



## Department of Energy

Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

MAR 29 1991

Ms. Christine Gregoire  
Regional Administrator  
State of Washington  
Department of Ecology  
Lacey, Washington 98503

Ms. Dana A. Rasmussen, Director  
U. S. Environmental Protection Agency  
Region 10  
1200 Sixth Avenue  
Seattle, Washington 98101



Dear Ms. Gregoire and Ms. Rasmussen:

STABILIZATION OF MATERIALS IN THE PLUTONIUM FINISHING PLANT (PFP) AND  
SUGGESTED PFP WASTEWATER STREAM AND CRIB MANAGEMENT PLAN

Reference: Letter, Dana A. Rasmussen, EPA, to John D. Wagoner,  
DOE-RL, "Comments on the Liquid Effluent Study," dated  
February 20, 1991.

As discussed during my visit with you on March 1, 1991, and again during your visit on March 26, 1991, the reactivation of two process areas in the Plutonium Finishing Plant (PFP) is necessary to stabilize and clean out the "in-process" material and liquids in the facility to ensure the long term safety of the plant and its personnel.

The activation of the process areas for the purpose noted above is referred to as the materials stabilization campaign. The materials stabilization campaign is in response to direction from the U.S. Department of Energy, Headquarters, (DOE-HQ), to operate PFP as necessary to stabilize and prepare materials for long term storage by conversion to plutonium oxide instead of the weapon grade material once produced for shipment to Rocky Flats. The stabilization campaign will deal with residual "in-process" chemically active recyclable liquids, sludges, fluoride powder, rags, and plutonium from plutonium-bearing ventilation ductwork and service piping from the 232-Z Waste Incinerator Building currently in layaway status, and the 234-5Z Building. The latter action reduces the potential challenges to primary and secondary HEPA filtration while achieving a steady reduction in risk to employees, the public and the environment. Although the materials and hazards are within the Safety Analysis boundary (onsite/offsite), the risk, especially to facility workers, is increasing.

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The PFP is designed to process material and has minimal capacity to accommodate "in-process" storage. The liquid and sludge materials noted above are corrosive and consequently lend themselves to the promotion of leakage in containers, in-line pumps, gaskets and valves. The limited storage space which exists to mitigate properly any potential major leakage event which may occur is approaching a point which compromises plant operation and safety. Radiolysis in the material generates gases leading to container pressurization and airborne contamination, and rags are providing a potential fire hazard due to possible spontaneous combustion. The workers in the plant who need to monitor and deal with the materials face the pressure of ever increasing potential for procedural violations and are faced with increasing neutron and other radiological exposure.

In order to stabilize the residual "in-process" materials the materials will first need to be processed through the Plutonium Reclamation Facility (PRF) to produce plutonium nitrate solution. The plutonium nitrate solution will then be processed through the Remote Mechanical C Line (RMC) to produce oxide, which is suitable for long term storage instead of metal for shipment. Operation of the PRF could be resumed as early as June 1991, following completion of the Readiness Review Process, with activation of the RMC (Oxide) Line in early Calendar Year 1992. Upon completion of the stabilization and cleanout activities to improve the safety posture of the plant, processing will be suspended.

PRF and RMC Line processing operations beyond the materials stabilization and cleanout will be dependent upon the plant's future mission as a remediation and restoration facility, and not as a defense production facility. The alternatives available for dealing with plutonium-bearing materials, the ability to operate the plant in a safe and environmentally compliant manner, and other considerations need to be addressed in appropriate NEPA documentation. The NEPA assessment and resultant conclusions will dictate the future of the facility.

As also discussed with you, the U.S. Department of Energy, Richland Operations Office (DOE-RL), is committed to operating PFP in a safe and environmentally sound manner. To this end, we have developed a suggested management plan for the PFP Wastewater Crib, as detailed below. The management plan was arrived at after several meetings between our staffs and review of the commentary expressed in the reference. It is our suggestion that the management plan concept proposed serve as the vehicle to immediately begin addressing the concerns put forth. Since the stream and associated soil column, 216-Z-20 Crib, of the PFP, has been identified as one of the streams of prime concern, and because we need to operate the process lines to stabilize the residual material and bring the plant into a safer configuration, we propose that the PFP management plan be used as a vehicle to initiate discussion and resolution regarding the other streams and soil columns.

We urge that the suggestion herein offered be considered and acknowledged, and that you identify to us those individuals who may best serve to work through the protocol of the management plan proposal as well as others who may serve

in a subcommittee function to deal with specific details; for example, added needed sampling and procedural controls.

