

July 16, 1996

Mr. Roger Bacon
[]
Westinghouse Hanford Company
P.O. Box 1970, MSIN S7-85
Richland, WA 99350

EA 96-02

Subject: Preliminary Notice of Violation and Proposed Imposition of Civil Penalty -
\$37,500 (NTS-RL-WHC-TANKFARM-1996-0002)

Dear Mr. Bacon:

This letter refers to the Department of Energy's (DOE) evaluation of the facts and circumstances surrounding an unplanned [] extremity exposure to a worker. The exposure occurred on February 13, 1996, during the removal of a highly contaminated thermocouple tree from a [] radioactive waste storage tank at the Hanford Tank Farms facility. The thermocouple tree, which is located within [the tank], was originally used to monitor temperature changes within the tank. A Type C Investigation Board was subsequently convened to investigate this event; the Board issued its report on March 7, 1996.

The DOE Office of Enforcement and Investigation initiated an evaluation of this occurrence on February 28, 1996, but deferred any action pending completion of the contractor's Type C investigation. After a review of the Type C Investigation Report and other documentation, the Office of Enforcement and Investigation concluded that violations of 10 CFR 835 requirements likely occurred. On June 18, 1996, a conference was held with you and your staff to discuss the facts and circumstances surrounding these violations, their safety significance, and the status of corrective actions taken or planned to resolve the problem. A summary conference report is enclosed.

During this incident, a worker received an unplanned radiation exposure [] to his extremities as a result of his working in what was ultimately determined to be a high-energy [] radiation field. This radiation field was generated when the thermocouple tree was raised from the [tank] up through the work platform. The exposure occurred when the worker was permitted to access the work platform and physically handle the bagged thermocouple tree in an attempt to remove blockage from the [tank].

The worker received the unplanned exposure because the radiation dose rates on the work platform were not verified for all types of potential radiation (specifically, high-energy [] radiation) prior to the worker accessing the stand. Further, the work planning for this evolution did not consider or plan for a worker to physically handle the bagged thermocouple tree. When the Radiological Control Technician did finally survey the work platform, he became confused by the dose rates he was recording on his instrumentation because he was not sufficiently cognizant of the presence and effect of a high-energy [] radiation field on his

instrumentation. As a result, the worker was permitted to remain on the work platform for an additional eight minutes during which time he continued to intermittently handle the bagged thermocouple tree. The worker was ordered to leave the platform only after his direct reading dosimeter was found to be reading off-scale high.

As described in the enclosed Preliminary Notice of Violation and Proposed Imposition of Civil Penalty, these violations involved inadequate radiological monitoring in the workplace, and the failure to comply with the design and control requirements of the Occupational Radiation Protection Rule. In this case, the radiological conditions and hazards expected to be encountered during this work were not properly anticipated or planned for. Specifically, the work planning process did not properly plan and implement the radiation work controls needed to protect the workers against the presence of a high-energy [] radiation field. This failure is of particular concern because information was available from previous similar work to indicate a high likelihood for the presence of this hazard.

DOE acknowledges your efforts to analyze events such as this event after they occur with regard to your responsibilities under the enforcement provisions of the Price-Anderson Amendments Act of 1988 and the proposed corrective actions program designed to improve radiological work controls on a site-wide basis. However, this incident, considered with previous issues we have evaluated with you during the past year involving Westinghouse Hanford Company activities, indicate that a continuing programmatic problem exists with respect to the control of radiological work-related activities at the facility level and for which your corrective actions have not been sufficient to prevent recurrence. We are also concerned that your efforts to provide additional training on high-energy [] radiation hazards to your radiological control personnel are not being implemented on an aggressive schedule.

The Type C Investigation conducted in response to this incident identified two prior similar significant problems at other Westinghouse Hanford Company managed facilities where the corrective actions and lessons learned, if implemented, should have mitigated the unplanned exposure that occurred in this incident. In addition, on March 19, 1996, subsequent to this occurrence, personnel at [a] laboratory failed to adequately survey sample vials of radioactive material, and as a result, received an unplanned extremity dose. These events indicate a continuing site-wide problem in establishing effective radiological work controls for ALARA. Therefore, in accordance with the "General Statement of Enforcement Policy" (Enforcement Policy) 10 CFR 820, Appendix A, the violations associated with this incident have been classified in the aggregate as a Severity Level II programmatic problem.

