

WASHINGTON'S RECLAIMED WATER PROGRAM – EVOLVING FROM GUIDELINES TO RULE

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Introduction

The Reclaimed Water Use Act became effective in the state of Washington in 1992. Water Reclamation and Reuse Standards were adopted as guidelines in 1997. Since this time 21 facilities have been permitted by the Washington Department of Ecology (Ecology) based on these guidelines and the wastewater discharge program implementing regulations. Washington has been a leader in permitting multiple types of beneficial reuse while maintaining rigorous environmental and public health protection standards. Projects are reviewed by both the Washington Department of Health (Health) and Ecology. In 2006, the state legislature directed the departments to develop and adopt regulations by December 31, 2010 addressing all aspects of reclaimed water use. This includes both technical standards and streamlining the administrative processes, to avoid duplicative reviews across agencies. The next year, 2007, the legislature expanded the scope of the rule making process to address barriers to implementation including financial assistance, water rights considerations, and other legal issues.

Five different stakeholder groups were convened to assist with the rulemaking process. Three of these have completed their work. The Rule Advisory Committee (RAC) and the Reclaimed Water-Water Rights Committee (RW-WRC) continue to meet monthly and advise the rule making process. In January 2009, the agencies and committees began the process of drafting and reviewing proposed rule language, and supplemental guidance documents.

Some of the challenges encountered during the rule making process include:

1. Focusing on reclaimed water as a water resource rather than a wastewater discharge.
2. Developing clear and comprehensive procedures for streamlined project review, permitting, and regulatory oversight.
3. Reconciling the differences between the water quality standards in the state's Groundwater Quality Rules, and Drinking Water Rules, which are administered by separate agencies.
4. Setting pathogen standards, especially for virus reduction, that protect public health and the environment, without creating barriers to water reuse.

5. Working through concerns with trace organic compounds such as pharmaceuticals or personal care products, for which there are no existing public health or environmental standards.
6. Developing water right impairment review processes that are acceptable to very diverse stakeholder interests.
7. Establishing clear reliability and redundancy guidelines for reclaimed water projects.
8. Developing ways to overcome public misunderstanding and fear of reuse.
9. Finding ways to provide:
 - Adequate resources for rule development and implementation during the state's budget crisis.
 - Funding for potential reclaimed water generators for planning and capital costs.

The History of Reclaimed Water in Washington State

Washington's 1992 *Reclaimed Water Use Act* (chapter 90.46 Revised Code of Washington (RCW)) provided a new statewide program for the treatment and wise management of wastewater resources for new uses. The law encourages the use of reclaimed water by requiring its consideration in watershed planning, water supply planning, and wastewater planning. Reclaimed water is a fundamental element of the state's strategy to extend potable water reserves, and meet water quality standards in a sustainable manner for future needs.

Legislative History

Chapter 90.46 RCW declares that reclaimed water is no longer considered wastewater. The statute directs Ecology and Health to take the steps necessary to administer, develop, and encourage reclaimed water use. The 1992 law required, and funded, the development of standards for the treatment of reclaimed water for various irrigation and commercial/industrial uses. Significant legislative changes since 1992 include:

- 1995 – add uses and standards for ground water recharge, wetlands and stream flow augmentation;
- 1997 - fund 5 demonstration projects; provide exclusive water right provisions to the owners of reclamation facilities; require one comprehensive permit including water quality, public health and water resource requirements; and require consideration of the feasibility of reclaimed water in wastewater planning;
- 1999 – fund permanent positions at Ecology for program implementation;
- 2001 -2002 – add reclamation of industrial wastewaters as a separate category;
- 2003 -- require consideration of the feasibility of reclaimed water in water supply planning;
- 2009 – establish lead agency roles; authorize Ecology and Health to issue operating permits; provide basis for compliance, enforcement, and appeals.

Permit Coordination

Any entity that generates reclaimed water must obtain a reclaimed water permit from Ecology and Health. Ecology is Washington's primary environmental protection and water resource

agency. The agency has the lead responsibility for development, implementation, and administration of the water reuse program. Ecology uses its authority under the ***Reclaimed Water Use Act***, the state ***Water Pollution Control Act***, and the state ***Water Code*** to review, approve, permit, and inspect the water reclamation and reuse facilities. Ecology has the primary permitting responsibility for land application and irrigation, ground water recharge, wetlands, stream flow augmentation, and for all industrial reuse projects with discharges to ground or surface waters.

