

**Table 2.9-20: Effective Dose Conversion Factors Used in and Results for Equation 2.5**

Radionuclide	DCF (mrem/ $\mu$ Ci)	Concentration ( $\mu$ Ci/kg)
Natural uranium*	283	$1.3 \times 10^{-3}$
Thorium-230	548	$6.8 \times 10^{-4}$
Radium-226	1,325	$2.8 \times 10^{-4}$
Lead-210	5,365	$6.9 \times 10^{-5}$
Polonium-210	1,902	$1.9 \times 10^{-4}$

\* DCF for Uranium-234 was used since it is the most restrictive of the three uranium isotopes in natural uranium

Based on the justification above, LLDs for beef or pork tissue should be below the concentrations presented in Table 2.9-20. A comparison of the baseline monitoring program results in Table 2.9-19 indicates that all but one LLD for beef tissue (Pb-210 in DBAT-02) was well below the concentration values in Table 2.9-20. Powertech (USA) has submitted an additional beef sample for laboratory analysis and commits to sampling a third locally grazed cow prior to ISR operations. The goal will be to meet the LLDs contained in Regulatory Guide 4.14, but in no case will reported LLDs be greater than values contained in Table 2.9-20.

The meat LLDs in Table 2.9-19 and Appendix 2.9-A, Table 10-1 are substantially different from each other because of differences in matrix interference, sample size, and low radionuclide concentrations within the sample matrix. The potential for this result is acknowledged in NUREG/CR-4007, which states that “the critical (decision) level and detection limit (LLD) really do vary with the nature of the sample” and that “proper assessment of these quantities demands relevant information on each sample, unless the variations among samples are quite trivial” (NRC, 1984).

Powertech (USA) original assessment of land use for food sources did not identify any vegetable gardens within 3.3 km of the project area. Powertech (USA) has since determined that vegetable gardens are present in the town of Dewey and at one location within the project area as shown on Figure 2.9-15. Due to the large sample size (> 10 lbs) typically required to satisfy RG 4.14 suggested LLDs for vegetation and the relatively small size of the vegetable gardens, Powertech (USA) is implementing the following alternate approach to sampling vegetables from local gardens.

Prior to operations, Powertech (USA) will sample vegetable garden soil rather than the vegetables themselves and then apply plant-to-soil concentration factors to estimate the radionuclide concentrations in vegetables. Methods and parameters contained in NUREG/CR-5512 (NRC, 1992a) will be used to estimate radionuclide concentrations in root and leafy vegetables