Alternatives and Key Findings of the Draft SEIS

ALTERNATIVES

The Draft SEIS evaluates a range of reactor site and tritium production capacity alternatives. Seven alternatives are analyzed in the Draft SEIS:

- **Alternative 1** Watts Bar site only (2,500 TPBARs maximum). This is the preferred alternative.
- **Alternative 2** Sequoyah site only (2,500 TPBARs maximum).
- **Alternative 3** Both Watts Bar and Sequoyah sites (2,500 TPBARs maximum).
- **Alternative 4** Watts Bar site only (5,000 TPBARs maximum).
- **Alternative 5** Sequoyah site only (5,000 TPBARs maximum).
- **Alternative 6** Both Watts Bar and Sequoyah sites (5,000 TPBARs maximum).
- **No Action** Produce tritium at currently approved facilities (Watts Bar 1 and Sequoyah 1 and 2) to keep permeation levels within currently approved NRC license and regulatory limits.

KEY FINDINGS OF THE DRAFT SEIS

- **Tritium releases from normal operations with TPBAR irradiation would have an insignificant impact on the health of workers and the public.**
  - Worker dose would result in additional latent cancer fatality risk of a maximum of 1 chance in 100,000.
  - Public dose would result in additional latent cancer fatality risk of a maximum of 1 chance in 2.5 million.

- **Tritium releases from TPBAR irradiation increase tritium concentrations in the Tennessee River in comparison with not irradiating TPBARs.**
  - Even with higher permeation levels than previously projected, tritium concentration at any drinking water intake would remain well below the maximum permissible EPA drinking water limit of 20,000 picocuries per liter.
  - Tritium concentration at any drinking water intake would be no more than about one-tenth the 20,000 picocurie per liter limit.

- **TPBAR irradiation would not have adverse impact on the operation and safety of TVA reactor facilities.**

  - Potential accident risks would remain essentially the same whether or not TPBARS are irradiated in a reactor.
  - Potential consequences of intentional destructive acts would be no worse than other bounding accident.

- **TPBAR irradiation could increase spent fuel generation.**

  - Increase of 24% for 2,500 TPBARS and 48% for 5,000 TPBARS.
  - TVA has an infrastructure in place or has a plan to manage the increased volume of spent nuclear fuel.

TRITIUM AND DRINKING WATER

In 1976, EPA established a dose-based drinking water standard of 4 millirem per year to avoid the undesirable future contamination of public water supplies as a result of controllable human activities. In so doing, EPA set a maximum contaminant level of 20,000 picocuries per liter for tritium. This level is assumed to yield a dose of 4 millirem per year.

At Watts Bar, for all alternatives analyzed, the maximum tritium concentration at the City of Dayton drinking water intake (which is the closest public water supply intake) would be about 2,050 picocuries per liter. Such a tritium concentration would result in an annual dose of 0.4 millirem. The average American receives about 620 millirem per year from all sources of radiation, both natural and manmade, of which about 300 millirem per year are from natural sources. Consequently, the maximum dose from drinking water would be approximately 0.06 percent of the dose the average American receives from both natural and manmade radiation.

At Sequoyah, for all alternatives analyzed, the maximum tritium concentration at the City of Chattanooga drinking water intake (which is the closest public water supply intake) would be about 1,720 picocuries per liter. Such a tritium concentration would result in an annual dose of 0.3 millirem. Consequently, the maximum dose from drinking water would be approximately 0.05 percent of the dose the average American receives from both natural and manmade radiation.

For further information, please contact:
Mr. Curtis Chambellan, Document Manager for the SEIS
Phone: 505-845-5073
Email: tritium.readiness.seis@doeal.gov
Address: U.S. Department of Energy
National Nuclear Security Administration
Box 5400
Albuquerque, New Mexico 87185-5400