Individual facilities work with one of Ecology's four regional offices to achieve permit approval. Under administrative streamlining provisions, Ecology issues a single comprehensive permit to the reclaimed water generator for source control, treatment, water quality, monitoring, distribution, and beneficial use of the water produced. If the generator sells or transfers reclaimed water to another party for distribution and use, they must execute a legal contract assuring the safe and proper use of the water. The owner of a reclaimed water facility is exempt from the state appropriative water right process, but may be subject to review for impairment of other water rights. If an existing wastewater effluent discharge is diverted to consumptive reclaimed water uses, Ecology must determine if the water rights of others will be impaired. For facilities that reclaim only part of their wastewater, the same permit may also regulate the wastewater discharge.

Health has lead responsibility for public health protection issues. Health conducts a limited engineering review focusing primarily on treatment reliability and disease prevention, particularly with regard to pathogens - protozoa, bacteria and viruses. Health also emphasizes the public health role in water distribution and use, since it regulates public drinking water systems, and performs public health reviews of wastewater treatment projects. State law gives Health primacy in permitting commercial and industrial uses that do not have an environmental discharge. Ecology issues permits for all reclamation projects through a formal interagency agreement consistent with current permitting authority.

Water Reclamation and Reuse Standard

The State of Washington has not yet adopted a formal regulation for reclaimed water under administrative codes. In 1997, Ecology and Health developed guidelines entitled ***Water Reclamation and Reuse Standards (WRRS)*** which are used for project review. The standards are divided into three primary sections: general requirements for traditional uses, standards for wetlands, and standards for direct aquifer recharge. The WRRS design criteria are based primarily on the California 'Title 22' standards.

Four basic classes of non-potable reclaimed water (A, B, C and D) are identified in Table 1 below.

Table 1: State of Washington Reclaimed Water Standards

Class	Oxidized BOD/TSS (mg/L)	Coagulated	Filtered Turbidity (NTU)	Disinfected TOTAL Coliform (cfu/100 mL)	
				7-Day MEDIAN	Single Sample
A	30	YES	2 (mo. average) 5 maximum	≤ 2.2	23
B	30	NO	NO	≤ 2.2	23
C	30	NO	NO	≤ 23	240
D	30	NO	NO	≤ 240	No standard

All classes require a minimum of secondary treatment and disinfection. Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) must meet a limit of 30 mg/L following the secondary treatment step. Class A, the highest water quality, specifies a reclamation treatment train consisting of secondary oxidation, coagulation, filtration, and disinfection. Reclaimed water following filtration must demonstrate an average monthly turbidity of 2 NTU or less, with no sample above 5 NTU. Class A water requires a seven day median total coliform value of less than or equal to 2.2/100mL with a maximum of 23/100mL in any sample. Reliability requirements such as alarms, backup units, storage or alternative discharge locations must be built into the design.

Technology and Advanced Treatment

Since development of the WRRS in 1997, microfiltration and ultrafiltration membrane technology has become increasingly popular as membrane quality improves and costs go down. Current water reuse standards don't have an equivalent standard to determine adequate membrane filtration for Class A reclaimed water. Permits for these systems include a technology-based membrane filtration standard requiring the average monthly turbidity of the treated water to be at or below 0.2 NTU and never exceed 0.5 NTU in any single sample. A properly maintained and operated membrane should consistently achieve these levels. Turbidity above these levels can indicate a breach or bypass of the membrane process. Until the new rule is adopted, Ecology and Health will use these levels as equivalent to the coagulation and filtration steps required for Class A reclaimed water.

Nitrogen removal is generally considered a use-based rather than a technology-based requirement. However, for ground water recharge, the removal of nitrogen in the biological oxidation treatment process step of the reclamation process is a required treatment technology. Most nitrogen in reclaimed water readily converts to nitrate, which is very soluble and mobile in the ground water. Ecology therefore limits nitrogen in the final reclaimed water to 10 mg/L of

total nitrogen to assure ground water protection. The drinking water maximum contaminant level for nitrate is also 10 mg/L.

