



0062301

Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

AUG 2 2004

04-AMCP-0399

Mr. Nicholas Ceto, Program Manager  
Office of Environmental Cleanup  
Hanford Project Office  
U.S. Environmental Protection Agency  
712 Swift Boulevard, Suite 5  
Richland, Washington 99352

RECEIVED  
AUG 09 2004  
EDMC

Dear Mr. Ceto:

**K BASINS INTERIM REMEDIAL ACTION DESIGN CHANGE EQUIVALENT CLEANING PROCESS NOT INVOLVING THE PRIMARY CLEANING MACHINE**

Enclosed is a "non-significant or minor" change to the remedial design of the 105 K West Basin fuel removal system for your review and approval, and inclusion into the 100-KR-2 Administrative Record per Section 4.3 of the Remedial Design Report and Remedial Action Work Plan for the K Basins Interim Remedial Action (RDR/RAWP), DOE/RL-99-89, Revision 1. This change consists of adopting a 100-percent inspection process for the K Basin spent nuclear fuel (SNF) as equivalent to using the primary cleaning machine, both of which ensure the SNF is clean prior to being placed in multi-canister overpack baskets. The remedial design is being performed in accordance with PHMC Section 2.1.1.1, "K Basins Deactivation." This change has been informally discussed with Larry Gadbois of your staff.

If there are any questions, please contact me, or your staff may contact Matt McCormick, Assistant Manager for the Central Plateau, on (509) 373-9971, or Joel Hebdon, Director, Office of Environmental Services, on (509) 376-6657.

Sincerely,

Keith A. Klein  
Manager

AMCP:DCS

Enclosure

cc: See Page 2

Mr. Nicholas Ceto  
04-AMCP-0399

-2-

cc.w/encl:

L. D. Crass, FHI

L. J. Cusack, Ecology

L. E. Gadbois, EPA

T. W. Halverson, FHI

S. Harris, CTUIR

J. S. Hertzell, FHI

R. Jim, YN

T. M. Martin, HAB

E. J. Murphy-Fitch, FHI

K. Niles, OOE

R. E. Piippo, FHI

S. M. Sax, WSMS

P. Sobotta, NPT

D. J. Watson, FHI

M. A. Wilson, Ecology

Administrative Record (100-KR-2)

Environmental Portal

**ENCLOSURE**

Fluor Hanford  
P.O. Box 1000  
Richland, Washington 99352

# FLUOR

JUL - 9 2004

FH-0401849  
CONTRACT NO. DE-AC06-96RL13200

Mr. Keith A. Klein, Manager  
U.S. Department of Energy A7-50  
Richland Operations Office  
Post Office Box 550  
Richland, Washington 99352

Dear Mr. Klein:

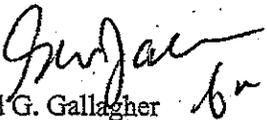
**K BASIN INTERIM REMEDIAL ACTION DESIGN CHANGE - EQUIVALENT CLEANING  
PROCESS NOT INVOLVING THE PRIMARY CLEANING MACHINE**

The purpose of this letter is to request U.S. Environmental Protection Agency (EPA) approval of a change in the remedial design of the process which cleans the spent nuclear fuel prior to being loaded into multiple canister overpacks (MCOs), pursuant to PHMC Section J.C.2.6, "Spent Nuclear Fuel Project Authorization Agreement," and Section 4.3 of the K Basin Remedial Design Report and Remedial Action Work Plan, DOE/RL-99-89, Revision 1. The remedial design change is described in greater detail in the attachment to this letter. FH considers this change to be "nonsignificant." This change has been informally reviewed by the EPA and found to be acceptable with a request to formally transmit it for approval. This letter is provided for RL's use in: (1) requesting EPA approval of the remedial design change; (2) requesting EPA approval that this change is "insignificant," and; (3) documenting the remedial design change in the Administrative Record for the 100-KR-2 Operable Unit.

Please forward the attached to the EPA for their approval. Approval is requested by July 19, 2004.

Technical questions should be directed to Mr. T. W. Halverson on 376-0114; contractual questions should be referred to Mr. S. W. Bork on 376-5212.

