

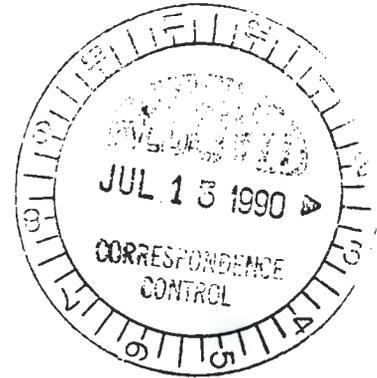


Department of Energy

Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

90-PPB-036

JUL 09 1990



Ms. Barbara Stuart  
Water Quality Program  
State of Washington  
Department of Ecology  
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Dear Ms. Stuart:

REVIEW OF PROPOSED WATER QUALITY STANDARDS FOR GROUNDWATER REGULATION

Enclosed for your consideration are comments from the U.S. Department of Energy, Richland Operations Office regarding the May 16, 1990, proposed groundwater standards. Should you have any questions regarding these comments, please contact Mr. C. E. Clark on (509) 376-9333.

Sincerely,

*R. D. Izatt*  
R. D. Izatt, Director  
Environmental Restoration Division

ERD:CEC

Enclosure:  
Comments on Proposed GroundWater  
Quality (GWQ) Standards

cc w/enc1:  
R. E. Lerch, WHC



## COMMENTS ON PROPOSED GROUND-WATER QUALITY (GWQ) STANDARDS

### Proposed Standards

Many of the proposed standards are below analytical detection limits and at levels that scientifically cannot be validated. For example it was reported in the April 11, 1990, Federal Register (55 FR 13556) for ash samples using high resolution gas chromatography/high resolution mass spectrometry that 3 parts per trillion (ppt) is the lowest detection limit for 2,3,7,8-Tetrachlorodibenzo-p-dioxin. This was identified in a delisting petition that the U.S. Environmental Protection Agency (EPA) has proposed to grant at the Vertac Superfund site near Jacksonville, Arkansas. The criterion proposed by Washington State Department of Ecology (Ecology) for this contaminant is 0.0006 ppt.

Early warning values, set at a fraction of the enforcement levels, which will ideally be set at a fraction of the criteria are scientifically impractical if the criteria are set below analytical detection limits. Notification requirements are similar. Use of scientifically and legally verifiable data is suggested in order to enforce these limitations.

### Numerical Criteria

The numerical criteria have been based on a lifetime upper bound cancer risk level of one in one million (1:1,000,000) to the maximum exposed individual. The stated goal of protection of beneficial uses of groundwater is certainly a reasonable objective. However, this protection is adequately provided by the statement that Ecology has the authority to establish enforcement limits, "based on all known, available, and reasonable methods of prevention, control, and treatment." The addition of criteria based on 1:1,000,000 upper bound lifetime risk is unnecessary. It should be noted that the EPA considers 1:1,000,000 to be essentially a de minimis risk, and the range around 1:10,000 to be an acceptable risk, and a presumptive limit on maximum individual lifetime risk. Thus 1:1,000,000 is a lower limit, not an upper limit.

Although arbitrarily low risk limits may appear to be an attractive method to minimize pollution, when set too low, they can lead to impractical and unreasonable results. Perhaps even defeating the goal of overall risk reduction. In some cases, arbitrarily low limits can lead to requirements that are clearly unreasonable. For example, the upper bound risk for the average level of chloroform in tapwater (United States average) is about 1:10,000. Thus, the regulated community could be in the position of having to clean up tapwater before putting it in groundwater, and even having city water systems out of compliance, if they leak. Both surface and groundwater cross state and national boundaries. Surface water may also enter groundwater. Since the proposed criteria are far below national drinking water standards (by factors as high as 10,000), it is unlikely that such stringent criteria can be enforced, and therefore should not be imposed. The proposed

criteria are unenforceable, therefore unreasonable, and should be replaced by more reasonable criteria. Federal maximum contaminant levels (MCLs) are in place, or proposed, for many constituents, and would serve much better as criteria to protect State groundwater.

#### Point of Compliance

Although Section-060(1) requires that compliance with the enforcement limits be maintained throughout the site, Section-060(3) proposes that Ecology will establish the point of compliance as near the source as is feasible. These two proposals are inconsistent. If Ecology intends to allow alternate points of compliance as conditions warrant, then the requirement for complying throughout the site is not relevant. Elimination of Washington Administrative Code 173-200-060(1), except for the vertical description, would still allow Ecology to determine the point of compliance horizontally on a case-by-case basis.

#### Proposals Used for Setting Criteria

Section-050(5) indicates that Ecology will use proposed State and Federal maximums and health advisories to establish limits for non-anthropogenic contaminants where criteria have not yet been established. Proposed State and Federal maximums are subject to change prior to finalization, and many health advisories have gone by the wayside. Surface water regulations do not allow downgrading of limits (backsliding), even after scientific data has been established to the contrary. If the groundwater is to be regulated similarly, it is suggested that only finalized maximums and validated health advisories be used to establish criteria in order to avoid irreversible restrictions.

#### Contaminant Criteria (Table 1)

Radionuclide contaminants are listed as gross alpha and beta particle activity. A breakdown of individual radionuclides would be more helpful than just gross limits. Please refer to International Commission on Radiological Protection (ICRP) 26 and 30, as amended by 48, for dose per unit of radioactivity ingested. The concentrations listed in DOE Order 5400.5, "Radiation Protection of the Public and the Environment," which are based on a dose of 100 mrem/yr, can be divided by 25 to get the 4 mrem/yr based numbers. USEPA proposed a similar list of concentrations on 9/30/86 at 51 FR 34836 - 34862, however, this list does not contain the revisions included in ICRP 48.

#### Summary

In view of the significant problems associated with the proposed standards, it is recommended that a revised proposal be prepared by the Department and an additional opportunity for comment be provided.

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