Reclaimed water that is used for direct aquifer recharge must go through reverse osmosis (RO) treatment. RO is a membrane system that removes dissolved salts and minerals from solution based on reversing osmotic pressure differentials. RO is also effective for pathogen removal. Table 2 summarizes Washington’s requirements for direct groundwater injection.

Table 2: Treatment/Quality Requirements for Direct Recharge with Reclaimed Water

Use	Treatment Requirements	Quality Requirements
Direct recharge into nonpotable ground water aquifers	Class A reclaimed water treatment	Class A reclaimed water quality requirements BOD ≤ 5 mg/L TSS ≤ 5 mg/L
Direct recharge into potable ground water aquifers	Oxidation Filtration Coagulation Reverse osmosis Disinfection	Class A reclaimed water quality requirements (except for total coliform organisms) Water quality criteria for primary contaminants (except nitrate), secondary contaminants, radionuclides, and carcinogens listed in Ecology’s Ground Water Quality Standards. Other drinking water MCLs Turbidity ≤ 0.1 NTU Total nitrogen ≤ 10 mg/L (as N) TOC ≤ 1.0 mg/L

Beneficial Uses for Reclaimed Water

Table 3 summarizes the allowable uses for various classes of reclaimed water. Washington’s reclaimed water standards allow multiple beneficial uses. These uses involve release of reclaimed water to state wetlands, surface or ground waters. Additional treatment and quality standards are appropriate to each use. The guidelines direct that reclaimed water must meet the state surface water standards for any projects involving discharge to surface water and the state drinking water standards plus nitrogen removal as a treatment technique for groundwater recharge. Wetlands release must also consider nutrient reduction, biodiversity and wetland hydraulics.

Table 3: Treatment and Quality Requirements for Reclaimed Water Use

Use	Type of Reclaimed Water Allowed			
	Class A	Class B	Class C	Class D
Irrigation of nonfood Crops				
Trees and Fodder, Fiber, and Seed Crops	YES	YES	YES	YES
Sod, Ornamental Plants for Commercial Use, and Pasture Access to Milking Cows/ Goats	YES	YES	YES	NO
Irrigation of Food Crops				
<u>Spray Irrigation</u>				
All Food Crops	YES	NO	NO	NO
Food Crops Which Undergo Physical or Chemical Processing Sufficient to Destroy All Pathogenic Agents	YES	YES	YES	YES
<u>Surface Irrigation</u>				
Food Crops Where There is No Reclaimed Water Contact With Edible Portion of Crop	YES	YES	NO	NO
Root Crops	YES	NO	NO	NO
Orchards and Vineyards	YES	YES	YES	YES
Food Crops Which Undergo Physical or Chemical Processing Sufficient to Destroy All Pathogenic Agents	YES	YES	YES	YES
Landscape Irrigation				
Restricted Access Areas (e.g., Cemeteries and Freeway Landscapes)	YES	YES	YES	NO
Open Access Areas (Residential, Golf Courses, Parks, Playgrounds)	YES	NO	NO	NO
Impoundments				
Landscape Impoundments	YES	YES	YES	NO
Restricted Recreational Impoundments	YES	YES	NO	NO
Nonrestricted Recreational Impoundments	YES	NO	NO	NO
Fish Hatchery Basins	YES	YES	NO	NO
Decorative Fountains	YES	NO	NO	NO
Flushing of Sanitary Sewers	YES	YES	YES	YES
Street Cleaning				
Street Sweeping, Brush Dampening	YES	YES	YES	NO
Street Washing, Spray	YES	NO	NO	NO
Washing Corporate Yards, Lots, Sidewalks	YES	YES	NO	NO
Dust Control (Dampening Unpaved Roads and Other Surfaces)	YES	YES	YES	NO
Dampening of Soil for Compaction (at Construction Sites,	YES	YES	YES	NO

