May 28, 2010

As the owner of Parkland Water, a Thurston County water purveyor that is currently impacted by the discharge of reclaimed water, I offer the following comments on the proposed Rule 173-219 WAC.

I realize that the Department of Ecology has been actively promoting "reclaimed water" from wastewater treatment facilities as an alternative to surface water discharges. In most cases however a vast majority of the "reclaimed water" is in fact discharged to groundwater that is either consumed by the public or eventually discharged to surface water using the groundwater as a conveyance medium. The trade-off is apparent. Replace wastewater discharges to surface waters with wastewater discharges to groundwater or stated another way reduce surface water impacts by adversely affecting public health through groundwater discharges.

The Department of Ecology's reclaimed water webpage graphics imply that the clarity of the reclaimed water produced is synonymous with the safety of the reclaimed water produced. Nothing could be further from the truth. The safety of the water must be measured by the concentration of numerous pollutants present in the water. The pollutants the proposed rule addresses are BOD, suspended solids, turbidity, fecal coliform, and virus concentrations. The defined treatment trains do little to remove substantial public health impacts created from the recycling of filtered secondary sewage treatment plant effluent to the groundwater and drinking water system.

Numerous studies have documented the presence of a wide variety of endocrine disruptors, pharmaceuticals, chlorinated byproducts, in all secondary treatment plant effluents and tertiary (i.e. Class A water) treatment plant effluents. The Department of Ecology acknowledges the fact that these pollutants are present in all treated wastewater. However, it has been implied (by the Department of Health representative) that one or more of the pollutants is present in all groundwater irrespective of whether that groundwater has been impacted by waste discharges. The 2007 USGS "National Reconnaissance of Pharmaceuticals and Other Organic Wastewater Contaminants in US groundwater found organic waste water contaminants in 81% of the sites sampled. However, the USGS clearly states that the sites "focused on areas suspected to be susceptible to contamination from either animal or human wastewaters". What is known is as follows:
1) If treated wastewater is applied to the ground over an aquifer it will be polluted with a wide variety of pharmaceutical, hormone, and chlorinated byproducts.
2) The concentration of those pollutants is significantly greater if the wastewater is from a treatment plant as opposed to large septic systems.
3) Groundwater that is not impacted by human or animal waste does not contain those pollutants.
4) Pharmaceuticals such as antibiotics, antidepressants, stimulants, codeine, psychoactive drugs, epilepsy medications, heart rhythm medications, diuretics, blood thinning medications, etc., etc. are all **controlled substances** that have significant effects at very low concentrations and are therefore dispensed only through a doctors prescription.
5) The uncontrolled delivery of those medications will have, without doubt, significant health impacts. Endocrine disruptors have been linked to a wide variety of human health impacts including breast cancer. And chlorinated organic compounds have been demonstrated to be and are considered toxic compounds.

It is the Department of Ecology and Department of Health's obligation to protect human health, to control substances that will have or expected to produce adverse health consequences. The

proposed rule does not meet that obligation. However, the proposed rule states on page 8 (5) (b) that the permit requirements are "as necessary to ensure **adequate** public health protection in the use of reclaimed water" and in (5) (c) "**assures** adequate public health" etc.. In fact the rule does not achieve those goals.

On page 11 of the definitions the word "contaminant" is defined. It has been acknowledged by the Department of Ecology that "Class A water" contains "contaminants" as stated above. Is Class A water a contaminant?

On page 12 the term "emerging contaminants" is used to define pharmaceutical products, endocrine disrupting compounds, personal care products etc.. There is nothing "emerging" in regards to those contaminants. They have been known for years to be present in secondary and tertiary treated wastewater. The Department of Ecology is implying that knowledge of these contaminants is just emerging from the depths of ignorance. Whereas a 2004 Departmental Ecology report "Results of a Screening Analysis for Pharmaceuticals in Wastewater Treatment Plant Effluents, Wells, and Creeks in the Sequim-Dungeness Area" described certain pharmaceuticals present in tertiary treated wastewater and downstream creeks and groundwater. The word "emerging" may be acceptable as a USGS webpage but it certainly isn't acceptable in the proposed rule.

Page 15 first paragraph "exclusive right". I fail to see how a municipality can discharge contaminated water into publicly owned waters and thereby change the character of the publicly owned water and then be granted a water right to public waters at another location that has not been contaminated by the municipality.

Page 16 (b) (i) in addition to notifying the tribes in the Department of Fish and Wildlife water purveyors and other water right holders that could be impacted by the impairment action should also be notified within 15 days.

