

**Agency response to comments on
Oregon Health Authority, Public Health Division's
Notice of Intent to Grant
Portland Water Bureau's Request for Variance
March 14, 2012**

Introduction and Background

A provision of a 2006 Environmental Protection Agency (EPA) rule, which the Oregon Health Authority (OHA), Public Health Division has authority to enforce, requires that all unfiltered surface water systems install treatment to inactivate or remove *Cryptosporidium* at the source. Portland Water Bureau (PWB) does not filter its Bull Run surface water source, and is therefore subject to the *Cryptosporidium* treatment provision. *Cryptosporidium* is a microscopic parasite that can infect humans and animals.

The federal Safe Drinking Water Act allows a state to grant a variance from a specified treatment technique if the state is satisfied that treatment is not necessary to protect human health because of the nature of the raw water source.

OHA's Public Health Division received a request on June 6, 2011 from the Portland Water Bureau for a variance for the Bull Run water source from treatment requirements for *Cryptosporidium*. Portland's Bull Run water source must be in compliance with these EPA rules by April 1, 2014, or have a variance in place by April 1, 2012.

On November 29, 2010, OHA's Public Health Division announced its intent to grant a variance to the City of Portland's Water Bureau from the requirement to treat the Bull Run water source for *Cryptosporidium*. OHA also proposed conditions that the Portland Water Bureau would need to follow to keep the variance so that appropriate safeguards continue to protect the watershed and water quality. The Notice of Intent to Grant Variance can be found at:
<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Documents/NOI-Final-11-29-11.pdf>.

OHA conducted a public hearing to receive comments on the intent to grant the Portland Water Bureau's variance request. The hearing was held December 14, 2011, at the Portland State Office Building. An open comment period continued until 5:00 PM on January 3, 2012. The Hearings Officer Report includes oral and written comments received during the first comment period, and can be found at:
<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Documents/VarianceComments-Public.pdf>.

In January 2012, PWB reported to OHA that laboratory results from samples taken in December 2011 from the Bull Run drinking water intake and samples taken in December 2011 and January 2012 from the Bull Run watershed showed evidence of *Cryptosporidium*. OHA reopened the comment period from January 25, 2012 until 5:00 PM February 8, 2012 to provide an opportunity for public comment on the significance, if any, of these new findings. Written comments received during the second comment period can be found at:

<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Documents/VarianceComments-Public2.pdf>.

OHA appreciates and carefully considered all the comments received at the public hearing and during both public comment periods prior to issuing the Final Order granting the variance on March 14, 2012. The Final Order can be found at:

<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Documents/VarianceFinalOrder.pdf>.

This document provides the Agency response to the comments received, organized by comment period and major subject area.

First Comment Period

OHA received comments in the following major subject areas: 1) the federal rule itself, 2) analytical methods, 3) water intake monitoring, 4) watershed protection and monitoring, 5) public notification of *Cryptosporidium* detections, 6) variance duration, 7) criteria for revoking variance, and 8) corrections to the NOI document. A general description of the comments and the Agency responses are presented below.

The Federal Rule

Comments

Many commenters stated that the federal Long-term 2 Enhanced Surface Water Treatment Rule (LT2) is inadequate to identify the actual risk to health presented by a drinking water source, because the rule focuses only on determining the presence of *Cryptosporidium* organisms without provision for determining whether those organisms are viable or are species that are infective to humans. Commenters stated that, as a result, the rule could cause construction of water treatment facilities at significant cost without improving public health protection. Several commenters stated that OHA should consider the economic impact in making its decision on the variance application.

Response

OHA must base any variance on the current LT2 rule. Under its Primacy agreement with EPA, OHA must adopt rules no less stringent than federal rules, and must issue variances under conditions and in a manner no less stringent than the federal Act and rules. The LT2 treatment variance issued by OHA addresses the LT2 rule in its current form.

EPA recently began a review of the LT2 rule, in response to both the 6-year regulatory review requirement in the Safe Drinking Water Act, and a recent Presidential Executive Order on regulatory reform issued to all federal agencies. That national process is underway, and EPA is holding stakeholder meetings to discuss and identify areas of the LT2 rule for possible revision.

