

**Building the New Reclaimed Water WAC
Proposed Draft Rule Language - work in progress (WIP)
for Rule Advisory Committee Use Only – July 22, 2009**

PART II SUBMITTALS (version 1.1)

Intent of Part II

1. Identify:
 - Documents requiring submittal to Ecology/WDOH
 - When they are required.
 - Who submits the documents
 - How they are submitted.
 - Signatory requirements.

2. Specify:
 - Process for agency review
 - Timeframe for review
 - Notification of delay
 - Formal approval
 - Scope of agency review
 - Purpose of each submittal
 - Required content in each submittal

Proposed Sections: (section numbers may change)

173-219- 120	Requirements to submit documents for review and approval
173-219- 130	Standards for agency review
173-219- 140	Planning requirements
173-219- 150	Water right impairment assessment
173-219- 160	Engineering report
173-219- 170	Plans and specifications
173-219- 180	Operations and maintenance manual
173-219- 190	Construction quality assurance

Proposed Content:

WAC 173-219-120 Requirements to submit documents for review and approval
See Two hand out matrix process charts for examples requested by the RAC

1. The following submittals are required to
 - (a) Obtain an individual or master generator reclaimed water permit
 - i. Reclaimed water plan or equivalent content.
 - ii. Water rights impairment assessment.
 - iii. Engineering report or facility plan.
 - iv. Any submittals required for a specific type of use.
 - v. Construction plans and specifications.
 - vi. Draft operation and maintenance manual.
 - vii. Permit application form specified by the lead agency
 - (b) Apply for coverage under a general permit. (Separate from (a))
 - i. Application form for coverage under the general permit as specified by the lead agency.
 - ii. Any specific submittals required for coverage under the general permit.
 - (c) Construct or modify a reclaimed water facility.
 - i. Facility engineering report
 - ii. Reliability checklist
 - iii. Plans and specifications
 - iv. Construction quality assurance plan (optional)
 - v. Declaration of construction
 - (d) Operate a reclaimed water facility.
 - i. Final operation and maintenance manual
 - ii. Monthly monitoring reports
 - iii. Annual use report
 - iv. User contracts, if providing reclaimed water to others.

2. **Submission process.** Submittals are generally submitted in the order listed above. Although these requirements are separate from, they may be submitted with other submittals with similar content or purpose.

 3. **Required signatures:**
 - (a) Signatory requirements are listed under WAC 173-219-210.
 - (b) Professional Engineer Required. All required planning documents, engineering reports (or facility plans), plans and specifications and other technical documents related to the construction or modification of facilities regulated under this rule must be prepared under the supervision of a professional engineer licensed in accordance with chapter [18.43](#) RCW. All copies of these documents submitted to the departments for review must include the signed and dated seal of the professional engineer under whose supervision they were prepared.

 4. **Submittal deadlines.**
 - (a) If submittals are part of a permit or compliance schedule, the lead agency must receive the required submittals by the deadline established in the permit or compliance schedule.
 - (b) Otherwise, submittals may be submitted at any time. The person submitting the documents is responsible to assure that there is sufficient time to meet funding, contractual and other project deadlines. The departments generally require at least ninety days for review.
 - (c) If construction does not begin within two years following approval of the submittal, the lead agency may require an update to reflect changed conditions such as: water quality, services availability, new regulatory requirements, or engineering technology.
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WAC 173-219-130 Standards for agency review.

1. The lead agency typically reviews and either approves, comments on, or disapproves submittals within ninety days of receipt. If circumstances prevent review within ninety days of receipt, the lead agency shall notify the owner of the reasons for the delay and estimated review time.
2. The lead agency reviews and evaluates all relevant aspects of each project, including the treatment and treatment reliability provided; reclaimed water quality and quantity; and use or potential use.