Page 16 (b) (iv) water users, water right holders, and water purveyors using the common resource (ground or surface water) should also be notified.

Page 19 Agency Review Standards (2) (c) should include WAC 173 -- 200 -- 040.

Page 19 Agency Review Standards (2) (d) (i) "Reclaimed Water Facilities Manual" to be published in September 2010 should be available and distributed for comment prior to publishing the proposed rule.

Page 20 Reclaimed Water Planning (1) (g) the planning documents must include a complete aquifer description if reclaimed water is discharged to the groundwater. Groundwater dilution and mixing zones should be established. The aquifer description should include depth to water table, hydraulic conductivity, groundwater flow rates, groundwater quality, inputs and withdrawals that may be affected by the proposed wastewater percolation or injection. Pollutant mass balance and concentration assessments presented. Distances and travel times to public water supply systems should be specified.

Page 24 (k) Engineering Design Calculations must include a **mass balance** for all carbon, nutrient (nitrogen, phosphorus, potassium at a minimum), pharmaceuticals, endocrine disruptors, chlorination byproducts, and other inputs such as coagulants and disinfectants, and outputs such as biosolids and sludge. The resulting effluent water quality must be quantitatively defined.

Page 32 (2) Public Notice (c) the term "geographical boundaries" must be defined. At a minimum all downstream water right holders, water purveyors, and water users that may be impacted must be notified.

Page 34 (7) Notification of Final Permit Decision. What is the consequence to the Department for not following the requirements of the notification and appeal? At a minimum the permit should be invalidated, or the appeal period extended beyond the 30 days, if a timely response and final decision requirements of this section are not followed.

Page 40 (8) Assessment of Emerging Contaminants of Interest the words "the lead agency *may* establish" should be changed to "the lead agency **must** establish" if the goal of "assuring" public safety is to be achieved.

Page 46 Disinfection Process Standards. There must be a **maximum** chlorination standard based on the BOD of the affluent to minimize the creation of chlorinated byproducts and to meet groundwater quality standards.

Page 48 (3) Distance to Potable Water Well. A public water purveyor is required by law to prevent pollutants within the well head protection area. How can the purveyor accept reclaimed water storage within or adjacent to the well head protection area? Are we saying that since we performed the Orwellian magic of changing the name to "Reclaimed Water" that no contaminants are present?

Page 52 Water Quality Characterization "characterization must include the parameters listed in standard manuals of practice applicable to the types of use". That statement is extremely vague since there are many standards and levels practice. The statement "dilution is a solution" or "reclaimed water may be blended with potable or other non-potable water supplies to meet required water quality" is not appropriate since there may not be a concentration standard and the mass load may be the most important water quality parameter.

Page 52 Land Application (4) the referenced groundwater protection standards in Chapter 173 200 WAC do not address ortho phosphate. Current proposals to discharge "Class A" reclaimed water to groundwater will increase phosphorus loadings to lakes via groundwater. Some limit on ortho phosphate to groundwater must be established.

Page 58 Groundwater Recharge (2 (a) the discharge of reclaimed water to groundwater is inconsistent with the anti-degradation policy of Chapter 173 -- 200 WAC if the reclaimed water contains any anthropogenic pollutants.

The minimum distance to be maintained between the groundwater recharge area and the public water purveyor well head protection area is ludicrous. 100 foot radius is entirely insufficient. And even if a was sufficient the water purveyor could not execute a document contrary to other state laws. All public water supply purveyors that may reasonably be expected to be impacted by groundwater recharge should execute a document agreeing to the groundwater recharge.

Page 58 (3) Recharged by Surface Percolation - The total nitrogen (nitrate pus nitrite) of 10 mg per liter for reclaimed water exceeds the drinking water standards of 1 mg per liter (nitrate + nitrite). As a result the surface percolation will degrade the groundwater (if it meets drinking water standards) contrary to the antidegradation policy. No limits have been established for ortho phosphate. The fecal coliform limits of reclaimed water of 1 to 5 /100 ml exceeds the

groundwater quality criteria of 1.0 /100 ml. At a minimum the recharge by surface percolation or directly to groundwater should require **ultrafiltration** as every other industrialized nation. Drinking water limits for viral PFU should be established.

A recent quote from an article I read this morning on the economic crisis and government regulation of Wall Street. "Regulatory capture begins when the regulator starts to see the world only through the eyes of the regulated. Rather than taking on board views that are critical of existing arrangements, tame regulators talk only to proponents of the status quo (or people who want even more deregulation)" It sounds like someone saying it will cost the municipality too much to install technology to protect public health. Did I hear that at the workshop?

Dennis Burke