leaves systems vulnerable to the potential of having to comply with a free chlorine residual during permit renewal cycles. While it is well documented that chloramines are not as effective against viruses when compared to free chlorine, requiring 4-log virus removal for RW systems would have a severe impact resulting in impractical increases to chlorine dosage and contact time.<br>Suggestion: Specify total chlorine residual, see supplemental document with proposed wording and reordering of this section. |
| 38 | 36 | 37 | 173-219-340(2) | Disinfection process standards | This section implies that systems using disinfection method (a) chlorine or (b) UV must also perform a virus validation study. We think it is more appropriate to require the validation study only for those using other disinfection methods. See supplement for suggested rewrite on this section. |
| 39 | 37 | 38 | 173-219-340(2)(c) | Disinfection process standards | "Existing reclaimed water facilities are exempt from the validation requirement unless a disinfection system is modified, replaced, or the facility expects an increase in hydraulic capacity." Does this mean that existing systems are assumed to meet the 4-log virus removal/inactivation as long as they meet the requirements in 173-219-340 (a) or (b) and their RW permit requirements? We recommend clarifying, see supplemental document with proposed wording and reordering of this section. |
| 40 | 38 | 41 | 173-219-380(1) | Maintenance of Chlorine Residual | What kind of benefit would warrant a waiver of the residual? Environmental? Operational? User benefit? There could many different reasons why a lower residual is beneficial and it would be helpful if the Purple Book expands on the criteria Ecology and Health would use to assess a waiver or modification request. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 41 | 39 | | Publication 17-10-022 | Preliminary Regulatory Analyses | We disagree with the characterization that Section 173-219-340 represents a baseline condition of existing conditions. As written, the language is unclear if there is a new regulatory disinfection standard. If facilities must have a 1 mg/L of free chlorine after a contact time of 30 minutes, many reclaimed water facilities would need to increase chemical dosing for systems using chlorine disinfection, increasing production costs. Higher chlorine dosing would also increase disinfection by-products and cause negative benefits to users. De-chlorination systems might need to be developed for certain users. It's unclear from reading the rule text if the existing disinfection standards will continue to be applied or if reclaimed water producers would need to change current practices. See also comments 31-37. |
| 42 | 40 | | Publication 17-10-022 | Preliminary Regulatory Analyses | We disagree with the characterization that Section 173-219-310 represents a baseline condition of existing conditions. As written, it appears that reclaimed water generators would have develop comprehensive cross-connection programs including hiring Cross-Connection Control Specialist to review the program. Developing the program would result in costs to reclaimed water generators. Also, as written, the draft rule requires protections that are designed to protect drinking water in all circumstances even though the concern may be protecting reclaimed water from lower quality waters. See comments 26-29. In summary, we do think that, as written, the rule requires practices outside of the current reclaimed water standards and would result in costs to reclaimed water generators. |
| 43 | 41 | | Publication 15-10-024 | Reclaimed Water Facilities Manual | Groundwater Recharge- the changes to the groundwater recharge section and highlighting constituents in the table where the groundwater standards would apply is helpful. However, it would be helpful to have reference and guidance on AKART and OCPI process as applied to groundwater standards and monitoring in the Purple Book. It is inevitable that a groundwater recharge project will have certain standards and monitoring requirements that are determined on a project by project basis. However, the process for evaluating exceptions to certain standards needs to be better defined so project proponents, regional permitting staff and interested stakeholders understand the assessment criteria for determining exceptions for challenging parameters. |
| 44 | 42 | | Publication 15-10-024 | Reclaimed Water Facilities Manual | Disinfection: There should be guidance on disinfection in the Purple Book or the Orange Book on disinfection and particularly the 4-log virus inactivation/removal, if that remains. |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 45 | 43 | | Publication 15-10-024 | Reclaimed Water Facilities Manual | Chlorine Residual: Recommend more guidance on criteria for when a lower residual could be granted. |
| 46 | 44 | | Publication 15-10-024 | Reclaimed Water Facilities Manual | Cross-Connection: the Purple Book would be a good place for guidance on protecting reclaimed water from lower quality water and how to select backflow prevention devices for lower-risk non-potable uses. |
| 47 | | | | | |
| 48 | | | | | |
| 49 | | | | | |
| 50 | | | | | |
| 51 | | | | | |
| 52 | | | | | |
| 53 | | | | | |
| 54 | | | | | |
| 55 | | | | | |
| 56 | | | | | |
| 57 | | | | | |
| 58 | | | | | |
| 59 | | | | | |
| 60 | | | | | |
| 61 | | | | | |
| 62 | | | | | |
| 63 | | | | | |
| 64 | | | | | |
| 65 | | | | | |
| 66 | | | | | |
| 67 | | | | | |
| 68 | | | | | |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 69 | | | | | |
| 70 | | | | | |
| 71 | | | | | |
| 72 | | | | | |
| 73 | | | | | |
| 74 | | | | | |
| 75 | | | | | |
| 76 | | | | | |
| 77 | | | | | |
| 78 | | | | | |
| 79 | | | | | |
| 80 | | | | | |
| 81 | | | | | |
| 82 | | | | | |
| 83 | | | | | |
| 84 | | | | | |
| 85 | | | | | |
| 86 | | | | | |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 87 | | | | | |
| 88 | | | | | |
| 89 | | | | | |
| 90 | | | | | |
| 91 | | | | | |
| 92 | | | | | |
| 93 | | | | | |
| 94 | | | | | |
| 95 | | | | | |
| 96 | | | | | |
| 97 | | | | | |
| 98 | | | | | |
| 99 | | | | | |
| 100 | | | | | |
| 101 | | | | | |
| 102 | | | | | |
| 103 | | | | | |
| 104 | | | | | |
| 105 | | | | | |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **King County Reclaimed Water Preliminary Draft Rule Comments (Chapter 173-219 WAC)** | | | | |
| 2 | **8/29/2017** | | | | |
| 3 | **Comment #** | **Page #** | **Section** | **Sec Title** | **Comment** |
| 106 | | | | | |
| 107 | | | | | |
| 108 | | | | | |
| 109 | | | | | |
| 110 | | | | | |

