

May 19, 2000

Mr. M.C. Hughes, [ ]  
Bechtel Hanford, Inc.  
3350 George Washington Way  
Richland, WA 99352

EA-2000-06

Subject: Preliminary Notice of Violation and Proposed Imposition of Civil Penalty  
\$82,500 (NTS-RL--BHI-DND-1999-0001)

Dear Mr. Hughes:

This letter refers to the Department of Energy's (DOE) evaluation of violations of DOE's nuclear safety regulations associated with the unplanned exposure of workers to airborne radioactivity at the 105B Transfer Bay in June of 1999. During that event, workers unwrapped a highly contaminated Filter Press without utilizing appropriate engineering and/or administrative controls. As a result, an Airborne Radioactivity Area was created which was not adequately recognized, posted, or controlled. For an approximate 13-day period, workers continued to periodically access the Transfer Bay without controls (respiratory protection) appropriate to the radiological hazard.

During the week of January 31, 2000, the Office of Enforcement and Investigation (EH-Enforcement) conducted an onsite investigation of the event. On March 29, 2000, EH-Enforcement issued an Investigation Summary Report documenting the results of this investigation. On May 3, 2000, an Enforcement Conference to discuss this event was held with you and your staff. Based on our evaluation of this event, DOE has concluded that violations of the DOE Radiation Protection Rule occurred. The violations are described in the enclosed Preliminary Notice of Violation (PNOV).

Both your own review and our independent investigation of the event identified significant deficiencies in radiological work planning and control. The task of dismantling the filter press was inadequately evaluated and appropriate pre-work surveys were not performed. Prescribed air monitoring of the legacy waste clean up activities was not consistently performed. Unanticipated radiological hazards identified during the work were not appropriately posted and controlled. Radiological procedures established to provide appropriate control of the workplace were not adequately implemented at either the worker or supervisory level. Although no measurable worker uptakes were identified in association with this event, DOE is concerned that the multiple breakdowns in your radiological work controls put workers at risk and these breakdowns could have resulted in significant exposures.

In accordance with the "General Statement of Enforcement Policy," 10 CFR 820, Appendix A, the violations described in the attached PNOV have been classified as Severity Level II violations with a proposed civil penalty in the amount of \$82,500.

The base civil penalty for these violations is \$165,000, which DOE has mitigated by 50%. In determining the civil penalty for these violations, DOE determined that no mitigation was warranted for prompt identification and reporting of violations, as they were identified as a result of a self-disclosing event. Of particular concern was the failure of both subcontractor and Bechtel Hanford, Inc. (BHI) project management personnel to formally report the event to senior management in a timely manner.

DOE did determine, however, that 50% mitigation of the civil penalty was warranted based on your response once this event became known to senior BHI management. This mitigation is in recognition of your efforts to conduct a thorough investigation of this event to determine the causes, and that your corrective actions were sufficiently broad to address the program weaknesses as well as the specific causes of the event. It is DOE's expectation that your Quality Improvement Process will continue to monitor the effectiveness of your corrective actions in preventing recurrence.

You are required to respond to this letter and you should follow the instructions in the enclosed Notice when preparing your response. Your response should document any additional specific actions taken to date and planned to prevent recurrence. After reviewing your response to this Notice, DOE will determine whether further action is necessary to ensure compliance with applicable nuclear safety requirements.

Sincerely,



David Michaels, PhD, MPH  
Assistant Secretary  
Environment, Safety and Health

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Enclosures:

Preliminary Notice of Violation and Proposed Imposition of Civil Penalty  
Enforcement Conference Summary

cc: B. Costner, S-1  
M. Zacchero, EH-1  
S. Carey, EH-1  
K. Christopher, EH-10  
T. Weadock, EH-10  
D. Stadler, EH-2  
F. Russo, EH-23  
N. Goldenberg, EH-3  
J. Fitzgerald, EH-5  
C. Huntoon, EM-1  
L. Vaughan, EM-10  
K. Klein, DOE-RL  
G. Bell, DOE-RL  
B. Bilson, DOE-RL  
B. Biro, DOE-RL  
H. Boston, DOE-RL  
S. Branch, DOE-RL  
B. Carosino, DOE-RL  
B. Fiscus, DOE-RL  
S. Johnson, DOE-RL  
L. McKay, DOE-RL  
N. Moorer, DOE-RL  
B. Pangborn, DOE-RL  
L. Piper, DOE-RL  
S. Veitenheimer, DOE-RL  
J. Todd, DOE-RL  
R. Hughes, BHI  
R. Azzaro, DNFSB  
D. Thompson, DNFSB  
Docket Clerk, EH-10

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

Bechtel Hanford, Inc.  
Hanford Site

EA 2000-06

As a result of a Department of Energy (DOE) evaluation of the unplanned exposure of workers to airborne radioactivity at the 105B Reactor Facility Transfer Bay on June 8, 1999, violations of DOE requirements were identified. In accordance with 10 CFR 820, Appendix A, "General Statement of Enforcement Policy," DOE is issuing this Preliminary Notice of Violation and Proposed Imposition of Civil Penalty. The violations are described below.