A cost-benefit analysis was performed during the development of the federal LT2 rule. In 2006, PWB challenged this rule and the court upheld all provisions in the rule. According to the Safe Drinking Water Act, in consideration of whether a water system should be granted a variance

from a treatment technique requirement, the primacy agency shall consider the quality of the source water, and source protection measures in place. Cost of treatment is not to be a consideration.

OHA included language in the variance Final Order that the variance may be amended if the LT2 rule is modified by EPA during the term of the variance.

Analytical Methods

Comments

Many comments noted the limitations of the current EPA-approved analytical method for *Cryptosporidium* in drinking water, Method 1623. In particular, commenters noted that this method does not distinguish between organisms that are infectious and those that are not. They asserted that Method 1623 results should not be used alone to make decisions about granting or continuing the variance, and stated that OHA should require additional available methods be used to determine infectivity and species of any detected organisms. Other commenters stated that OHA should consider only *Cryptosporidium* detections that have been confirmed by a second EPA-approved lab.

Response

The current federal rule does not distinguish between different species of *Cryptosporidium*, or infectivity. Thus, because OHA's oversight must be at least as stringent as EPA to meet Primacy requirements, OHA cannot make such a distinction either. Even if OHA were allowed to sweep less broadly than a federal requirement, there is no EPA-approved methodology to do so.

Method 1623 is currently the only EPA-approved method to test for *Cryptosporidium* in water. Other analytic methods, cited by some commenters, are in use by some researchers and labs. However, there is no standardized methodology or any EPA laboratory certification process for these other methods. The potential of other methods and improvements to the current 1623 method are among the issues being discussed in the LT2 national stakeholder meetings.

If a *Cryptosporidium* oocyst is identified using Method 1623, it counts as a detection. Confirmation by a second lab is impractical due to technical reasons involving the laboratory method's detection process. Corroboration, or getting a second visual opinion, is possible, but not necessary to count as a detection using Method 1623.

OHA included language in the variance Final Order that PWB must use the EPA-approved lab method that applies at the time the sample is collected. Also, PWB is encouraged to make use of any modifications available.

Comments

Other commenters suggested that OHA allow use of either 10 or 50 liter sample volumes, and require matrix spike sampling each month to assure quality and sensitivity of analytical results.

Response

Regarding sample volume, OHA included only a total volume to be collected each week, so that either a 10L or 50L sample volume may be used, as appropriate. OHA included a requirement to perform a matrix spike monthly in the variance Final Order.

Water monitoring at the intake

Comments

Some commenters stated that the frequency of *Cryptosporidium* monitoring at the intake OHA proposed to require in the NOI was excessive. Other commenters stated that the specified monitoring was arithmetically insufficient to demonstrate the EPA-specified average organism concentration of less than 0.075 oocyst per 1,000 liters. These other commenters noted that the minimum total sample volume to demonstrate EPA's average concentration for a year of sampling would require 13,333 liters, not the lesser amount stated in the NOI. In addition, one commenter stated that intake monitoring should only be required when Bull Run is in use. Another commenter suggested that PWB be required to conduct additional monitoring during storm events.

Response

OHA's rationale for observation monitoring at the intake is to require at least 100 liters of samples each week to provide ongoing screening for *Cryptosporidium*, recognizing that PWB demonstrated it met the EPA-specified concentration during the original monitoring for the variance request. Should *Cryptosporidium* be detected at any time during the observation monitoring, then a sufficient volume of water (a minimum of 13,334 liters) must be sampled to demonstrate that the EPA-specified concentration was met over the subsequent year. If any detections for *Cryptosporidium* are found during this time, the sample volume must be increased such that the average concentration over one year is less than 0.075 oocysts per 1000 liters.

PWB is allowed to use the Bull Run watershed as a water supply anytime the turbidity at the intake is less than 5 NTU, or 5.5 NTU expressed as two significant figures. Thus, PWB must sample the water at the intake whenever the water is within the regulatory limit, regardless of whether the water is being served to customers at the time.