**WAC 173-219-310 Cross-Connection Control-King County Suggested Edits**

(1.) Applicability, purpose, and responsibility. Reclaimed water generators, distributors, users and potable water systems must take action to prevent cross-connections.

(a) The purpose of cross-connection control for reclaimed water must be to protect potable water systems, as defined in WAC 246-290-020, from contamination via cross-connections; and to protect reclaimed water systems from contamination via cross-connections with lower quality water.

(2) Protecting potable water supplies from cross connections with reclaimed water.

(a) The local potable water purveyor is responsible for protecting the potable water distribution system from cross connections.

(b) Reclaimed water distributors must provide the local water purveyor written notification prior to providing reclaimed water service to any property within the potable water service area to ensure compliance with the Drinking Water Rules (WAC 246-290-490).

(c) Reclaimed water generators and distributors must not provide service to any user before the user has installed the correct backflow preventer on the potable supply line, and the potable water supplier verifies it.

(d) Generators must notify their potable water purveyor of the proposed and ongoing reclaimed water treatment activity and facility location.

(e) Under the provisions of this section, reclaimed water generators and distributors are not responsible for eliminating or controlling cross-connections on the end-users property.

(f) Delineation of responsibility between potable water systems and reclaimed water generators and distributors on cross-connection at reclaimed water generation and distribution facilities shall be documented and included in the engineering plan and operations and maintenance manual.

(3) Protecting reclaimed water from lower water quality at reclaimed water generation and distribution facilities.

(a) The generator and distributor must protect reclaimed water from lower water quality via cross-connection control, starting in the generation facility, including all treatment storage, distribution facilities and ending at the point of delivery to the users' reclaimed water meter or other location on a use area property where responsibility of reclaimed water distribution is transferred to the user.