3. The lead agency reviews submittals to determine whether the proposed facilities will be designed, constructed, operated, and maintained consistent with good engineering practices to:
 - (a) Meet state standards and other requirements for the generation, distribution and use of reclaimed water under this rule and under chapter 90.46 RCW.
 - (b) Meet applicable requirements of chapters 90.48 and 90.54 RCW pertaining to the prevention and control of pollution of waters of the state.
 - (c) Assure that design approaches are consistent with this rule and with accepted engineering practice as defined by state regulatory authorities in the “Criteria for Reclaimed Water Systems Design”.

Questions and Comments for the next section – 140 - Requirements for a reclaimed water plan

- 1. Do we have a place for bond-holders in Rule or Guidance?***

WAC 173-219-140 Planning requirements

1. The reclaimed water planning documents submitted to the departments for review and approval must, at a minimum:
 - a. Explain who will own, operate, and maintain the systems. Consider ownership requirements and operational requirements and capacity including financial, managerial, and adequate qualified staffing.
 - b. Identify existing and proposed uses.
 - c. Describe the level of water quality, treatment and reliability required. Address the ability of existing and proposed treatment facilities to meet requirements.
 - d. Identify existing and proposed service boundaries and interlocal agreements if service is provided in areas served by other water purveyors.
 - e. Describe the existing and proposed distribution system. Provide a map showing potential routes for pipelines to provide reclaimed water to the alternative uses identified.
 - f. Estimate the annual or seasonal volumes required, proposed and available. Describe plans for storage or discharge of the excess.
 - g. Include a preliminary evaluation of the potential for impairment of existing water rights or a complete evaluation at the discretion of the applicant after consultation with the Department of Ecology Water Resources Program.
 - h. Include a discussion of the need for future facilities, groundwater and surface water management, capital and operational costs and customer rate structures for financial viability

- i. Discuss compliance with the State Environmental Policy Act (SEPA) and the National Environmental Policy Act (NEPA), if applicable.
 - j. Provide any other relevant data requested by the departments.
2. Where opportunities for reclaimed water must be considered or coordinated under other planning requirements, such documents may be submitted to the lead agency to meet some or all of the requirements of this section. These plans include but are not limited to:
- a. General sewer plans, engineering reports and facility plans for wastewater treatment facilities under RCW 90.48.110 and 112 and WAC 173-240-030.
 - b. Submittals of a water system plan to the department of health under chapter [43.20](#) RCW and WAC 246-290-100.
 - c. Regional water supply plan or plans addressing potable water supply service by multiple water purveyors under RCW 90.46.120.
 - d. Additional information necessary to satisfy the requirements of the local government jurisdiction.

(The shaded topic on water rights impairment is reserved for future discussion)

WAC 173-219-150 Requirements for a water rights impairment assessment

1. The purpose of the analysis is to evaluate the potential impairment of water right holders when a facility begins to reclaim water rather than discharge it.
2. Ecology recommends completing the analysis as early as possible in the planning process. In general, it is recommended the analysis be completed during the facility plan or engineering report stage.

The scope of an analysis will vary depending on the complexity of the project.

WAC 173-219-160 Engineering report

1. The engineering report for a reclaimed water facility is the design document for the entire facility including any collection systems, treatment, distribution, or use areas.

2. For approval, the report must include sufficient detail that the professional engineer could complete plans and specifications from the information within the approved document.
3. The report must clearly show how the facility plans to comply with the standards and requirements specified by the departments under this rule.
4. All engineering reports must describe:
 - a. Who will own, operate, and maintain the facility, the proposed methods of operation and maintenance, staffing levels, qualifications, experience, and responsibilities, and testing requirements.
 - b. Processes and diagrams of all reclamation processes, reliability features and controls.
 - c. The basis for design. Reference requirements within this rule, published design standards, pilot plant results and site-specific data.
 - d. Any pilot plant studies used to assess the proposed treatment processes, define unit design or operating parameters.
 - e. The reliability assessment of all major or otherwise significant equipment and components, individual unit processes and complete treatment trains. Include:
 - i. Flexibility of design
 - ii. Power supply
 - iii. Unit processes
 - iv. Alarms
 - v. Automated diversions
 - vi. Storage
 - vii. Provisions for disposal or alternative uses
 - f. The engineering design calculations for the reclamation process. Include:
 - i. Aeration / organic carbon reduction
 - ii. Nutrient reduction (as required)
 - iii. Disinfection facilities selection
 - iv. Disinfectant reactor contact time
 - v. Coagulation and filtration processes (if required)
 - vi. Reverse osmosis process (if required)
 - vii. Pumping, piping and control valve systems
 - g. The contingency plan assuring that untreated or inadequately treated wastewater will **not** be delivered to the use area including ground water recharge.
 - h. A cross connection control plan identifying any cross-connection control issues, who is responsible for compliance and testing of cross-connection control