Use	Type of Reclaimed Water Allowed			
	Class A	Class B	Class C	Class D
Landfills, etc.)				
Pipelines for Reclaimed Water, Sewage, Storm Drainage, and Gas, and Conduits for Electricity	YES	YES	YES	NO
Fire Fighting and Protection				
Dumping from Aircraft	YES	YES	YES	NO
Hydrants or Sprinkler Systems in Buildings	YES	NO	NO	NO
Toilet and Urinal Flushing	YES	NO	NO	NO
Ship Ballast	YES	YES	YES	NO
Washing Aggregate and Making Concrete	YES	YES	YES	NO
Industrial Boiler Feed	YES	YES	YES	NO
Industrial Cooling				
Aerosols or Other Mist not Created	YES	YES	YES	NO
Aerosols or Other Mist Created (Cooling Towers, Forced Air Evaporation, or Spraying)	YES	NO	NO	NO
Industrial Process				
Without Exposure of Workers	YES	YES	YES	NO
With Exposure of Workers	YES	NO	NO	NO

In addition to the standards, the departments have published a guidance chapter devoted to reclaimed water in the *Criteria for Sewage Works Design*, a comprehensive wastewater guidance manual. Washington has been a leader in permitting multiple types of beneficial reuse while maintaining rigorous environmental and public health protection standards.

Actual Projects and Projected Growth

Since program inception in 1992, twenty-one reclaimed water facilities have been reviewed and permitted by the departments of Ecology and Health. Figure 1 shows the location of existing permitted facilities. Beneficial uses include landscape irrigation, groundwater recharge, toilet flushing, dust control, industrial cooling, wetlands enhancement, and stream flow augmentation. There has been a flurry of reclaimed water activity within the past two years, with nine facilities currently under construction and eight more in the design phase. These activities will nearly double the number of permitted facilities by 2013. A graphic description of the growth of existing reclaimed water facilities and projected future growth is shown in Figure 2.