(b) Reclaimed water distributors must ensure that good engineering practices are used in the development and implementation of cross-connection control programs. Publications and

references, such as, but not limited to those listed below, may be used as guidance for cross-connection program development and implementation:

(i.) Manual of Cross-Connection Control published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California (USC Manual); or

(ii.) Criteria for Sewage Works Design published by the Washington State Department of Ecology,

(iii.) Cross-Connection Control Manual, Accepted Procedure and Practice published by the Pacific Northwest Section of the American Water Works Association (PNWS-AWWA Manual).

(d) Ensure that cross-connections between reclaimed water and lower quality water are eliminated, or controlled by the installation of approved backflow prevention assemblies at reclaimed water generation facilities and distribution system.

(e) Ensure the appropriate method of backflow prevention to eliminate or control cross-connections in the reclaimed water generation facility and distribution system.

(f) Take appropriate corrective action if a cross-connection or potential cross-connection exists that is not controlled by installation of an approved backflow prevent assembly. Correction action may include, but is not limited to:

(i) Diverting potentially contaminated reclaimed water or taking other action to prevent it from leaving the reclaimed water facility and entering the distribution system until the hazard is controlled or eliminated.

(ii) Denying or discontinuing reclaimed water service to a user's property until the cross-connection hazard is eliminated or controlled.

(iii) Requiring the user to install, repair, or replace an approved backflow prevent assembly for premises isolation of the reclaimed water system.

(g) Prohibit the intentional return of used water to the distribution system. Such water includes reclaimed water used for any purpose within the users' property.

(h) If the reclaimed water use on a property poses a high likelihood of contaminating the reclaimed water system, the reclaimed water distributor must ensure installation of an approved backflow prevention assembly at the meter or property line.

(i) Reclaimed water distributors may require backflow preventers to be installed at the meter or property line for properties with characteristics such as, but not limited to, the following:

(i.) Complex piping arrangements or piping subject to frequent changes that make it impracticable to assess whether cross-connections exist;

(ii.) A repeated history of cross-connections being established or reestablished; or

(iii.) Cross-connections that are unavoidable or not correctable.

(4.) Approved backflow preventer installation.

(a.) The reclaimed water distributor must ensure that approved backflow preventers are installed in the orientation for which they are approved.

(b.) The reclaimed water distributor must ensure that approved backflow preventers are installed in a manner that:

(i.) Facilitates their proper operation, maintenance, inspection, and/or in-line testing using standard in-stallation procedures;

(ii.) Ensures that the assembly will not become submerged due to weather-related conditions such as flooding; and

(iii.) Ensures compliance with all applicable safety regulations.

(c.) The reclaimed water distributor must ensure that bypass piping installed around any approved backflow preventer is equipped with an approved backflow preventer that affords at least the same level of protection as the approved backflow preventer that is being bypassed.

(5.) Approved backflow preventer inspection and testing.

(a.) The reclaimed water distributor must ensure that inspections and/or tests of approved air gaps and ap-proved backflow assemblies relied upon to protect the reclaimed water system are conducted:

(i.) At the time of installation;

(ii.) Annually after installation, or more frequently, if required by the reclaimed water distributor for connections serving premises or systems that pose a high health cross-connection hazard or for assemblies that repeatedly fail;

(iii.) After a backflow incident; and

(iv.) After an assembly is repaired, reinstalled, or relocated or an air gap is replumbed.

(b.) The reclaimed water distributor must ensure that approved backflow prevention assemblies relied upon to protect the reclaimed water system are tested using procedures acceptable to Health.

(6.) Recordkeeping and reporting.

(a.) Reclaimed water distributors must keep cross-connection control records for the following timeframes:

(b.) Records pertaining to the master list of reclaimed water users must be kept as long as reclaimed water is provided to the property;

(vi.) Records regarding inventory information must be kept for five years or for the life of the approved backflow preventer whichever is shorter; and

(vii.) Records regarding backflow incidents and annual summary reports must be kept for five years.