activities, and details of the water purveyor's program for cross-connection control, if applicable.

- i. A summary checklist form provided by the departments, showing how the report addresses each requirement of these standards.

Note: The shaded content below will be discussed (and is repeated) with the groundwater recharge uses in Part VI.

1. All engineering reports proposing direct aquifer recharge projects shall
 - (a.) Provide a process description and diagram of the additional reverse osmosis treatment facilities, RO brine management facilities, direct recharge / pumping facilities and monitoring well facilities.
 - (b.) Provide a hydrogeologic study of the ground water aquifer proposed to receive the reclaimed water including:
 - i. The impact of the recharge project on potable ground water.
 - ii. The source, area of recharge, quality, hydrostratigraphy, aquifer characteristics, and ground water flow patterns for all ground water within the ground water basin receiving recharged reclaimed water;
 - iii. All wells or areas that will be affected by the proposed project and describe the ground water quality in the aquifer receiving the reclaimed water;
 - iv. All well(s) subject to the highest reclaimed water contribution and shortest reclaimed water retention time in the underground;
 - v. The possibility of premature discharge of ground water to the surface, landslides, or other slope failures resulting from the proposed project
 - vi. Quantitative descriptions of the soil, soil layers, aquifer transmissivity, aquifer hydraulic conductivity, rate and direction of flow, aquifer boundaries, historic ground water levels, and aquifer storage capacity of the aquifer.
 - vii. Identification of the agency responsible for preventing the withdrawal of potable ground water within areas restricted by specified minimum separation distances and minimum retention time requirements.
 - viii. Description of the methods of determination and results for minimum retention time in the underground and minimum horizontal separation between the point of direct recharge and withdrawal of potable ground water.
 - ix. The number and location of monitoring wells.

¹ From 1997 WRR Standards.

- x. A water quality monitoring plan for treated wastewater, reclaimed water and ground water withdrawn from monitoring wells.

Questions:

- *Should this also apply to percolation projects?*
 - *Could this part be stamped by a licensed hydrogeologist instead of an engineer*
6. All engineering reports proposing recovery from aquifer storage of reclaimed water shall be reviewed under the technical standards established under RCW 90.03.370(2).²
 7. When applicable to the reclaimed water project, the engineering report shall also meet the regulatory requirements included under Ch 173-240 and 246-290 WAC.
 8. Engineering reports shall include other information requested by the departments as necessary to assess the treatment, distribution or use of the water.

WAC 173-219-170 Plans and specifications³

1. The plans and specifications for a reclaimed water facility are the detailed construction documents used to bid and construct the facility.
 2. Before bidding the project, the lead agency, after consultation with the non-lead agency, must approve the plans and specifications.
 3. The content and format of the plans and specifications shall be as stated in the state of Washington, "Criteria for reclaimed water systems design," and shall include a list of the facility design criteria and a plan for interim operation of facilities, where required, during construction.
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WAC 173-219-180 Requirements for operations and maintenance manuals⁴

1. The draft operations and maintenance manual must provide sufficient detail to outline operation and maintenance of the entire reclaimed water facility.
2. Operators must follow the approved method of operation, unless the lead agency approves changes in writing.

