

Department of the Army
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From: Elizabeth Ullrich
To: Markland, Richard (Civ,ARL/ADLO)
Date: Thu, Mar 20, 2008 8:46 AM
Subject: followup questions for Range 14

Richard,

I have one issue to followup from your 2/20 response, and 2 issues raised by our headquarters reviewer. Please let me know if you can respond to these on the basis of this email, or if you need a hard copy letter.

Betsy

1. Your response to Item 14 of our letter, regarding Solid Radioactive Waste, is acceptable. However, please confirm that you expect only to have surface contamination, and not "volumetric" contamination of materials and equipment. My confusion came from the sometimes-use of the term "solid contamination" to refer to volumetrically-contaminated items.

2. You proposed to use the DCGL of 230 pCi/g that was originally developed for use at the Transonic Range for the R-14 Range. Additional information is needed regarding the applicability of the conceptual model used for the Transonic Range to the R-14 Range, such as the physical features important to modeling the transport pathways and the source term, including the configuration and areal variability of the source. In addition, in Appendix C, "Determination of DCGL for R-14 Range Soils", it is stated that the composition of the DU in the R-14 Range consists of U-234, U-235, and U-238 activity fractions of 0.084, 0.012, and 0.904, respectively. However, Appendix C also states that the DCGL for the Transonic Range was generated based on a source term with U-234, U-235, and U-238 activity fractions of 0.190, 0.021, and 0.790. Additional information is needed regarding the applicability of the DCGL from the Transonic Range to the R-14 Range given the different ratio of radionuclides present in the source term.

3. Table 5 in the document "Determination of the Derived Concentration Guideline Level for R-14 Range Soils" showed the results of individual uranium isotope and the depleted uranium (DU) DCGLs. However, the calculation method used to determine the final DU DCGL for the R-14 Range differs from the methodology used to calculate the DU DCGL for the Transonic Range (ANL, 1999).

While the dose limit and the total dose/source concentration ratios for uranium at the depleted uranium study area of the Transonic Range were used to calculate the DU DCGL for the Transonic Range, the DU DCGL for the R-14 Range in Table 5 was calculated by simply multiplying the respective activity fractions of each of the uranium isotopes in DU with the DCGL calculated for that individual uranium isotope and adding the products. Since you are seeking to use the approved Transonic DCGL at the R-14 Range site, the same methodology should be used for the R-14 Range calculations as were used for the DU DCGL calculations for the Transonic Range. These calculations should

be provided for review. (Reference: ANL, 1999. Derived Uranium Guidelines for the Depleted Uranium Study Area of the Transonic Range, Aberdeen Proving Ground, Maryland. M. Picel and S. Kamboj, Argonne National Laboratory, Argonne, IL. April 1999.)

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