(b.) Reclaimed water distributors may maintain records or data in any media, such as paper, film, or electronic format.

(c.) The reclaimed water distributor must complete the cross-connection control program summary report and make all records and reports available to Health and Ecology or their representative upon request.

(d.) The reclaimed water distributor must notify the lead agency, potable water purveyor, and local health jurisdiction as soon as possible, but no later than the end of the next business day, when a backflow incident is known by the reclaimed water distributor to have contaminated the reclaimed water system or the potable water system.

King County
Department of Natural Resources and Parks
**Wastewater Treatment Division**
King Street Center, KSC-NR-0501
201 South Jackson Street
Seattle, WA 98104-3855

October 12, 2017

Jocelyn Jones
Department of Ecology
Water Quality Program
300 Desmond Drive SE
Lacey, WA 98503

Dear Ms. Jones:

Thank you for the opportunity to comment on the draft Reclaimed Water Rule (Washington Administrative Code (WAC) 173-219), draft Purple Book and associated rule documents. Reclaimed water is a valuable water resource that helps us build resiliency to cope with drought and changing hydrology due to climate change. We believe reclaimed water is a key component of King County's integrated water planning and can help our region and others address instream flow in water-short basins, recycle valuable nutrients, reduce discharge to Puget Sound and help conserve regional municipal water supplies for drinking and other potable uses. We are excited about the possibility of Washington State creating a regulatory system that encourages and incentivizes reclaimed water use as a key part of a solution to address complex water resource challenges. Overall this draft rule is much closer to achieving these goals. To ensure the rule can be successfully implemented there are a number of issues that still need to be resolved.

King County appreciates the extensive effort by the Department of Ecology (Ecology) and Department of Health (Health) in working with utilities and stakeholders in developing a workable reclaimed water rule. We thank you for your willingness to listen to comments of the Reclaimed Water Rule Advisory Committee (RAC) and to make changes based on RAC feedback. Overall, we are pleased to see that reclaimed water is treated much more like a water resource than a waste product in the draft rule. We want to highlight three of the elements of the rule that deserve recognition:

- **Reclaimed water reporting for irrigation uses**: we appreciate that reclaimed water regulation is focused on water quality compliance at the end of the pipe rather than the existing practice of submitting yearly agronomic calculations for each irrigation site. This will reduce burden on reclaimed water utilities and customers while keeping public health protections in place.

- **Coordination with drinking water utilities:** the rule directs early and consistent engagement between drinking water systems and wastewater systems throughout the planning, design and implementation of reclaimed water projects. Existing water planning processes already require consideration of reclaimed water. We agree with the State's approach that no new plans or processes are needed to implement reclaimed water projects.

- **Creates a pathway for advanced reuse options:** We think creating an approval pathway for future advanced reuse projects, such as potable reuse, is forward-thinking for communities that might need to pursue such a project in the future.

Despite the improvements, the draft rule does not address several barriers to reclaimed water use. Attached are detailed comments on the draft rule and associated documents with a summary of our major issues below.