Very truly yours,

  
Ronald G. Gallagher  
President and  
Chief Executive Officer

Attachment

RL - L. D. Barley  
E. M. Mattlin  
S. K. Moy  
D. S. Shoop

S. A. Sieracki (w/o attachment)  
D. C. Smith  
S. J. Veitenheimer

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DOE-RL/RLCC

## **REQUEST FOR APPROVAL OF AN EQUIVALENT CLEANING PROCESS NOT INVOLVING THE PRIMARY CLEANING MACHINE.**

### **PURPOSE.**

The purpose of this memorandum is to gain U.S. Environmental Protection Agency (EPA) approval that the 100 percent inspection process for spent nuclear fuel (SNF) is equivalent to using the primary cleaning machine (PCM) as described below and that this process change is an insignificant change in the remedial design.

### **BACKGROUND.**

Process improvements to speed the process of fuel removal from the basins are continuously being sought. One such improvement is to load fuel that is in good condition (intact, breach, and defected damage categories) into fuel baskets and subsequently into a multi-canister overpack (MCO) without the use of the PCM to wash the fuel prior to loading. The proposed process speeds the process of removal of the fuel from the basins by providing a parallel path for loading baskets across the primary process table while simultaneously loading fuel across the secondary process table that has been washed in the PCM. The fuel loaded via the secondary process table will include all fuel damage categories and will have been washed in the PCM.

### **CURRENT PROCESS.**

The current approved process is to wash all fuel in the PCM and perform a statistical inspection to assure fuel cleanliness. Since the only fuel that will be loaded under the proposed equivalent process will be K East MK IV fuel, this discussion will be limited to K East MK IV fuel.

After the fuel is washed in the PCM, it is loaded into fuel baskets on the west secondary process table. A randomly selected portion of this washed fuel is inspected using a statistically based sampling program that provides a 99 percent assurance that the fuel assemblies loaded into the MCO do not exceed the maximum canister sludge limit for the MCO. All failed assemblies are assumed to contain a plug of canister sludge in the bores of the elements equal to 10 cubic centimeters (cm<sup>3</sup>). The resulting estimated sludge content of an MCO containing fuel that has been washed/statistically inspected is 1.6 kilogram (kg).

The sludge contained in the bores of the assembly is essentially pure canister sludge. Any floor sludge that may have inadvertently entered the canister from other canisters or debris that is lifted over the canister would be loosely spread over the fuel and canister, would be insignificant in comparison to the volume of canister sludge contained in the canister, and would be easily removed by the PCM or the equivalent cleaning method being requested in this memorandum. Additionally, the fuel is moved from the K East Basin to the K West Basin prior to being washed. Any K East Basin floor sludge that would be considered available would be the small amount that would be adhering to the outside of the canister walls which would be removed by the handling of the canister in loading the transfer cask and again when handling the canister in unloading the transfer cask.

## **PROPOSED EQUIVALENT PROCESS.**

The experience gained with inspecting more than a thousand washed fuel assemblies has demonstrated that sludge (canister or floor) is very easily removed from the assemblies by the inspection process. In fact, because the inspection process removes the sludge from the assembly as the method of determining if the assembly passed or failed the inspection process, the assembly is loaded into a fuel basket as a clean assembly regardless of whether or not the assembly passed or failed the inspection process.

The proposed equivalent process consists of:

1. Moving a selected fuel canister directly to the primary process table without having washed the canister in the PCM.
2. Disassembling the assembly by removing the inner element from the outer element.
3. Inspecting the assembly for presence of sludge (canister or floor particulate), using specially designed nylon brushes to remove any sludge from the bores of the elements, and visually inspecting the outer surfaces of the elements for deposits of sludge and removing the deposits through use of a brush provided for that purpose.
4. Inspecting the elements to determine damage category (intact, breached, defected, or bad).
5. Loading assemblies that are not in the bad damage category.
6. Returning bad damage category assemblies to a canister for washing in the PCM.

The proposed equivalent cleaning process results in no assemblies that contain plugs of sludge in the bores because 100 percent of the assemblies are inspected as described above prior to loading. As a result, the total sludge content of an MCO loaded with K East MK IV fuel that has not been washed in the PCM but has been subjected to the 100 percent inspection process is 200 grams, 1.4 kg less than fuel that has been washed in the PCM and statistically inspected.

It is requested that EPA designate this process change as an insignificant change and approve the proposed equivalent cleaning process for use in K Basins.