Gray & Osborne, Inc.

We were disappointed to see that a number of Gray & Osborne's previous comments we not addressed in the proposed rule.

Below are our outstanding comments with a few new ones to address typos we found. We hope they will be considered. We feel this rule is needed to provide clear standards and procedures for implementing water reuse projects in the State of Washington. Our experience has been that without consistent state-wide rules and technical guidance that inconsistent practices and enforcement standards are applied, which is both confusing and unfair to the regulated community as well as consultants who assist them in the planning and design of water reclamation and reuse facilities. We have found that such inconsistency is particularly prevalent around the issues of filtration and disinfection system design and groundwater recharge standards.

1. Lack of consistency when referring to the "Orange Book" and "Purple Book." For example, WAC 173-219-220(1)(c) refers to the "Purple Book" for reclaimed water facilities commissioning plans. Elsewhere, references for treatment processes are to the "Orange Book" (i.e. WAC 173-219-340(1)(b) for UV design guidelines), with the understanding that the "Purple Book" would be reserved for reclaimed water distribution and use not treatment.

2. WAC 173-219-310 Cross-Connection Control: We suggest paring back the level of detail in WAC 173-219-320 and relying more on references to other WAC rules and cross-connection control manuals.

3. WAC-173-219-320 Class A and B Reclaimed Water: In the previous (2015) draft, there was an option to produce Class A reclaimed water with direct filtration (without coagulant addition) provided a disinfection dose sufficient for 5-log virus removal (instead of 4-log if coagulants are added) is provided downstream. This option should be restored to the Rule.

4. WAC 173-210-330 - Table 1. Minimum Biological Oxidation Performance Standards:

a. Biological Oxidation: Per footnote 1, these parameters must be measured at the end of the unit process. We suggest retaining the exception in previous drafts of the Rule that permittees can request to measure BOD5, CBOD5, and TSS in the final effluent instead of directly after the secondary clarifier, with a limit of 10 mg/L. Otherwise multiple sampling points must be maintained, which may be impractical at small facilities, and in some processes such as MBRs, it is physically impossible to sample effluent between the biological process and filtration.

5. WAC-173-219-340 Disinfection Process Standards:
a. Under (1) subtitle: Remove the words Class B. This entire section applies only to Class A reclaimed water. Perhaps include in new subsection with general requirements for Class B disinfection, such as less stringent disinfection dose and residual requirements for chlorine disinfection.

b. Under (1a) - Change this section to say: "Where chlorine is used as the disinfectant in the treatment process a minimum chlorine residual of at least 1 mg/L, measured as free chlorine, after a T10 contact time of at least thirty (30) minutes at design peak day flow is required." The basis of the contact time needs to be defined. For example, in the Orange Book, for secondary effluent disinfection a contact time of 20 minutes at peak day flow is required. We recommend that a 30

minute contact time be required at the design peak day flow for reclaimed water disinfection.
c. We also recommend that the T10 time be defined in the rule as the time at which at least 90% o the water flowing through the reactor are kept in contact with the disinfectant residual. T10 is determined as the time at which 10% o the volume of the slug of tracer passes the basin exit.

6. WAC 173-210-390 - Table 3. Use-Based Performance Standards:

a. Row 5, Public Contact (including public water features): Delete this row and merge into Row 2, Commercial, industrial and institutional uses with public contact. No unique requirements are provided for Row 5.
b. Row 8, Irrigation of Food crops: Add the words "Unless otherwise specified" to the row title, since Rows 9, 11 and 12 are also about irrigation of food crops.
c. Row 10, Irrigation of nonfood crops: Suggest deleting this row, since it is duplicated by Rows 13 and 14 and provides no unique requirements.
d. Row 11, Irrigation of orchards or vineyards: Add a note that the Class B irrigation water must not touch the fruit. Otherwise, Row 8, Irrigation of food crops (Class A), will apply.
e. Row 12, Process Food Crops: Add a definition of processed food crops to the "Additional Requirements" column or as a table footnote.
f. Row 19, Depressional Wetlands: Add the net environmental benefits and effluent quality language from Rows 17 and 18, unless the intent is that nutrient removal is not required for depressional wetland uses. Where are (1) and (2) of this section?
g. Row 21: Delete the words "Class A or" if Class B is acceptable.
h. Row 22, Surface Water Augmentation: Suggest dividing this into two categories, one for (a) general surface water augmentation and one for (b) direct augmentation of potable water supply impoundments. For (a), require Class B reclaimed water with case-by-case evaluation for compliance with Surface Water Standards (but not Drinking Water MCLs). For (b), require Class A reclaimed water with case-by-case evaluation for compliance with Surface Water Standards and Drinking Water MCLs.
i. Row 23, Indirect Groundwater Recharge: Delete the words "Class A or" if Class B is acceptable. Remove the reference to Drinking Water MCLs; Groundwater Quality Standards are sufficient for this use.
j. Row 25, Recovery of Reclaimed Water stored in an aquifer: This row should be deleted and the text should be a footnote applied to Rows 23 and 24.
k. Footnote 3 does not apply and should be revised; it was copied from Table 2. Also, where are footnotes (1) and (2)?