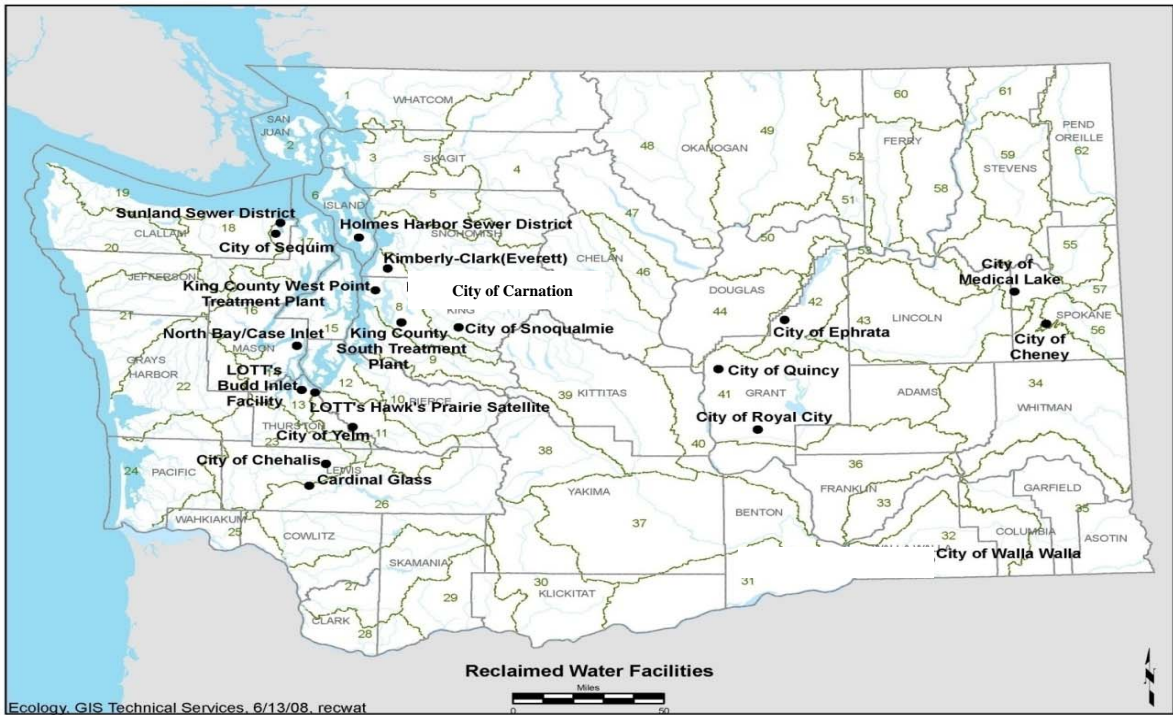


Figure 1

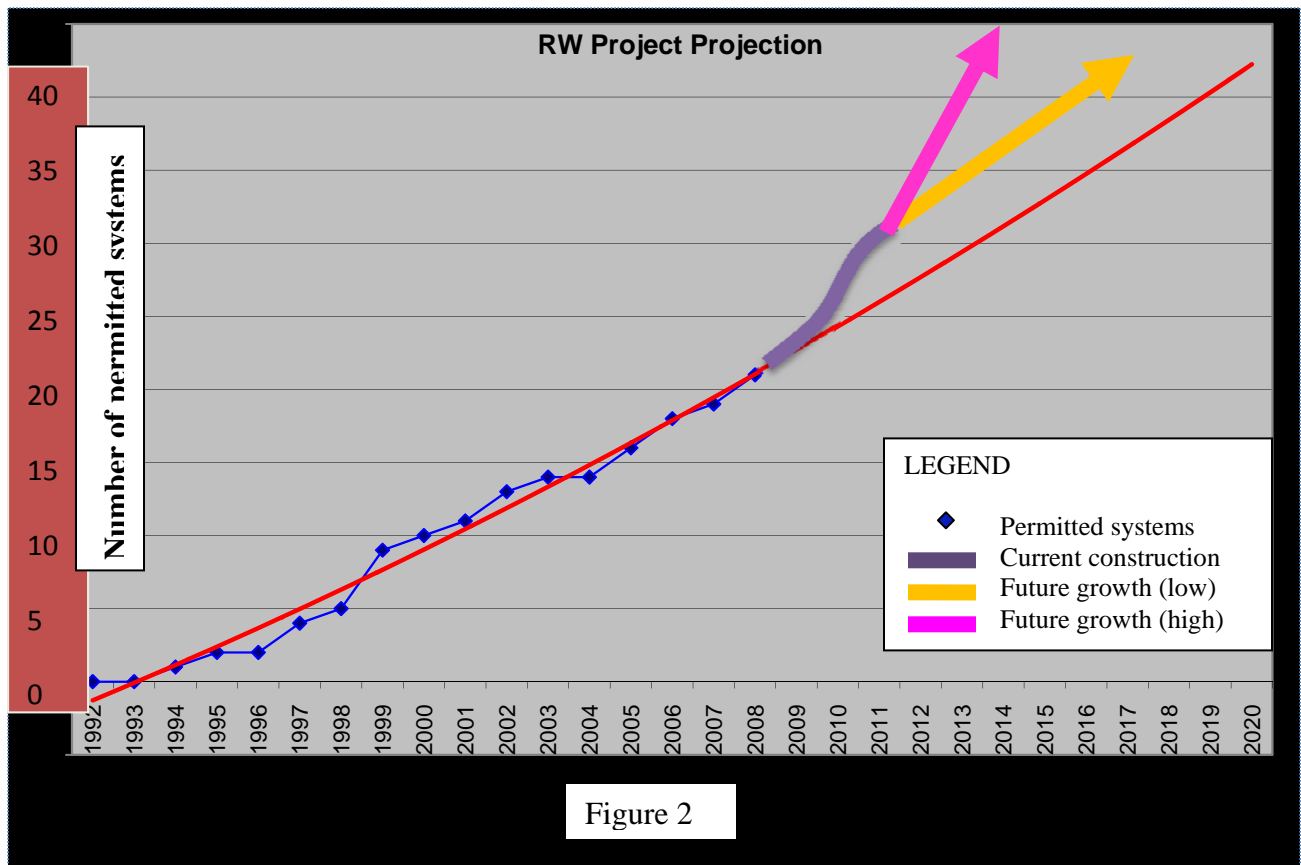


Figure 2

The Rule Development Process

In 2006, the Washington state legislature directed the departments of Ecology and Health to develop and adopt regulations by December 31, 2010 to address all aspects of reclaimed water use. The rule must streamline the permitting process by avoiding duplicative reviews across agency boundaries. One agency will lead the review process, issue the permit, and monitor the performance of each project. The RAC and RW-WRC were formed to advise the departments on general rule development and water right impairment issues respectively. These committees will continue to meet through 2009 while advising Health and Ecology on specific rule content. Subsequent legislation clarified the legislature’s expectations, and required interim reports from the agencies in January 2008 and 2009 regarding progress made toward rule development.

