

DOE Memorandum

Date: December 19, 2003
From: Frank C. Holmes
To: INEEL CERCLA Administrative Record
Subject: Approval to Proceed with Preparation of an Engineering Evaluation/Cost Analysis (EE/CA) for the Fuel Storage Basin Complex at CPP-603, Idaho Nuclear Technology and Engineering Center, Idaho National Engineering and Environmental Laboratory

Background:

The CPP-603 Fuel Receipt and Storage Facility contain two primary spent nuclear fuel facilities: the Fuel Receiving and Storage Facility (FRSF) and the Irradiated Fuel Storage Facility (IFSF). The FRSF consists of three underwater fuel storage basins. This portion of CPP-603 was used to receive, unload, and provide underwater storage for SNF.

CPP-603 was constructed to the seismic criteria, construction codes, and safety requirements of the early **1950s**. The basins, which are constructed of reinforced concrete, have no liners or leak detection system. Because safety requirements have changed since the early 1950s and the facility **has** aged, DOE could no longer continue to store Spent Nuclear Fuel (SNF) in the basins. In accordance with a federal court order, DOE removed the last **SNF** from the CPP-603 basins in April 2000. The basins now contain approximately 1.5 million gal of water, 1,467 ft³ of sludge, and three carbon steel boxes, at least two of which contain miscellaneous activated metal objects left over from fuel handling operations. The sludge consists of fine-grained windblown silt that has accumulated in the basins over the nearly fifty years of operation.

DOE, with removal of the SNF, is now ready to consider a non-time critical removal action (NTCRA) to deactivate the CPP-603 basins. The CERCLA process requires preparation and public review of an engineering evaluation/cost analysis (EE/CA) before preparation of the Action Memorandum. The Action Memorandum documents the official selection of the NTCRA.

Threat to Public Health, Welfare, or the Environment:

The CPP-603 basins and the sludge, and debris contained therein, pose a possible future threat to human health and the environment, if current engineering and administrative controls cease or if the basins deteriorate to the point where liquids are released to the underlying soils. The potential contaminants of concern for the basin sludge are primarily metals and radionuclides. The CERCLA OU 3-13 Record of Decision¹ for the INTEC facility established risk-based remediation goals for soil for eight radionuclides and mercury. The concentrations of the eight radionuclides in the de-watered CPP-603 basin sludge exceed the relevant risk-based remediation goals for soil. The mercury concentration in the basin sludge does not exceed the relevant risk-based remediation goal for mercury in soil.

¹ **DOE, 1999**, Final Record of Decision, Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13, Idaho National Engineering Laboratory: **DOEAD-10660**, Rev.0.

DOE uses active controls to maintain the water levels in the basin, which provides shielding to prevent direct exposure to radionuclides in the basins. DOE monitors the CPP-603 basins to ensure contamination in the basins is contained and public and worker safety are maintained.

If no action were taken, failure to continue surveillance and maintenance activities at the CPP-603 basins could result in deterioration of the basins and potential release of radionuclides and metals to the environment.

Enforcement Actions:

The basins have not been previously identified as a release site or potential release site under the INEEL Federal Facility Agreement and Consent Order (FFA/CO). The water and sludge in the basin do not contain RCRA listed constituents, nor is the combined sludge and liquid characteristically hazardous under the Idaho Hazardous Waste Management Act (HWMA) and the federal Resource Conservation and Recovery Act (RCRA). HWMA/RCRA requirements do not apply to the water and sludge, as they exist in the CPP-603 basins. There are no enforcement actions under HWMA/RCRA for the CPP-603 basins.

Proposed Project and Cost:

A NTCRA, under CERCLA, is being considered to remove the threat of release. The National Contingency Plan (40 CFR 300.415[b][2][iii]) lists non-time critical removal of contamination in storage containers that pose a threat of release. In addition, DOE policy supports use of NTCRA for D&D. The action being considered will comprise the deactivation of the CPP-603 Basin Complex including the Overflow Pit. It will not include deactivation of the remainder of the facility. The alternatives being considered for deactivation of the CPP-603 basins:

- Removal of water, sludge and debris, with stabilization of the waste prior to disposal at the Idaho CERCLA Disposal Facility (ICDF), followed by decontamination of the basin interior;
- Removal of sludge and debris, with stabilization of the waste prior to disposal at the ICDF, followed by grouting of the basins as the water passively evaporates or is removed and treated; and,
- Grouting the basins, including the in-place sludge and debris, as the water passively evaporates or is removed and treated.

These three alternatives, and possibly others, will be evaluated in the EE/CA.

Preliminary cost estimates range from \$2M for the grouting in-place alternative to more than \$10M for the full removal and decontamination alternative. The removal action is estimated to be completed by 2012.

Approval to Conduct EE/CA:

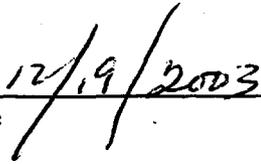
Approval is hereby given by DOE-NE to conduct an EE/CA for the CPP-603 basins. James R. Cooper is designated as the spokesperson. The completed EE/CA shall be made available for public review and comment and a public meeting will be held.

APPROVED:

U.S. Department of Energy
Idaho Operations Office



Frank C. Holmes, NE-ID



Date