- **The proposed rule disinfection requirements are unclear and could increase the costs to produce reclaimed water with no reported benefit**. The language in the draft rule regarding disinfection standards for Class A water is unclear and conflicting. The draft rule states that the disinfection treatment step must meet a 4-log virus removal/inactivation. However, the required dose and contact time listed in the disinfection section likely would not result in a 4-log virus removal/inactivation for systems with chloramination for disinfection, a common disinfection method for Class A reclaimed water. Furthermore, the form of chlorine (total or free chlorine) concentration is not specified in the rule, which can have major impacts to systems if free chlorine is implemented under permit requirements. The section also lists several field verification tests and studies that don't align with the kind of disinfection system that it is supposedly verifying. As a result, it is impossible to determine what the requirements are and if we would need to update our treatment facilities to comply. Ecology's technical guidance manuals, the draft Reclaimed Water Facilities Manual (the Purple Book) and the Sewage Design Criteria Manual (the Orange Book) list different chlorine concentration disinfection requirements than those in the draft rule. It is important that Ecology adopt disinfection requirements that are appropriate for the beneficial use, while keeping in mind impacts to reclaimed water systems that must comply with the rule. King County recommends preserving the existing disinfection standard of 1.0 mg/L total chlorine after a t10 contact time of at least 30 minutes. In the twenty years since this standard has been in effect, there has been no public health issues with the use of reclaimed water. We ask that you demonstrate a compelling benefit of requiring a different standard that could cause facilities to invest in unnecessary treatment process changes. We have made some language recommendations to the rule that we think are clear, technically sound and protect public health.

- **By not addressing water rights impairment issues, the state is not increasing availability of reclaimed water to much of Washington State**. Reclaimed water can stretch water supplies and help communities deal with challenging discharge limits. The draft rule does not articulate a pathway for resolving complex watershed needs of water quality improvement actions and stream flow protection. While it is not feasible to resolve these issues as part of this rule-making process, we request that Ecology not lose sight of reclaimed water in the broader policy discussions on balancing out-of- stream uses and instream flow protection. We are seeking a path forward for considering tradeoffs between water quality improvement and stream flow protections. These tensions will only grow as water supplies become more stressed and impaired in the future.

- **Cross-connection control responsibilities are unclear.** We appreciate that cross-connection requirements have been organized into one section of the rule. It will be valuable for utilities, reclaimed water users and potable water suppliers to be able to quickly find applicable requirements. King County currently follows best practices for coordinating with potable water systems to protect drinking water and for protecting the quality of our reclaimed water from lower quality waters. However, language in the draft rule is unclear on the division of responsibilities between the various utilities. Furthermore, it also applies requirements directly from drinking water protection to non-potable reclaimed water quality protection which is not aligned with the level of risk associated with using non-potable water. We are not clear what compliance with the requirements in this section would mean for our existing reclaimed water program. We are submitting several comments and suggestions on creating a workable program for addressing cross-connection that are better aligned with legal responsibilities of potable and reclaimed water systems and public health protection.

- **Unclear standards for groundwater recharge projects**. We appreciate the flexibility in establishing the point of compliance for groundwater recharge projects to best suit project-specific conditions. However, we don't believe Ecology has clarified the process for determining what water quality parameters would apply for groundwater recharge projects. We believe there is a disconnect between RCW 90.46.005, which indicates state drinking water standards meet the anti-degradation standard and the language and guidance in the draft rule and guidance document which indicate groundwater standards must be met to comply with the anti-degradation standards for reclaimed water groundwater recharge. The draft rule and guidance document needs additional work to clarify the standards and assessment criteria for groundwater recharge projects.

King County is committed to working with Ecology to develop a successful reclaimed water rule. Accordingly, we are offering comments and suggested revisions to rule text that create a workable rule for utilities and users while maintaining public health protections. Additionally, we welcome working with Ecology and Health to revise the accompanying reclaimed water technical manuals (the Orange and Purple Books) to incorporate our experience and expertise as well as new research and advances from other states. It is critical that Ecology complete the technical manual updates and maintain strong staff expertise in the future that can serve as a resource for utilities, the public, and regional permitting staff on reclaimed water.

Thank you for considering our comments. With some careful revision of the rule and continued commitment to working with stakeholders, we are certain a workable reclaimed rule can be adopted that will facilitate expanded use of reclaimed water for the long term benefit to the State. For technical questions regarding the rule comments, please contact Jacque Klug at 206-477-4474 or jacque.klug@kingcounty.gov.

Sincerely,

Mark Isaacson
Division Director

cc: Heather Bartlett, Water Quality Program Manager, Washington State Department of Ecology