Suggested PFP Wastewater Stream and Crib Management Plan:

1. Administrative and Engineering Controls

Administrative and engineering controls at PFP can be implemented to ensure that no hazardous constituents are discharged to the crib. The controls identified include additional personnel training, procedure and workplan review, and warning signs posted at all drains to the crib. Engineering controls identified could include blocking of unnecessary drains, installation of differential pressure controls on two PRF tanks to prevent introduction of process wastes into the cooling water system, and installation of a catch tank for overflow in chemical make-up areas.

2. Wastewater Sampling Program

Sampling of the wastewater will be performed to verify that discharges to the crib are nonhazardous during all operating conditions. A summary of the PFP wastewater sampling program is provided in Attachment 1. A work plan will be written prior to the initiation of sampling which provides details on how the requirements of EPA's "Interim Guidelines and Specifications for Preparing Quality Assurance Program Plans" (QAMS-005/80) will be met.

3. Flow Reduction Measures

a. Interim Flow Reduction Measures

Interim flow reduction measures are being studied to ensure that the flow to the crib is reduced to the lowest possible level consistent with the safety requirements of PFP, but in any event no greater than the current flow rate even in the line operational modes. Alternatives under consideration include the installation of flow meters and thermocouples on the sanitary water feed stream and on wastewater streams to identify candidates for flow reduction.

b. Final Flow Reduction Measures

Flow to the crib is anticipated to be further reduced with time by the closed loop cooling systems to be installed under Project C-040, 291-Z Closed Loop Cooling, and Project B-680H, Low Level Waste System Modification. Under Project C-040, a closed loop cooling system will be installed in the 291-Z, heating, ventilation, and air conditioning equipment building. This project is currently scheduled for completion by January 1994, and is expected to reduce the wastewater flowrate by as much as 60 gallons per minute. Installation of new air compressors at 291-Z could possibly reduce flow to the crib by another 40 gallons per minute. Acceleration of the project completion schedule is being evaluated. Project B-680H will provide

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closed loop cooling for PRF, and for RMC by January 1994. This will eliminate cooling water discharges during any future PRF and RMC activities.

#### 4. Treatment

Wastewater discharges from PFP are planned to be treated in the Low-level Waste Treatment Facility to be constructed under Project B-680H. The Best Available Treatment (BAT) study for this project is provided with this letter as Attachment 2. Detailed design for this project is scheduled to be complete by April 1992, with operation scheduled to begin by January 1994.

#### 5. Discharge Elimination of Discharge to the Z-20 Crib

Project C-116, Elimination of Liquid Discharge to the Z-20 Crib, will provide the means for eliminating discharges to the 216-Z-20 Crib altogether. The engineering study for this project, which will be completed by July 1991, is being performed to evaluate alternatives for management of the wastewater. Currently, the PFP wastewater is planned to be disposed of in the 200 Area Treated Effluent Disposal Facility (TEDF). The C-116 Engineering Study will evaluate whether disposal of the wastewater in a facility constructed specifically for PFP is a better option. Following completion of the study, DOE-RL will meet with U. S. Environmental Protection Agency (EPA) and Washington State Department of Ecology to finalize the management solution for the PFP wastewater.

For informational purposes, two diagrams are provided in Attachment 3 which provide additional data on the sources of the wastewater within PFP and illustrate the relationships between the aforementioned project schedules, PFP operations schedules, and flow reduction activities.

We believe this management plan is responsive to the comments received on the Hanford Liquid Effluent Study as expressed in the reference letter and in meetings with your staff. The flow reduction measures and projects will lessen the driving force for migration of existing soil contaminants. The B-680H treatment system will reduce contaminants in the wastewater stream, and finally, the C-116 project will eliminate all discharges to the crib. Your assistance is requested to achieve acceptance of this suggested management plan as soon as possible. Early resolution would allow us to initiate the needed stabilization activities at PFP as currently planned in June 1991 time frame. A successful dialog which would produce a workable management plan for PFP could also provide the framework for also dealing with the remaining concerns on the other streams and soil columns.

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If you have any questions, please contact me, or your staff may contact John R. Hunter, Assistant Manager for Operations on 376-7434, or James E. Mecca, Director, Operations Division, on 376-7471.

Sincerely,

ORIGINAL SIGNED BY  
JOHN D. WAGONER  
MANAGER

John D. Wagoner  
Manager

OPD:JEM

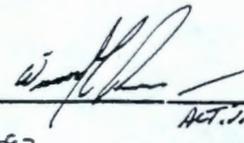
Attachments:

- 1. PFP Wastewater Sampling Plan
- 2. Best Available Technology Controls for PFP Wastewater, SD-680-ES-001
- 3. PFP Effluent Source Information

UNCLASSIFIED

DOES NOT CONTAIN CLASSIFIED OR  
UNCLASSIFIED CONTROLLED  
NUCLEAR INFORMATION

Reviewing  
Official / ADC:

  
Act. Dir. Administration

Date:

6-8-93