

TALKING POINTS

SOURCES OF ENVIRONMENTAL STRONTIUM-90 (Sr-90):

- Atmospheric Nuclear Weapons Tests. Approximately 622 petabecquerels (PBq) (16.8 million curies) of Sr-90 were produced and globally dispersed during atmospheric nuclear testing. The worldwide average effective dose from ingesting Sr-90 (1945 to date) is 97 microsieverts (μSv) [9.7 millirem(mrem)]. The worldwide average effective dose from inhaling Sr-90 (1945 to 1985) is 9.2 μSv (0.92 mrem). No statistically significant excess of biological effects caused by Sr-90 exposures at levels characteristic of worldwide fallout has been demonstrated (NCRP Report No. 110).
- Chernobyl Accident. Approximately 8 PBq (216,000 curies) of Sr-90 were released during the April 1986 Chernobyl accident. Apart from childhood thyroid cancer, no increase in overall cancer incidence or mortality has been observed that can be attributed to ionizing radiation (UNSCEAR 2000).
- Nuclear Power Plants. On average, the total annual release of Sr-90 into the atmosphere from all U.S. nuclear power plants is typically 37 megabecquerels (1/1000th curie). The annual average effective dose to individuals living within 50 km (31 miles) of a nuclear power plant from all released radionuclides is 5 μSv (0.5 mrem) for pressurized-water reactors and 10 μSv (1 mrem) for boiling-water reactors (UNSCEAR 2000).

POTENTIAL HEALTH EFFECTS FROM RADIONUCLIDES IN THE ENVIRONMENT:

- A 1990 National Institutes of Health survey of cancer rates near nuclear power reactors in the United States concluded that there is no evidence of any cause-effect relationship between particular facilities and cancer occurrence in nearby populations.
- The Agency for Toxic Substances and Disease Registry tested water from residential wells located near Brookhaven National Laboratory (BNL) and concluded that U.S. Environmental Protection Agency drinking water standards were not exceeded for any radionuclide, and residents are not being exposed to contaminant levels that would cause adverse health effects.
- An epidemiology study commissioned by the Suffolk County (NY) Legislature found that cancer rates for all types of cancers, including childhood cancers, were not elevated near BNL.

Sr-90 Deposition in Deciduous Teeth

- Fetal uptake of strontium varies with age. The placenta blocks uptake until 5 months post-conception. During the 9th month, post-conception, the fetal skeleton accumulates the same amount of strontium as during all the previous months of pregnancy.
- Deposition of Sr-90 into deciduous (baby) teeth does not begin before 22 weeks post-conception and continues through the life of the tooth, typically 7 to 12 years. Most deposition occurs before the 70th week post conception (ICRP Report No. 23).

OTHER FACTORS AFFECTING EARLY CHILDHOOD HEALTH:

- The Agency for Health Care Policy and Research reports that about half of the cases of early childhood asthma, chronic bronchitis, and wheezing are caused by exposure to second-hand cigarette smoke.
- In 1991, the Journal of the American Medical Association reported that Fetal Alcohol Syndrome (FAS) is the leading known cause of mental retardation. FAS is a series of mental and physical birth defects that can include mental retardation, growth deficiencies, central nervous system dysfunction, craniofacial abnormalities, and behavioral maladjustments. At least 5,000 infants, or approximately one out of every 750 live births, are born each year with FAS.
- Almost half of all children will have at least one middle-ear infection during their first year. By age three, two-thirds of all children will have had a middle-ear infection. Bacteria entering the middle ear from the nose or throat are the major culprits (Children's Medical Center of Dallas).