While there is no alternate turbidity threshold above which *Cryptosporidium* presence is likely, it is recognized that generally as turbidity increases, the risk of *Cryptosporidium* presence increases. Therefore, OHA is requiring PWB to sample 50 liters of water any day the turbidity at the intake is greater than 2.0 NTU. This correlates to the requirement in the sampling plan approved by EPA to support PWB's variance request.

OHA included language in the variance Final Order specifying that, following any *Cryptosporidium* detection during observation monitoring, demonstration monitoring is required. Demonstration monitoring consists of at least 13,334 liters of samples during one year, beginning the week after the City is informed of the detection by the laboratory. OHA included language that intake monitoring as specified is to occur when the turbidity at the intake is less than 5.5 NTU, regardless of whether or not the water is being delivered to

customers. Additionally, a sample must be taken each day the turbidity is greater than 2.0 NTU.

Watershed protection and monitoring

Comments

OHA received comments addressing watershed legal protections, setbacks of sewage sources from watershed surface water, and watershed inspection, monitoring and reporting. Clarification was requested about the proposed requirement that current legal protections for the watershed remain in place, and the meaning of lands “adjacent” to the watershed. One commenter requested that setbacks for portable toilets from surface waters be clarified, and that the setback only apply when a continuous surface water connection exists. One commenter asserted that empirical studies of wildlife populations were needed. Two asked for more inspection, monitoring, and reporting on the condition of the watershed. One commenter suggested that the variance require PWB to notify OHA only of those changes in watershed conditions impacting the variance of which the city is aware.

Finally, several commenters asserted that construction and operation of a UV light treatment facility would have harmful effects on the watershed due to construction activities, and to the drinking water should a UV lamp failure occur and release mercury into the drinking water.

Response

OHA continues to require the City to maintain awareness of changes in the watershed that could impact the variance, even in those areas not owned by the City. This is appropriate because the legal basis for this variance is the nature of the raw water source, so it is essential to continuously monitor and protect conditions, management and uses of the land directly impacting the nature of the raw source water. Should federal land managers propose changes that could negatively impact the quality of the Bull Run, OHA expects the City to respond as quickly and effectively as possible.

When considering setbacks of sewage to water bodies, OHA is concerned with water bodies such as streams, lakes, or reservoirs. Water from Bull Run lake goes underground before surfacing again downstream. However, hydraulic connections between groundwater and surface water are common, and no study has been done in this area proving otherwise. Therefore OHA is requiring a 200 foot setback from all streams, lakes, or reservoirs, though secondary containment can be provided if this setback cannot be met.

Regarding potential for harmful effects from construction or operation of treatment facilities, OHA notes that any treatment facility is subject to plan review by OHA prior to construction. Thus, should a UV system be installed in the future, review of that planned facility would address issues of construction impact and possible lamp failure.

OHA included language in the Final Order clarifying the maintenance of current legal protections, the meaning of “adjacent lands,” and the setbacks from sewage sources. OHA also clarified requirements for periodic inspection, monitoring and reporting on watershed conditions during both dry and wet seasons.

Public notification of *Cryptosporidium* detections

Comments

Several commenters stated that the variance should require notification of the public whenever any *Cryptosporidium* organisms are detected at the intake. Two commenters suggested that the notification should be coordinated between OHA, Multnomah County, and the City. Several commenters did not support any public notification about detections, asserting that there is no reason for communicating results without a determination of the species of the organisms, or whether they are infective to humans.

Response

OHA included language in the Final Order requiring PWB to notify the public of any *Cryptosporidium* detections at the Bull Run drinking water intake by issuing a press release and posting information on its website. Additionally, OHA requires PWB to post information, including the Final Order, stating that PWB is not treating for *Cryptosporidium* because it is operating under a variance from the LT2 *Cryptosporidium* treatment requirement.

Variance duration

Comments

Commenters supported the proposed 10-year variance period. One commenter suggested that the variance take effect on April 1, 2012, which is the EPA rule compliance date for PWB.

Response

OHA included language in the Final Order making the variance and its conditions effective April 1, 2012. The variance therefore expires March 31, 2022, unless revoked, withdrawn or amended.

