RCP waste to serve useful purposes, save taxpayer dollars

Hanford's River Corridor Project recently saved taxpayers considerable expense by sending uranium dioxide crystals to researchers at Oak Ridge National Laboratory to be used for research, and by transferring thorium oxide, also to be used for research, to Pacific Northwest National Laboratory.

The crystals were found during part of the deactivation activities for the 300 Area's 324 Building. "We don't know why the crystals were here or where they came from," said Singh Bath, Fluor Hanford project manager for RCP. "They were part of the waste stream from the 324 Building and were destined for burial, which would have meant a cost to us."

Instead, the cost was avoided by sending the crystals to ORNL, ultimately saving taxpayer dollars.

"These crystals are invaluable in our research regarding the electronic properties of uranium oxides," said Johathan Haire of the Depleted Uranium Uses Research and Development Program at Oak Ridge in a thank-you letter to the Department of Energy Richland Operations Office. "This is the only large collection of UO_2 single crystals in the U.S. to my knowledge. Receipt of these crystals has saved funds and time for our research program."

It is estimated that it would have taken ORNL about $1 million and two years time to set up equipment in a facility and begin growing the crystals.

RCP also transferred legacy thorium oxide to PNNL's Radiochemical Processing Laboratory.

Thorium oxide is an important resource used to generate lead-212/bismuth-212 isotopes used in research for treatment of cancer. At present, the only source of isotope generators is the University of Chigago/Argonne National Laboratory.

"The only commercial source of generator materials of which we are aware is Isotopes Products Laboratories of Valencia, Calif.," said George Klinger, senior research scientist at PNNL. "Presently, they can only supply 1 or 2 milliCuries of thorium-228 source material. The Hanford legacy thorium oxide is an important resource for the process we are developing to generate lead-212/bismuth-212 from this low specific activity material with a greater level of safety than we believe is possible with the current generator schemes."

Because this thorium oxide was processed over 20 years ago, it should be useful as a long-term source material to potentially supply the needs of pre-clinical trial research. Preliminary data show that this legacy thorium can yield useful quantities of the isotopes lead-212 and bismuth-212. ✦