Tritium at Nuclear Power Plants in the United States

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Discussion Topics

- Background
- Regulatory Requirements
- Tritium Releases
- NRC Actions

Background

- Indian Point spent fuel pool leak resulted in tritium and other radionuclides in the groundwater.
- Braidwood
  - 6.25 million gallons of tritiated water, 250,000 pCi/L
  - 1 offsite drinking well with 1,600 pCi/L.
- Congressional reaction – new laws on reporting spills.
- Public outrage and news coverage

Regulatory Requirements

- Public dose limit – 100 mrem/yr.
- ALARA design objective – 3 mrem/yr from liquid releases.
- EPA drinking water standard – 4 mrem/year. For tritium, 20,000 pCi/L.
- Radioactive Effluent Controls Program
- Radiological Environmental Monitoring Program

Tritium Releases at PWRs

- 2003 Data – 56 Units reported
  - Total: 40,600 Curies
  - Average: 725 Curies
  - Minimum: .1 Curies
  - Maximum: 2,080 Curies

Tritium Releases at BWRs

- 2003 Data – 24 Units reported
  - Total: 665 Curies
  - Average: 27.7 Curies
  - Minimum: 0 Curies
  - Maximum: 174 Curies
- 2004 Data – 24 Units reported
  - Total: 514 Curies
  - Average: 21.4 Curies
  - Minimum: 0 Curie
  - Maximum: 107 Curies

NRC Actions

- Lessons Learned Task Force Report issued; recommendations are being implemented.
- Information Notice 2006-13: Groundwater Contamination due to Undetected Leakage of Radioactive Water.
- Webpage on tritium at NRC website (Key Topics): http://www.nrc.gov