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Water Docket  
Environmental Protection Agency, Mail Code 4101T  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

RE: Long-Term 2 Enhanced Surface Water Treatment Rule, Proposed Rule, 68 Federal Register 47639, Docket No. OW-2002-0039

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Tacoma Water appreciates the opportunity to provide comment on the proposed Long-Term 2 Enhanced Surface Water Treatment Rule. The development of this rule and associated guidance documents have been enormous efforts, and we recognize that in total, these regulations will result in improved public health protection.

We do believe there are important rule requirement and implementation issues yet to be resolved. Following are our specific comments.

#### **§141.701 General requirements**

EPA should more precisely describe which systems it intends to regulate under this rule. A system using purchased surface (a “consecutive system” under the Stage 2 definition) and groundwater sources would be technically characterized as a “subpart H System. Statements like the following could therefore lead to confusion about the source water characterization responsibilities:

“All subpart H systems, including wholesale systems, must characterize their source water to determine what (if any) additional treatment is necessary for *Cryptosporidium*...”  
(§141.701 (a))

It is recommended that EPA tie the characterization monitoring requirement to any Subpart H system that provides treatment to the raw water.

#### **§141.702 Source water monitoring**

The source water monitoring regime proposed for small systems highlights an interesting regulatory paradox. Based on the analysis presented in the preamble, EPA suggests that a small (serving < 10,000 people) filtering system monitoring for *E.coli* from a flowing stream may have a **mean** concentration of *E. coli* of up to 50 CFU / 100 mL before there is concern of a need for additional *Cryptosporidium* removal. Yet under LT2 (and by reference the original Surface Water Treatment Rule), an unfiltered system providing at least 3-log inactivation of

*Cryptosporidium*, 3-log inactivation of *Giardia*, and 4-log inactivation of viruses that exceeds 20 CFU/100 mL of fecal coliform in more than 10% of samples (a broader spectrum of organisms and a tighter standard) would be required to add filtration to an already robust disinfection system.

The analysis behind the 50 CFU/ 100 mL trigger in the proposal appears reasonable, however we believe this single example clearly illustrates a significant disconnect between the proposed LT2, and the now 15 year old fecal coliform filtration trigger. Recent studies have shown that UV can remain very effective when turbidity exceeds 5 NTU; EPA should revisit the science behind this trigger, and reaffirm that its basis is adequate and still relevant to drive the expenditure of, in some cases, enormous public resources.

### **§141.703 Sampling Schedules**

While a utility may make every effort to sample on precisely the planned day of a schedule developed one or two years in advance, operational realities, or failures in sample transport and handling may preclude this, and the apparent penalties for failure are high. The following specific recommendations are offered:

- Revise §141.703(b) from +/-two days to +/- four days.
- Revise §141.703(d) to allow a replacement sample if notified by the laboratory that a sample was broken in transport, or failed to arrive, or some other unforeseen problem occurred. The current limitation allowing replacement samples only in the event of analytical method requirements is too restrictive.

### **§141.711-§141.715, Disinfection Profiling and Benchmarking Requirements**

The need to balance microbial protection and disinfection byproduct formation is well established and important. The mandatory development of disinfection profiles in a prescriptive manner, and on a prescriptive schedule for a subset of public water systems is difficult for many utilities to understand, and difficult for primacy agencies to implement. This diverts resources from other important and pressing work. As well, it may present a very incomplete picture of the system's microbial protection, and the trade-offs of a specific treatment revision. The requirement is a snapshot, collected between the months of 24 and 36 (after rule promulgation), and doesn't necessarily consider other issues that could have a significant impact on disinfection (changes in other chemical treatment, like pH adjustment, or changes in source water characteristics).

It is appropriate to require consultation with the primacy agency prior to making a change in disinfection practice, however it is unnecessary to prescribe the creation of a profile that may or may not have relevancy to the issues at hand when that consultation occurs. It would be far better to require the consultation (many States already require this), and provide in Guidance the relevant considerations a State and utility should address. This utilizes resources more efficiently, reduces regulatory uncertainty, and, at least in a small way, simplifies this rule.

### **§141.721 Treatment requirements for unfiltered systems**

The preamble states: "New occurrence data suggest that typical *Cryptosporidium* levels in the

treated water of unfiltered systems are substantially higher than in the treated water of filtered systems.” While the data show that some unfiltered water systems have *Cryptosporidium* levels higher than in some filter plant effluents, the statement can not be made that this is universal, or even “typical”. During the past 36 months of monthly testing using the best available prescribed method (EPA Method 1623), Tacoma Water has been unable to detect a single oocyst. This has recently included some event-based monitoring at elevated turbidity (~5 NTU). Tacoma Water does not believe its watershed is necessarily “*Cryptosporidium* free”, but the language should recognize that there are significant differences between unfiltered watersheds. Based on this, the following are recommended:

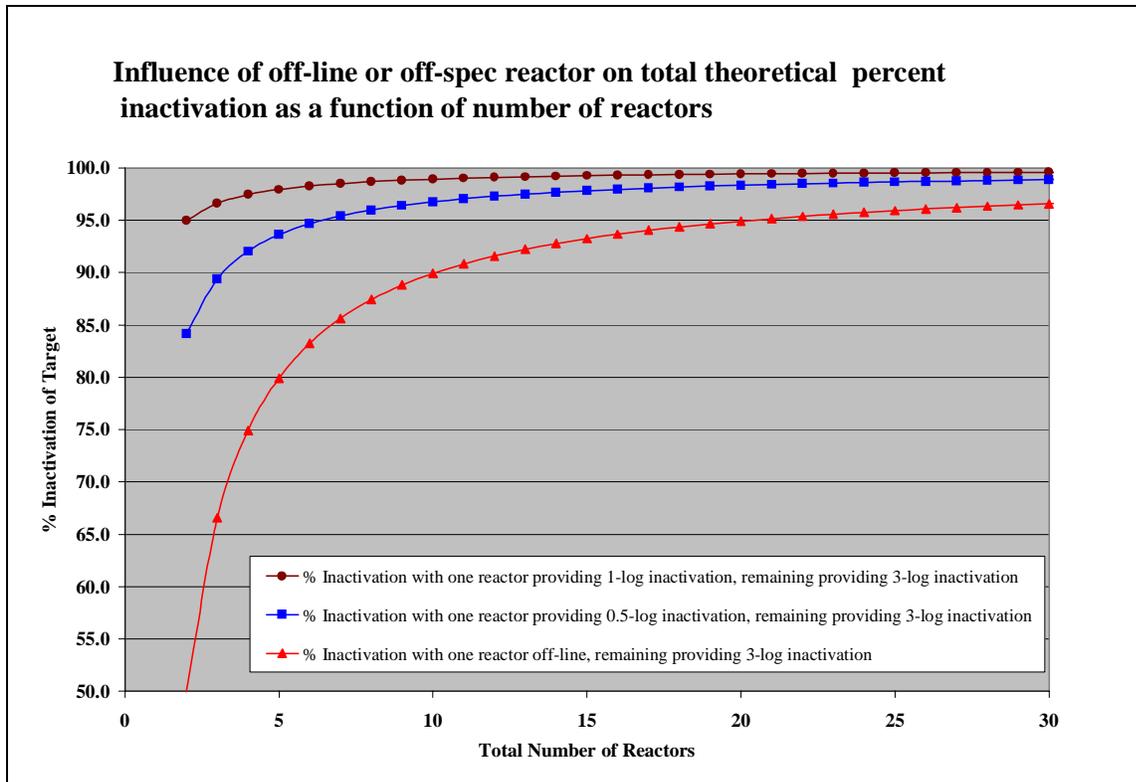
- EPA should seriously evaluate the development of an additional “bin” for unfiltered systems that recognizes superior raw water quality (i.e. <0.1 oocyst/100 L). This may be especially important for GWUDI systems. This bin would require 1-log inactivation of *Cryptosporidium*.

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Subpart (c)(2) requires that unfiltered systems using UV disinfection for inactivation of *Cryptosporidium* must achieve the required log inactivation in at least 95% of the water served each month.

The current proposed LT2 draft requires that at least 95% of the flow, totalized monthly, meet the specified requirements of the UV validation. Water that doesn’t meet identified operating conditions, whether due to a single lamp failure, or complete reactor failure, is counted in this total. We support this approach.

An alternative proposal has been offered for unfiltered system compliance: In that proposal, all reactors in a system must operate within their specified limits at least 95% of the time the system treats water, irrespective of flow or whether the entire system (i.e. all reactors), a single reactor, or a single lamp out causes the out-of-spec performance. We do not agree with this approach. Depending on the number of reactors employed, even if a single reactor is completely out of service, substantial treatment may remain. The following figure illustrates this point.



This chart illustrates, particularly with the number of reactors the vast majority of systems will operate (<10), that there is a tremendous difference in delivered treatment between a reactor that is completely off-line (but passing water) and one that may be out of specification, and the time-based compliance approach is blind to this difference.

It is important to reiterate that the intent of this utility is to operate the system within specification *at all times*. However, it is recognized that minor upsets occur, whether by mechanical failure or operator error, and they are generally contained rapidly.

We continue to believe that the flow based approach as proposed is appropriate, and can be readily monitored by the utility and regulatory agencies. EPA should evaluate options for differentiating off-line reactors from off-spec reactors.

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Subpart (d) reads:

“(d) Unfiltered systems must meet the combined *Cryptosporidium*, *Giardia lamblia*, and virus inactivation requirements of this section and § 141.72(a) using a minimum of two disinfectants, and each disinfectant must separately achieve the total inactivation required for either *Cryptosporidium*, *Giardia lamblia*, or viruses.”

This language should be clarified. The preamble cites an example of using UV disinfection for 2-log *Cryptosporidium* & 2-log *Giardia* inactivation, and chlorine for 4-log virus and 1-log *Giardia* inactivation, however interpretation of rule language may not lead to the same conclusion, with a

possible interpretation that splitting the inactivation of *Giardia* between UV and chlorine is not acceptable. As well, if a utility used three disinfectants (ozone, UV and chlorine, for example), it appears that the language as written would require each of the three to independently, or “separately achieve the total inactivation required for either *Cryptosporidium*, *Giardia lamblia*, or viruses.” (i.e. all *Cryptosporidium* inactivation with UV, all *Giardia* inactivation with ozone, and all virus inactivation with chlorine.)