Two subtask force groups have assisted the departments: one identified barriers (staffing levels, agency roles, organizational structure, and legal issues) and recommended how to promote reclaimed water as a water supply and water resource management option. The second helped identify long term needs and funding options for reclaimed water projects. They projected reclaimed water project needs for three biennial periods and beyond and recommended five options for funding, including wholesale taxes on bottled water and beverages, diversion of public utilities tax receipts, and tax reduction incentives on new facilities.

Key decisions were made regarding the rule in 2008. The existing statute needed significant modification by the legislature for proper rule development. These changes include clarified permitting authority, delineation of lead agency status, definition changes, appeal and penalty provisions, and a clarification to planning language. Next, the RAC recommended creation of a panel of experts to develop technical standards. This group was formed by the Pacific Northwest Clean Water Association, the regional arm of Water Environment Federation, pulling members from design consultants, and the university community. The Technical Advisory Panel (TAP) spent a full year focusing on technical aspects of the rule. Their work has been incorporated into draft rule language now under review by the RAC.

In January 2009, the departments and committees began the process of drafting and reviewing proposed rule language and supplemental guidance documents. Our goal is to complete this process by the end of January 2010 in order to meet additional administrative requirements for rule adoption by the end of 2010. Figure 3 provides a visual summary of rule committee organization.

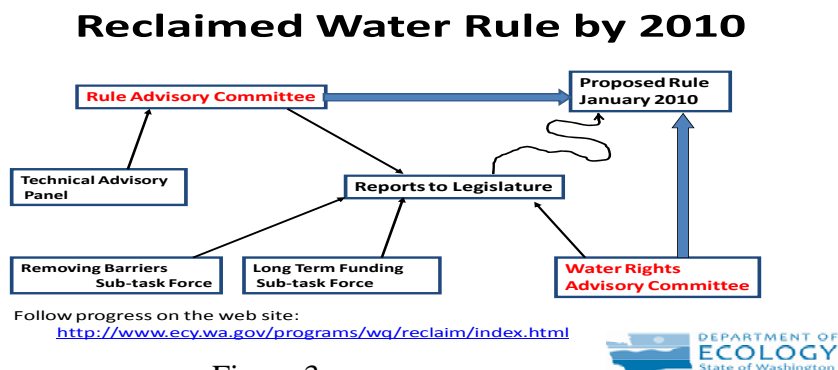


Figure 3

Challenging Topics

Source of Supply, Not a Wastewater

Ecology's permitting processes used for water reclamation have been built around wastewater discharge to the environment. The concept of a reclaimed source of supply brings with it attributes of a drinking water supply. Delivery to users, maintaining the supply to users, storage, and protection of the potable supply – aquifer, piping, and customer use - must be considered. Standards for wastewater disposal may not apply to a reclaimed water supply with a use such as urban irrigation or groundwater recharge. The departments and stakeholders have decided that rules implementing the ***Reclaimed Water Use Act*** should stand on their own authority, and not rely on reference to the ***Water Pollution Control Act*** for wastewater effluent discharge permits.

Streamlined and Efficient Permitting Process

Changes to the ***Reclaimed Water Use Act*** now provide clear and comprehensive procedures for streamlined project review, permitting, regulatory oversight, appeals, and enforcement. This process included a lead agency designation between Ecology and Health, so that only one agency would take the leadership role for a project and issue the permit. The non-lead agency still provides an advisory role to the lead agency, and may choose to review a project, and provide input to the lead agency. Based on use, the rule will identify whether Health or Ecology is the lead.