Criteria for revoking variance

Comments

As noted above, many comments cited limitations of the current EPA-approved analytical method for *Cryptosporidium* in drinking water, Method 1623. In particular, commenters noted that this method does not distinguish between organisms that are infectious and those that are not. They asserted that Method 1623 results should not be the sole basis of a decision by OHA to revoke the variance, and stated that OHA should first require additional available methods be used to determine infectivity and species of any detected organisms. Several commenters expressed concern that one oocyst, possibly non-human infectious, could trigger increased monitoring, or could cause revocation of the variance. Other commenters stated that the Final Order should provide more specific criteria for revoking the variance.

Response

As noted above, OHA recognizes that EPA is holding stakeholder discussions at the national level on the subject of new and improved analytical methods. Until EPA approves any new or improved methods, and until such methods are available through EPA-approved laboratories, OHA must rely on data from currently approved methods for revocation criteria.

As previously noted, if any *Cryptosporidium* oocysts are found while conducting observation monitoring, demonstration monitoring must be conducted. PWB has one year to conduct a minimum of 13,334 liters of sampling, and the average *Cryptosporidium* concentration (total number of oocysts detected divided by the total volume sampled) must be less than 0.075 oocysts per 1,000 liters. This would demonstrate that PWB's water source is providing equivalent public health protection as filtered water systems, without treatment for *Cryptosporidium*. If PWB is unable to demonstrate this, the variance shall be revoked.

In response to these comments, OHA included more specific revocation criteria in the Final Order.

Corrections to the NOI document

Comments

Several commenters offered specific corrections to errors in the NOI document.

Response

OHA appreciates those corrections and has revised language in the Final Order to address these corrections.

General comments

Comment

Several commenters raised issues around the cover-or-treat requirement for open finished water reservoirs.

Response

That requirement is separate from the treatment variance issue.

Comment

Several commenters suggested that the treatment variance period should be indefinite.

Response

OHA believes that the variance must be revisited periodically to address any changes in watershed conditions, and ten years seems a reasonable duration for this purpose.

Comment

One commenter asked that any decisions about the treatment variance rely on surveillance of actual disease in the community.

Response

OHA notes that the current local community surveillance efforts, while robust compared to many other states, are subject to all the limitations of any surveillance system. More enhanced approaches to community surveillance that would identify more disease cases are theoretically possible but very resource intensive, and would still be unlikely to associate cases to drinking water absent a very large disease outbreak.

Second Comment Period

Comments were received during the second comment period on the subject of the *Cryptosporidium* detections in one sample from the Bull Run drinking water intake and two samples from the watershed that occurred after the first comment period closed.

Comments

Several commenters repeated their earlier submissions stating that OHA should only base variance decisions on analytical determinations of infectivity and species of any detected organisms. Several commenters stated that OHA should add specific language in the Final Order that the variance will be modified accordingly if the EPA LT2 rule is modified during the variance period.

Several commenters stated that the variance should be denied and treatment installed at Bull Run as the LT2 rule requires. One commenter stated that OHA should, in its role as the state public health authority, directly provide the notification to the public of any *Cryptosporidium* detections.

Some commenters stated the condition requiring a certain “running annual average” of *Cryptosporidium* concentration needed clarification to provide more certainty around variance revocation criteria. One commenter urged OHA to adopt EPA’s comments into the Final Order to avoid EPA adding additional variance conditions later on.

Several commenters raised issues around the cover-or-treat requirement for open finished water reservoirs.

Response

OHA agrees that public notification is important. As with other drinking water issues, the public water system supplier is responsible for notifying the public of issues of concern. In its role as state public health authority, OHA will communicate with the public on health risks associated with *Cryptosporidium* as appropriate.

The “cover-or-treat” requirement for finished drinking water reservoirs is separate from the source water treatment variance issue, and is therefore not an appropriate subject for this variance.

OHA revised language in the Final Order to address how any modification of the LT2 rule will affect the variance. Further, OHA modified the variance revocation criteria to rely on *Cryptosporidium* concentration during demonstration monitoring at the intake. OHA has addressed all EPAs comments in the Final Order.

Conclusion

OHA appreciated and thoroughly considered each of the comments received during both comment periods. After careful consideration of all comments from both the first and the second comment period, OHA concludes that the treatment variance, as conditioned in the Final Order, is appropriate.