To emphasize the need to develop and fully implement meaningful corrective actions to assure the proper control of radiological work-related activities at the facility level, I am issuing the enclosed Preliminary Notice of Violation and Proposed Imposition of Civil Penalty in the amount of \$37,500. The base civil penalty for a Severity Level II violation is \$37,500. The penalty adjustment factors set forth in 10 CFR, Appendix A, Section VIII, were considered and, given the facts of this case, no adjustments to the base civil penalty were deemed appropriate. Specifically, although you reported this matter as a potential noncompliance, the violations were identified as a result of your response to a self-disclosing event involving a measurable exposure to a worker. This exposure would have been prevented through a more

proactive effort during the planning and review process and through the application of lessons learned from previous similar events. Additionally, while your corrective actions specific to the extremity exposure were appropriate, DOE is concerned that your broader programmatic corrective actions have not been sufficiently comprehensive to resolve these radiological work control problems site-wide. This concern is based on our review of previous similar examples of less than adequate control over radiological work such as that which occurred at the PUREX facility in early 1995 (and for which DOE deferred enforcement action based on your proposed corrective actions).

You are required to respond to this letter and should follow the instructions specified in the enclosed Preliminary Notice of Violation and Proposed Imposition of Civil Penalty (Notice) when preparing your response. In your response you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions, DOE will determine whether further action is necessary to ensure compliance with the applicable nuclear safety requirements.

Sincerely,

Tara O'Toole, M.D., M.P.H.
Assistant Secretary
Environment, Safety and Health

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Enclosure: Preliminary Notice of Violation and Proposed Imposition of Civil Penalty

**PRELIMINARY NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY**

Westinghouse Hanford Co.
Tank Farms Facility
EA 96-02

As a result of a Department of Energy (DOE) evaluation of activities associated with the removal of a thermocouple tree from a [] waste storage tank [] on February 13, 1996, violations of DOE requirements were identified. In accordance with the "General Statement of Enforcement Policy," 10 CFR 820, Appendix A, DOE proposes to impose a civil penalty pursuant to Section 234A of the Atomic Energy Act of 1954, as amended, 42 U. S. C. 2282a., and 10 CFR 820. The particular violations and associated civil penalty are set forth below.

- A. 10 CFR 835, Section 1001(b), requires that for specific activities where use of physical design features are demonstrated to be impractical, administrative controls and procedural requirements shall be used to maintain radiation exposures as low as reasonably achievable (ALARA).

Contrary to the above, on February 13, 1996, adequate administrative controls and procedural requirements to maintain personnel radiation exposures ALARA were not implemented. Specifically, high-energy [] radiation was known to be a radiological hazard associated with thermocouple removal; however, adequate radiological controls for this hazard were either not included or not followed in the Job Control System (JCS) Work Package (2E-95-00858/M) or its accompanying work documents, such as the Radiation Work Permit and the Process Control Package in that:

1. The JCS did not maintain radiation exposures ALARA in that worker restrictions on physical contact with the flexible receiver, bag or thermocouple tree were not identified, nor was the use of remote handling tools required to minimize worker exposure.
2. A Limiting Condition contained in Radiation Work Permit (RWP) No. E-780, Revision 3, was not adhered to in that the RWP was not voided and

work was not stopped when extremity dose rates exceeded [limits], resulting in an extremity dose [] to a worker.

3. Procedures for implementing the ALARA Management Worksheet requirements were not followed. As a result a hold point requiring dose rate surveys of the flexible receiver was not incorporated in the Process Control Package.

- B. 10 CFR 835, Section 401(c)(2), requires that instruments used for monitoring and contamination control be appropriate for the type(s), levels, and energies of the radiation(s) encountered.

Contrary to the above, on February 13, 1996, instruments used for radiation monitoring were not appropriate for the high-energy [] radiation present during work to remove the 16-C thermocouple tree from [a waste storage tank], in that:

1. Electronic personnel dosimetry, that was insensitive to [some types of] radiation, was used to initially monitor and control personnel exposure in the high-energy [] radiation field on the receiver assembly.
2. Two dose rate instruments mounted on the platform were not configured to measure [some types of] radiation fields; however, these instruments were used by the Radiological Control Technician (RCT) to evaluate the exposure potential for workers.