All existing reclaimed water projects within Washington have received “individual” permits from Ecology. These are customized permits issued to the generator of reclaimed water that specify the treatment, distribution, and use of the water. Monitoring parameters, enforcement limits, and reporting requirements are permit conditions. An NPDES permit issued for surface discharge may be combined with this permit. The draft rule describes two new types of permits: a “master generator” permit and a “general” permit. Master generator permits would be issued when a single entity provides management and operation of multiple facilities, without a physical connection between them. A general permit could be issued when the lead agency decides a large number of facilities with similar uses, water quality, treatment, monitoring, or other parameters, can be more effectively permitted this way.

Resolving Water Quality Criteria for Groundwater Recharge Projects

Ecology's ground water quality standards, and Health's drinking water maximum contaminant levels, are different in the constituents named and sometimes in the prescribed concentration limit. Neither list was developed with reclaimed water in mind. Ecology's standards contain more contaminants than the Department of Health list, which is based on the Safe Drinking Water Act. Currently the departments are working with stakeholders to develop water quality standards that are protective of both public health and the environment. The challenge is to maintain consistency with other laws and regulations, recognize preservation of existing natural groundwater quality, and avoid barriers to the creation of new reclaimed water projects.

Setting Pathogen Standards

The TAP began the balancing process of setting pathogen standards that are protective of public health and the environment, without creating barriers to water reuse. After considering the monitoring, laboratory capacity and cost of measuring various water quality constituents, the conclusion was to retain total coliform and turbidity as the best surrogates for adequate treatment

performance. These will be combined with treatment techniques that employ the multiple barrier approach used in the Safe Drinking Water Act to ensure reliable reduction of pathogens. The proposed draft rule includes provisions for membrane treatment methods that were absent in past standards.

The TAP favored a log-reduction approach to measuring virus reduction. They suggested a 4 to 5 log virus removal/inactivation following secondary treatment, varying with treatment and disinfection methods. The details of virus reduction standards will mostly be contained within guidance, and closely follow existing California Department of Health Services criteria.

Existing reclaimed water guidance recognizes four different classes of water quality, with “A” being the highest quality for applications like landscape irrigation or wetlands enhancement where there may be public exposure. The new rule may reduce the water quality classifications to two classes, retaining just A and C. Class C is proposed to be nonfiltered reclaimed water for restricted human contact uses. It will still maintain total coliform criteria of 23 per 100 mL computed on a 7-day median and 240 per 100 mL maximum single sample limit. The rule would still allow specific “use based standards” for uses such as irrigation or commercial in addition to the class-based water quality criteria.

Trace Organic Compound Concerns

Trace organics found in the environment and in reclaimed water – such as caffeine or estrogen, pose another dilemma for the reclaimed water rule. They can be detected at very low levels, but there is no research evidence at this point which confirms they are harmful to public health. There is limited evidence of probable impacts to wildlife and fisheries, but identifying toxicity levels has been difficult. The method to address these contaminants is unclear and currently there are no national or state standards to rely on. Currently, we are discussing this issue with stakeholders to determine how this issue should be addressed in the draft rule.

The Potential Impact of Removing Wastewater Discharges from Streams

Impairment of water rights may occur whenever a community ceases to discharge an existing wastewater flow to groundwater or surface water, and instead puts that water to a new consumptive use. Senior water right holders, instream flows and other water rights may be impacted. The ***Reclaimed Water Use Act*** requires mitigation and compensation of the affected water right holder. Ecology and Health have been working with stakeholders since 2007 to develop water right impairment review processes that are acceptable to very diverse interests. Water utilities, wastewater utilities, developers, conservationists, environmentalists, and our contiguous Indian nations, all have strong feelings about water rights. Ultimately it may take a combination of changes to statute, rule and guidance.

Currently there is agreement among stakeholders that an impairment analysis should be completed for each project. These analyses may range from simple to complex depending on numerous site specific variables. An existing marine discharge conversion to consumptive reclaimed water uses would be simple to analyze and approve due to a lack of impairment. Conversely, an impairment analysis in an adjudicated upland basin with hundreds of water right holders, and instream flow limits set by rule, would be extremely complex, and will most probably render an impairment conclusion that many water right holders will be negatively

impacted. Early notification of potentially affected entities including tribal governments, state Fish and Wildlife, and private water right holders, was determined to be important.

