UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

MAR – 9 2010

OFFICE OF
WATER AND WATERSHEDS

Ms. Yone Akagi
Regulatory Compliance Manager
Portland Water Bureau
1900 North Interstate Avenue
Portland, Oregon 97227

Re: Portland Water Bureau Sampling and Study Plan Comments

Dear Ms. Akagi:

The purpose of this letter is to transmit EPA's final comments on the Portland Water Bureau Sampling and Study Plan submitted to EPA in support of a variance from the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) on November 12, 2009. At the time of the submittal of the study plan, Portland Water Bureau (PWB) requested a "timely review and comment" in order to start sampling during December 2009 so that PWB could have at least a "year's worth of raw water sampling data and supplemental information". In order to support PWB's request, the Environmental Protection Agency (EPA) provided preliminary comments to PWB on December 9, 2009 for discussion on that day. The majority of the comments pertained to the sampling methods, volume of water to be sampled and ongoing monitoring. It is EPA's understanding that PWB commenced sampling on December 14, 2009.

I am aware that there has been substantial discussion regarding EPA's specific recommendations for "hot spot" sampling which were initially raised by EPA in a phone call on January 14, 2010. PWB provided a formal response to EPA's hot spot sampling comment in correspondence dated February 16, 2010. In your February 16, 2010 memo you stated that you disagreed with EPA's recommendation to sample at potential hot spots weekly at the major tributaries. EPA has taken the input you provided into consideration and in separate correspondence dated March 3, 2010, we have provided a detailed explanation as to why we recommend that PWB sample more frequently at the hot spots beginning in March.

Our final comments, enclosed, include the final recommendations for the "hot spot" sampling for the Bull Run watershed. If you have any questions, please call me at 206-553-1893.

Sincerely,

Marie Jennings, Manager
Drinking Water Unit

Enclosure

cc: Mr. David Shaff, PWB
Mr. David Leland, DHS
Ms. Kari Salis, DHS

EPA Review of Portland Water Bureau submission on 11/12/2009: Recommendations for Sampling Plan and Study in Support of a Variance Application to the Treatment Requirements of the Long Term 2 Enhanced Surface Water Treatment Rule and Necessary Variance Conditions

To meet the statutory requirements under SDWA Section 1415(a)(1)(B), as interpreted in the LT2 preamble, EPA recommends that the study plan address the following eight items. Items one through eight are the minimum elements for evaluating a variance application. Item nine discusses the minimum monitoring that would be required by EPA to maintain a variance, if it were granted. Additional monitoring may be required and would be specified as a condition of the variance.

1. In order to demonstrate that Portland Water Bureau's (PWB) surface water supply has "a raw water *Cryptosporidium* level 3-log lower than the Bin 1 cutoff for filtered PWSs (i.e., below 0.075 oocysts/1,000 L)" [Text in quotes is from FR Vol. 71, No.3, Section IV., M., 1., page 729], the PWB sampling plan would need to assay 10,250 liters of intake water and count zero oocysts in all samples. Should one or more oocysts be counted, the variance criteria would not be met, and PWB would need to provide at least 2 log *Cryptosporidium* inactivation regardless of: (a) the genotype of detected oocysts, (b) model results predicting *Cryptosporidium* prevalence, or (c) finding zero oocysts in volumes analyzed in additional samples (beyond the planned volume of approximately 10,250 liters).

2. The study plan should include a sampling schedule that specifies the calendar date when the system will collect each sample. PWB should sample within 2 days before, or 2 days after, the dates indicated (i.e., within a five-day period around the schedule date) unless one of the conditions described in 40 CFR 141.702 (b) apply. Please revise section 5.1.4.2 Sampling Duration and Frequency accordingly. Choosing not to sample under certain conditions, such as when the system is not supplying drinking water, should not be an exception.

3. The quality control acceptance criteria for Method 1623 Cryptosporidium monitoring are found on page 59, Table 3 of the Method. These acceptance criteria, which must be met for all of the Options described on page 35, specify a mean recovery of 13% to 111%. The mean recovery is calculated as a running average. Therefore the first matrix spike sample cannot be either below 13% or above 111% and the running average, which is the average that includes each subsequent matrix spike sample must remain 13% to 111%. Matrix spike recoveries that meet these requirements would be considered reasonable. Cryptosporidium recovery from matrices can be extremely variable, therefore the method does not stipulate an RPD for subsequent matrix spikes done on a different day.

