

LSNReviews

From: John Bradbury
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To: 'LSN Reviews'
Subject: Fwd: Groundwater Protection Standard
Attachments: Part.001

>>> Wesley Patrick <wpatrick@cnwra.swri.edu> 06/08/2004 4:33:58 PM >>>
John and Tim,

I admit to remaining uncertain about all the points of argument that are being posed in the subject discussion. One central concern John has expressed seems clear: whether radionuclides arising from more than one year of release from the repository should be considered in the representative volume (or, implicitly, whether the representative volume would "accumulate" releases into smaller volumes over a number of years). In the meeting this morning, support for this concern was found in the statement that 10 CFR Part 63 includes language that 3000 acre-feet is clearly an annual number when applied to the well-capture-zone method, but that the regulation was not clear about this with regard to the slice-of-the-plume method. I returned to the regulation this afternoon to further examine this important language. Following is what I found.

1. Neither 10 CFR 63.2 or 63.302 provide a definition for representative volume.
2. Fortunately, 10 CFR 63.332(a) provides a clear definition of the term: "The representative volume is the volume of groundwater that would be withdrawn annually from an aquifer...". Furthermore, 63.332(a)(3) makes clear that such volume "contains 3000 acre-feet of water." Therefore, both the quantity and time frame are constrained by the regulation.
3. Knowing the care with which EPA and NRC construct their regulations, the placement of this definition at 63.332(a) leaves no ambiguity that it applies to both the well-capture-zone method described in 63.332(b)(1) and the alternative slice-of-the-plume method described in 63.332(b)(2). Thus, every time we see the words "representative volume," we should understand that it means (i) an annualized quantity and (ii) precisely 3000 acre-feet.
4. With respect to the well-capture-zone method, we should read 63.332(b)(1)(iii) to constrain DOE to select pumping rates and placement of wells to produce 3000 acre-feet per year. Otherwise, they would not be using a "representative volume," as defined in 63.332(a).
5. Likewise, with respect to the alternative slice-of-the-plume method, we should read 63.332(b)(2)(iii) to constrain DOE to assume that the volume of the groundwater contained within the slice of the plume is 3000 acre-feet per year. Otherwise, they would not be using a "representative volume," as defined in 63.332(a).

In summary, DOE is afforded considerable flexibility in applying each method, as delineated in 63.332. The rule, however, does not appear to give any flexibility regarding the quantity of water involved or the time interval over which such quantity is assumed to be withdrawn for purposes of demonstrating compliance with the groundwater protection requirement at 63.331.

Food for thought or grist for the mill. I have limited the distribution, based on the instructions that this topic be taken off line; share with others who may be interested.

Wes.