

Safety Question Raised on Tank Waste Characterization

RICHLAND, Wash., May 24, 1995 -- Westinghouse Hanford Company (Westinghouse) recommended to the U.S. Department of Energy on May 10 that an "unreviewed safety question" be declared after a review of tank-waste core sampling showed that 1 of 14 safety requirements was not met during a two-month period last winter.

The U.S. Department of Energy defines an unreviewed safety question as a potential hazard that has not been adequately analyzed. Westinghouse is updating a safety analysis report to resolve the issue.

In January during rotary core sampling of an underground waste tank containing the chemical ferrocyanide, it was discovered that one of 14 safety requirements was not met. When a one-inch-diameter core sample of tank waste is taken, the rotating bit is cooled by nitrogen gas to keep it from getting too hot. A safety analysis determined that the bit needs to be kept below 150 °C. to prevent a reaction in the ferrocyanide-bearing waste.

Operating procedures were changed in November to allow intermittent core drilling without the nitrogen gas system operating. Workers rotate the bit to ease the one-inch core sampler into the 35-foot-deep waste. The core is removed and studied to determine physical and chemical properties of the radioactive and chemical waste.

A safety "interlock" switch connected to the nitrogen gas system prevents the bit from rotating when the flow of gas drops or stops. This switch automatically stops the bit from rotating after 35 seconds. This interval is based on safety documentation that shows the bit must be rotated for 70 seconds to reach the 150 °C limit.

The revised procedure allowed the drill bit to be rotated without the use of the nitrogen gas system for a maximum of 35 seconds. Operating crews repeatedly rotated the drill bit in 35-second increments without ensuring that the bit cooled sufficiently between rotations. This increased the probability of the bit reaching the 150 °C temperature limit.

When it was recognized in January that this practice did not comply with the safety requirements the drilling procedure was revised to prohibit rotating the bit without the nitrogen gas flow. Westinghouse does not believe that the practice posed a risk to the public. However, an unreviewed safety question has been recommended because the safety consequences of the practice have not been reviewed.

This practice was a contributing factor in Westinghouse's decision on April 12 to temporarily suspend field sampling operations while procedures and safety requirements were reviewed. Tank sampling has resumed over the past two weeks with all operations expected to resume within a month.

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