The study plan should describe a minimum recovery of at least 13% for the first matrix spike sample and a running average of at least 13% for all matrix spike samples thereafter. Specify that sample analysis will cease, adjustment and/or recalibration of the analytical system shall be performed, and matrix spike(s) will be repeated until an

average of at least 13% is regained. Please add this description to section 5.1.4.3 Quality Control and Assurance.

4. The study plan should state that recovery of at least 22% of the oocysts spiked into reagent water will be achieved each week before analyzing samples, per the February 25, 2009 Federal Register Notice, "Agency Information Collection Activities; Proposed Collection; Comment Request; Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* Under the Safe Drinking Water Act (Renewal); EPA ICR No. 2067.04, OMB Control No. 2040–0246." Please add the statement to section 5.1.5 Laboratory Procedures and Data Quality.

5. The study plan should include Method 1623 recommendations for assessing the precision of matrix spikes and developing a statement of accuracy. The plan should state that PWB will submit ongoing control charts and cumulative statements of laboratory accuracy every month, for both reagent water and raw surface water. The lab will calculate the mean percent recovery (R) and the standard deviation of percent recovery (sr). Express the accuracy as a recovery interval from R – 2 sr to R + 2 sr. For example, if R = 95% and sr = 25%, the accuracy is 45% to 145%. Please include these provisions in section 5.1.5 Laboratory Procedures and Data Quality.

6. The study plan should include the laboratory's specific standard operating procedures to document that there are no modifications to Method 1623 except: 1) addition of Tween 20; and 2) omission of methanol fixation. Specify that a Tier 1 protocol for reducing the volume of IMS reagents by half will not be used. Detail the standard operating procedures for "ASI standard procedure" and "project-specific protocol" referenced in section 5.1.5 Laboratory Procedures and Data Quality. Laboratory standard operating procedures should be added as an appendix in the study plan. If PWB proposes a modification to the method, PWB should submit a study plan with sufficient statistical power to demonstrate that mean recovery hasn't dropped by more than 5% when compared with Method 1623 as written.

7. The study plan should specify corrective actions for: a) invalidated samples; b) nonconformance to the study plan; and c) "problematic situations". At a minimum describe provisions for: 1) immediate sample replacements; and 2) explaining any delay(s). Sections 5.1.5 Laboratory Procedures and Data Quality and 5.1.7 Problematic Samples should be expanded to include the specific corrective actions.

8. The study plan should include "hot spot" sampling for *Cryptosporidium* and *Giardia* to help assess the overall quality of the raw water source and to capture seasonal water quality changes. EPA Region 10 is working with EPA Headquarters to accomplish an analysis of the existing data. This analysis may additionally inform our recommendations regarding hot spot sampling. Although PWB could elect to wait for the EPA analysis before beginning additional hot spot sampling, EPA recommends sampling starting as early in March as is feasible, as follows: 1a) collect one sample per week at sites 1-4 on a predetermined schedule; 1b) if a storm event

occurs later in the week samples at sites 1-4 must be collected again; 2) during high intake turbidity events, collect samples at the deepest parts of the reservoirs (Sites 6 & 7); and 3) after first flush conditions during the end of summer drawdown, collect samples at the drawdown grazing areas (Sites 8 & 9). All available ambient monitoring data (mean daily stream flows at Sites 1-4, daily turbidity at the intake, and daily total precipitation at the headworks) should be included at the end of the study.

Minimum monitoring requirements to maintain a variance: As provided for under SDWA Section 1415(a)(1)(B), a variance granted under this authority may include additional necessary conditions prescribed by EPA. Should a variance be granted by the primacy agency, it must include the following conditions for ongoing monitoring;

(a) An ongoing monitoring plan that includes collection of a 50L sample, or five 10L samples, each week and analysis for *Cryptosporidium* using Method 1623. The variance must specify that data collected under ongoing monitoring must be combined with the data from the initial monitoring period, so they may be summarized as total oocysts counted and total volume assayed.

(b) If at any time during ongoing monitoring, the ratio of total oocysts counted to total volume assayed exceeds 0.000075 oocysts/L, the variance must provide that the monitoring frequency is increased to that of the initial monitoring (four 50-L volumes assayed per week).

(c) This increased monitoring frequency must be maintained until either (1) the ratio of total oocysts counted to total volume assayed falls below 0.000075 or (2) an additional oocyst is detected. In case (1), the monitoring frequency may be reduced to weekly. The variance must provide that in case (2), the variance terminates.