

Ra-224 IN DRINKING WATER: METHODOLOGIES, STANDARDS AND IMPLICATIONS

It has been recently discovered that Ra-224 significantly contributes to the level of gross alpha-particle activity in drinking water of certain regions in the United States. Because of the rapid decay of Ra-224 ($T_2 = 3.66$ days), the gross alpha-particle activity varies with the interval between sample collection and analysis. This finding has a direct impact on the present Safe Drinking Water Act regulations. Since these regulations do not specify any holding time for the gross alpha-particle determinations, the US EPA maximum contaminant level (MCL) for gross alpha-particle activity may be exceeded in some community water-supply wells, depending on the time of analysis relative to sample collection. This will also imply that alpha radioactivity in drinking water of these water-supply systems is greater than the values that previously had been estimated. Consequently, in certain areas, human exposure to radiation from water consumption is higher than what has been anticipated.

In this workshop, initially, confirmation of this phenomenon is presented, and then discussions will be taken up on the following topics:

- Methods for Ra-224 determination.

Speaker: David McCurdy
Duke Engineering

- Standards for Ra-224 in drinking water.

Speaker: Steve Pia
USEPA, NERL

- Geochemical factors affecting Ra-224 concentration in water.

Speaker: Zoltan Szabo
US Geological Survey

- USGS/USEPA collaborative project to study the occurrence of Ra-224 in US.

Speaker: David Kappelman
USEPA, NAREL

- Health impacts of Ra-224 consumption from drinking water.

Speaker: Neal Nelson
USEPA Office of Radiation and Indoor Air Radiation
Protection Division