- C. 10 CFR 835, Section 401(b), requires that area monitoring in the workplace be routinely performed, as necessary, to identify and control potential sources of personnel exposure to radiation and/or radioactive material.

Contrary to the above, on February 13, 1996, monitoring to identify and control the potential sources of personnel exposure to high-energy [] radiation was not performed during the work evolution to remove thermocouple tree, 16-C, from the [] waste storage tank, [], in that:

1. After partial withdrawal of the thermocouple tree, radiation monitoring of the platform, the receiver assembly and the thermocouple was not performed prior to permitting a worker access to the platform although high-energy [] dose rate fields were known to be associated with thermocouple withdrawal.
2. After accessing the receiver platform, the worker was permitted to make hands-on contact with the bagged thermocouple tree for purposes of shaking loose a blockage in the tank [] before an evaluation of workplace radiation levels was performed.
3. Once radiation monitoring was initiated, the receiver platform was not cleared of personnel even though the portable survey instrument

indicated an off-scale dose rate reading in excess of [limits]. The RCT and the worker remained on the platform for approximately eight minutes.

These violations constitute an aggregate Severity Level II problem and a civil penalty of \$37,500.

Pursuant to the provision of 10 CFR 820.24, Westinghouse Hanford Company is hereby required to submit a written statement or explanation to the Director, Office of Enforcement and Investigation, Office of the Assistant Secretary for Environment, Health and Safety, U. S. Department of Energy, 19901 Germantown Rd., Germantown, MD 20874-1290, Attention: Office of the Docketing Clerk, CXX1, Suite 300, within 30 days of the date of this Preliminary Notice of Violation and Proposed Imposition of Civil Penalty. This reply should be clearly marked as a "Reply to a Preliminary Notice of Violation and Proposed Civil Penalty" and should include for each violation: (1) admission or denial of the alleged violation, (2) the facts set forth above which are not correct and the reasons for the violation if admitted, and if denied, the reasons why they are not correct, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violation, and (5) the date when full compliance will be achieved.

Within the same time as provided for the response required above under 10 CFR 820.24, the contractor may pay the civil penalty by check, draft or money order payable to the Treasurer of the United States, Account Number 891099, and mailed to the Director, Office of Enforcement and Investigation, Office of the Assistant Secretary for Environment, Health and Safety, U.S. Department of Energy, 19901 Germantown Rd., Germantown, MD 20874-1290, Attention: Office of the Docketing Clerk, CXX1, Suite 300. The contractor shall make payment in the amount of the civil penalty proposed above, or may protest imposition of the civil penalty, in whole or in part, by a written answer addressed to the Director, Office of Enforcement and Investigation, U.S. Department of Energy, at the above provided address. Should the contractor fail to answer within the time specified, an order imposing civil penalty will be issued. Should the contractor elect to file a request for an on-the-record adjudication, in accordance with 10 CFR 820.26 and also file an answer in accordance with 10 CFR 820.27 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may (1) deny the violations listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show substantive error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

If requesting mitigation in part or in whole of the proposed penalty, the adjustment factors addressed in Section VIII of 10 CFR 820, Appendix A, should be addressed. Any written answer in accordance with 10 CFR 820.27 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 820.24, but may incorporate parts of the 10 CFR 820.24 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the contractor is directed to the other provisions of 10 CFR 820, regarding the adjudication process and the procedures for imposing a civil penalty. In the event of a failure to pay any civil penalty due which

subsequently had been determined in accordance with applicable provisions of 10 CFR 820, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234A of the Atomic Energy Act of 1954, Amended 42 U.S.C. 2282a.

The response noted above (Reply to Notice of Violation, letter with payment of civil penalty, and Answer to a Notice of Violation) should be addressed to the Director, Office of Enforcement and Investigation, Office of the Assistant Secretary for Environment, Health and Safety, U.S. Department of Energy, 19901 Germantown Rd., Germantown, MD 20874-1290, Attention: Docketing Clerk, CXX1, Suite 300 with a copy to the Manager, DOE Richland Operations Office, and the DOE Headquarters Program Secretarial Officer for the facility that is the subject of this Notice.

Tara O'Toole, M.D., M.P.H.
Assistant Secretary

Environment,
Safety
and
Health

Dated at Germantown, Maryland
this 16th day of July 1996