² This requirement was added to RCW 90.46.120 in 2007. The implementing regulation for RCW 90.03.370(2) is [Ch. 173-157 WAC](#), which also states that it does not apply to reclaimed water. Requirements likely must either be listed within this regulation or amend Ch 173-157 WAC for requirements applicable to reclaimed water aquifer recovery projects.

³ From WAC 173-240-080 (industrial wastewater facilities are regulated under [WAC 173-240-140](#) 173-240-140.

⁴ From WAC 173-240-080 Domestic Wastewater Facilities except as specifically noted. Note that Industrial facilities are regulated under WAC 173-240-150.

3. Before commencing operation, a permittee must receive approval from the lead agency of a final detailed operations and maintenance manual.
4. The operations and maintenance manual includes, at a minimum:
 - (a.) Regulatory requirements.
 - (b.) Manufacturer's information on equipment before unit startup.
 - (c.) Technical guidance for both normal and emergency operating conditions.
 - (d.) The following information:
 - i. The assignment of managerial and operational responsibilities, including plant classification and classification of required operators.
 - ii. A description of plant type, flow pattern, operation, and efficiency expected.
 - iii. The principal design criteria.
 - iv. A process description of each plant unit, including function, relationship to other plant units, and schematic diagrams.
 - v. A discussion of the detailed operation of each unit and description of various controls, recommended settings, fail-safe features, etc.
 - vi. A written preventive maintenance program ensuring that all equipment is kept in a reliable operating condition⁵
 - vii. A discussion of how the treatment facilities are to be operated during anticipated maintenance procedures, and under less than design loading conditions, if applicable, such as initial loading on a system designed for substantial growth.
 - viii. A discussion of how the treatment facilities will provide a sufficient number of qualified personnel to operate the facility effectively so as to achieve the required level of treatment at all times.
 - ix. A section on laboratory procedures, including sampling techniques, monitoring requirements, and sample analysis.
 - x. Recordkeeping procedures and sample forms to be used.
 - xi. A maintenance schedule that incorporates manufacturer's recommendations, preventative maintenance and housekeeping schedules, and special tools and equipment usage.
 - xii. A section on safety.
 - xiii. A section that lists the spare parts inventory, address of local suppliers, equipment warranties, and appropriate equipment catalogues.
 - xiv. Emergency plans and procedures.

⁵ 1997 standards

- xv. A section on operation and maintenance of the distribution system and use area.
5. For those projects funded by the U.S. Environmental Protection Agency, the operation and maintenance manual shall also follow the requirements of the EPA publication, "Considerations for Preparation of Operation and Maintenance Manuals."

WAC 173-219-190 Requirements for construction quality assurance⁶

1. All facilities subject to the provisions of this rule must be constructed in accordance with the plans and specifications approved by the lead agency.
2. **Changes.** Any contemplated changes during construction, which are significant deviations from the approved plans, must first be submitted to the lead agency for approval.
3. **Declaration of Construction.** Within thirty days after acceptance by the owner of the construction or modification of a reclaimed water facility, the professional engineer in responsible charge of inspection of the project shall submit to the lead agency:
 - (a) One complete set of record drawings:
 - (b) A declaration stating the facilities were constructed in accordance with the provisions of the approved plans and specifications along with approved change orders and without significant change from the lead agency's approved plans and specifications and approved change orders. The declaration shall include:
 - i. Name and brief description of project
 - ii. Name and address of owner
 - iii. Date completed
 - iv. Date of approval of plans and specifications
 - v. The following statement:

I hereby declare that I am the project engineer of the above identified project and that the project was reviewed and observed by me or my authorized agent. I further declare that the project was, to the best of my knowledge and information, constructed and completed in accordance with the plans and specifications and major change orders approved by the lead agency and as shown on the owner's "as-built"

⁶ From WAC 173-240-077 Domestic Wastewater Facilities

- vi. Signature, date, and seal of professional engineer