Technology Standards – What is Adequate and Reliable Treatment?

The departments have worked with stakeholders to establish clear reliability and redundancy requirements in rule and guidance. We have agreed that there should never be a bypass of untreated or partially treated wastewater around a treatment facility to the point of use. Alarms must be provided for power failure or loss of a primary treatment component with transfer to a responsible party if the facility is unattended. If a diversion of reclaimed water to an alternate permitted discharge meeting NPDES permit conditions is not available, storage must be provided. Short-term storage is only acceptable when redundant processes or equipment is available. The departments may accept alternative methods of delivering an equivalent level of protection.

Marketing Reclaimed Water; Over-coming Fear

The Removing Barriers Subtask Force was created by a 2007 amendment to the ***Reclaimed Water Use Act***. This stakeholder group supported a three-phased approach to overcoming public misunderstanding and fear of reuse water. The first phase includes public involvement along with that of stakeholders in the rule development process. Printed materials, web site information, and statewide workshops and public hearings, will be used to disseminate information regarding reclaimed water. The second phase enlists local government officials' support through the use of fact sheets, focus groups, and local workshops. The third phase is a statewide campaign using multimedia techniques through selected venues statewide.

Funding to Encourage Reclaimed Water Projects

One of the barriers our reclaimed water program in Washington is facing is the fallout from our current nationwide economic crisis. Although the legislature gave Ecology the resources to carry out a successful rule development process, the resources have diminished due to hiring and contracting freezes. Despite our losses, we continue the rule making process with the expectation of completing it on time. We are only able to achieve this by “borrowing” personnel and resources from other Ecology programs.

The Removing Barriers Subtask Force has recommended that Ecology and Health pursue permit fees, set through an existing rule for wastewater systems, to fund future personnel needs. This includes up to 5 to 7 full time employees (FTE) in Ecology and 2 FTE in Health. We currently have three employees dedicated to reclaimed water in Ecology, and one in Health.

To help potential generators and users of reclaimed water, funding for planning and capital costs should continue. A grants program was established in 2007 with a capitalization of \$5 million for the 2008-2009 biennium. We requested \$10 million for this program in 2010-2011. Due to the significant drop in state revenue, this program was not funded. Stakeholders also recommended that state and local governments provide some form of subsidies to businesses that relocate, or build near reclaimed water infrastructure, and use the water. They recommended long term funding of grants and low interest loans paid for through a wholesale bottled water or beverage tax, or dedicated portions of current utility taxes.

Project proponents of facilities with long term benefits often have trouble competing for funding against those viewed as in immediate crises. Also, existing state funding sources are divided into categories that do not specifically relate to reclaimed water, and funders are less familiar with these projects and their value. Cost analyses may not reflect the true value of a water reclamation facility, if based solely on the utility's capital and operation/maintenance costs. User rates calculated on these assessments alone may appear cost prohibitive and result in termination of a project. Thus "who benefits?" may not be the same as "who pays?" A more comprehensive financial and economic analysis is necessary to accurately assess a reclaimed water project. Cost analysis should include avoided costs of additional water and wastewater services that would otherwise be required, rather than focus only on the costs of the reclamation treatment facility. A variety of factors may be the economic drivers of any project and all must be considered to appropriately assess the benefits.

Conclusion

The reclaimed water program in Washington State has matured over the past 17 years, to the point where multiple guidance and policy documents are no longer adequate for the planning, review and permitting of systems. The current rule making process has grown out of a legislative mandate and internal desires of the departments of Health and Ecology to develop better regulatory procedures. This process has been carefully crafted to include multiple informal stakeholder input opportunities and provide transparency to the general public. We believe the existing informal rule negotiation process, when coupled with formal administrative procedure requirements, provides a substantial opportunity to resolve the challenging issues for this rule.

Interested individuals who wish to follow the rule making process may want to access the Reclaimed Water home page for further information:

<http://www.ecy.wa.gov/programs/wq/reclaim/index.html>

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