Comments on Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Five-Year Review Report for the Hanford Site

Submitted by the Hanford Task Force of
Washington Physicians for Social Responsibility
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We appreciate the opportunity to submit comments on the CERCLA Five-Year Review Report for the Hanford Site. As an overall comment, we strongly endorse the Hanford Advisory Board Consensus Advice No. 190, adopted June 2, 2006. On the one hand, it recognizes the time and effort Department of Energy (DOE) staff spent preparing the draft report; but on the other hand concludes that DOE's review missed critical parts of the intent of a five-year review. A key observation within the advice is that the five-year review would be more useful if it assessed the ongoing protectiveness of remedies ***beyond the institutional control period*** (emphasis in Advice 190). To amplify on that, we commend DOE for its candid assessment of the technical difficulties of remediating groundwater contaminated with radionuclides. DOE notes that remedial action objectives are not being met for groundwater contaminated with Uranium in the 300 Area, and for groundwater contaminated with Strontium 90 in the 100 Area. The draft review reports that alternative remedies have been tested for the Sr-90 contamination, and we understand that one such alternative method was selected and has recently been applied in the 100 N Area.

In addition, the remedy for groundwater contaminated with Uranium in the 300 Area is "monitored natural attenuation." This term seemed puzzling at first glance, since half-lives of uranium isotopes can be hundreds of millions of years or longer. However, as described in the five-year review [p. 3.13], the remedy assumed that uranium levels in groundwater will be reduced as the groundwater flows into the Columbia River. Even so, the review reports that this remedy has not met remedial action goals because Ur contamination in the vadose zone has served as a resupply source by migrating into groundwater.

Furthermore, in the 200 UP-1 Area, the review notes that remedial action goals are being met, but also states that those goals are not risk-based [p. 2.32]. The goals for Ur and Technetium-99 (210,000 yr half-life), represent levels 10-fold higher than levels that would be considered acceptable.

The five-year review only describes a few instances at Hanford where pilot projects for groundwater remediation have been initiated. The review further notes that for some nuclides, such as Tritium and Iodine-129 (15 million yr half-life), no viable groundwater remediation technology exists [p. 2.35].

In previous consensus advice, the HAB concluded that groundwater should be cleaned up to its highest beneficial use (Advice No. 145, April 4, 2003). But with acknowledged limits in both radioactive and nonradioactive remediation technologies, and the very long half-lives of some contaminants, this goal seems unlikely to be attained. One must ask

how cleanup at Hanford will ever be considered complete, as long as groundwater remains contaminated.

As the HAB notes in Advice No. 190, DOE concludes that current remedies are protective because institutional controls prevent Hanford groundwater uses. But DOE has traditionally assumed that institutional controls fail after 100 years, with the consequence that greater responsibility falls on "engineered" controls to contain contamination for periods far longer. Thus groundwater remediation must ultimately rely on the development of adequate technologies for radioinuclides.

Lastly, we recognize that the five-year review was dedicated to CERCLA remediation, and remediation of the tank wastes falls outside this category. Nonetheless, the contamination in the tanks represents an enormous "source term" of potential contamination to the vadose zone and ultimately to groundwater. The adage of "an ounce of prevention" is highly applicable to the tank wastes: Groundwater contamination could be prevented by immobilizing the tank wastes through vitrification. To be effective, any program for Groundwater/Vadose Zone Integration must incorporate tank waste immobilization to prevent groundwater contamination.

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