Hanford Plutonium Stabilization Project Completed Ahead of Schedule

RICHLAND, Wash., June 29 -- A small scale stabilization process proved to be the most efficient, safe and low-cost way to solve the large problem of stabilizing plutonium sludge materials at the Plutonium Finishing Plant (PFP).

Small batches of moist chemically-reactive plutonium sludge were heated in two laboratory-size furnaces in an enclosed glovebox work area to l,000 degrees Centigrade. This converted the moist sludge into a stable plutonium oxide (powder) that can now be sealed in containers for long-term storage in PFP's shielded vaults. Westinghouse Hanford Company completed stabilization of 236 containers of sludge June 13 -- nearly three months ahead of schedule.

John D. Wagoner, Manager of the Department of Energy (DOE), Richland Operations Office said, "This is another excellent example of the kind of DOE, contractor, regulator, and citizen cooperation that is producing outstanding results in the Hanford Cleanup mission. My hat is off to the team that accomplished this important cleanup achievement at lower cost and faster than would otherwise have been possible."

Today, PFP houses a large inventory of radioactive and chemical materials left from defense production at PFP and other DOE facilities during the Cold War. This inventory poses a serious challenge for safe facility management and requires costly monitoring and maintenance.

Westinghouse Hanford Company is working with DOE to eliminate plutonium vulnerabilities identified by the Defense Nuclear Facilities Safety Board by accelerating the stabilization of PFP's plutonium materials into a safe storage configuration.

Stabilization of chemically-reactive plutonium scrap materials at PFP is the first major step in an overall cleanup plan that will dramatically reduce radiation exposure to workers as well as potential risks to the public.

The sludge stabilization project is part of a plan resulting from successful interactions with outside citizen groups . In mid-1993, discussions began with regulators, Tribal governments and the public on the initial DOE proposal to operate existing plant systems to stabilize the scrap materials still inside.

As a result, an alternative approach to PFP materials stabilization was developed. Rather than operating existing plant systems that would purify and stabilize the scrap material, a series of small-scale cleanup actions will stabilize the materials allowing for safer storage.

Lloyd Piper, Assistant Manager for Facility Transition at DOE's Richland Operations Office, credits the PFP team for successful, early completion of this project.

"Innovative thinking, painstaking step-by-step planning and a total team commitment were key ingredients in the successful completion of this hazardous work ahead of schedule," Piper said.

Eric Vogt, Westinghouse Director for the PFP Transition Project was extremely pleased with the project's early completion.

"What the new stabilization approach represents is a true paradigm shift from the large-scale defense

production technology of the past mission to practical, small-scale techniques for material stabilization that are cheaper and safer to do and are extremely efficient," Vogt said, "The early completion of this project means that resources we were directing to sludge stabilization are now available several months early to allow us to tackle the next plutonium stabilization actions in the PFP cleanup initiative."

The next step in material stabilization is development and testing of a small, vertical calciner that can be operated inside an enclosed glovebox work area to process liquid plutonium nitrate. The calciner would agitate and dry plutonium-bearing solutions into a powder to reduce the volume and convert liquid plutonium nitrate into a stable plutonium oxide, suitable for safer, long-term storage.

Laboratory testing of the calciner is currently underway, and operations testing, expected to begin in about a month, will be conducted through the end of the year.

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