- I. 10 CFR 835.401(a) requires that monitoring of individuals and areas shall be performed to...(2) document radiological conditions in the workplace; (3) detect changes in radiological conditions; and (5) verify the effectiveness of engineering and process controls in containing radioactive material and reducing radiation exposure. 10 CFR 835.2 defines *monitoring* as actions intended to detect and quantify radiological conditions.

Contrary to the above, monitoring of individuals and areas was not performed as required in that—

- A. The radiological conditions of a highly contaminated Filter Press were not adequately determined or documented by radiological survey (monitoring) prior to unwrapping the press and exposing workers to the highly contaminated internals on June 8, 1999. As a result, personnel were exposed to airborne radioactive material without appropriate radiological protection or controls.
- B. From April - August 4, 1999, shiftly air-sampling required by the applicable Radiological Work Permit (RWP IFSM-048) was not performed during legacy waste removal activities at the 105B Reactor Facility. In addition, the RWP did not require air-sampling during specific work activities (i.e., cutting of contaminated materials) that involved the potential for changing radiological conditions.

Collectively, these violations constitute a Severity Level II problem.  
Civil Penalty - \$27,500.

- II. 10 CFR 835.603 requires that each access point to a radiological area (as defined in 835.2) shall be posted with conspicuous signs bearing the wording provided in the section.

10 CFR 835.603(d) requires the words "Caution, Airborne Radioactivity Area" shall be posted for any occupied area in which airborne radioactivity levels exceed, or are likely to exceed, 10 percent of the applicable Derived Air Concentration (DAC) value.

10 CFR 835.603(f) requires the words "Danger, High Contamination Area" shall be posted where contamination levels are greater than 100 times the applicable Appendix D values.

Contrary to the above, during the period June 8 - June 21, 1999, the contractor failed to post the access point to the 105B Transfer Bay as required in that—

- A. Radiological survey measurements taken on June 8, 1999, identified that airborne radioactivity concentrations in the Transfer Bay adjacent to the Filter Press were in excess of 10% of the DAC. The Transfer Bay was not posted as an Airborne Radioactivity Area (ARA) until June 21, 1999. As a result, workers continued to periodically enter the 105B Transfer Bay during the 13-day unposted period without respiratory protection and appropriate controls.
- B. The radiological survey on June 8, 1999, also identified removable beta-gamma contamination in excess of 100 times the Appendix D values on the Filter Press. Neither the Filter Press nor the Transfer Bay was posted as a High Contamination Area until June 21, 1999.

Collectively, these violations constitute a Severity Level II problem.  
Civil Penalty - \$27,500.

- III. 10 CFR 835.1001(a) requires that measures shall be taken to maintain radiation exposure in controlled areas as low as is reasonably achievable through facility and equipment design and administrative control. The primary methods used shall be physical design features (e.g., confinement, ventilation, remote handling, and shielding)... (b) For specific activities where use of physical design features are demonstrated to be impractical, administrative controls and procedural requirements shall be employed only as supplemental methods to control radiation exposure.

Contrary to the above, BHI management failed to ensure that physical design features, administrative controls and procedural requirements were adequately implemented in association with the 105B legacy waste clean-up activity, in that—

- A. Radiological work planning failed to identify and implement adequate physical design features or administrative controls to contain the loose surface contamination on the Filter Press. BHI personnel were knowledgeable of the historical use of the Filter Press and of the high likelihood that this equipment was contaminated at the time of work planning. Despite this knowledge, no physical design features or appropriate administrative controls were implemented prior to initiating work on the Filter Press.
- B. On June 21, 1999, the 105B Transfer Bay was posted as an ARA and a rope barrier was established between the ARA and non-ARA areas (principally the Fuel Basin, which shares air space with the Transfer Bay). No design features (ventilation, physical barrier) were employed to ensure an effective boundary was established for the ARA. Workers continued to access areas adjacent to the ARA without the use of respirators.
- C. Contrary to BHI procedure BH-SH-04 No. 2.1, the cognizant Radiological Control Technician (RCT) did not notify his supervisor upon identification that an air-sample taken in the Transfer Bay on June 8, 1999 indicated airborne radioactivity concentrations in excess of 0.1 adjusted DAC.
- D. On June 14, 1999, after learning of the June 8, 1999, air-sample results, neither the cognizant Radiological Control Supervisor nor Radiological Engineer took action to forward the air-sample to the Radiological Counting Facility in accordance with BHI-SH-04 No. 2.1.

Collectively, these violations constitute a Severity Level II problem.  
Civil Penalty - \$27,500

Pursuant to the provisions of 10 CFR 820.24, Bechtel Hanford, Inc. is hereby required within 30 days of the date of this Preliminary Notice of Violation (PNOV) and Proposed Imposition of Civil Penalty, to submit a written statement or explanation to the Director, Office of Enforcement and Investigation, Attention: Office of the Docketing Clerk, EH-10, P.O. Box 2225, Germantown, MD 20874-2225. Copies should also be sent to the Manager, DOE Richland Operations Office, and to the Cognizant DOE Secretarial Offices for the facilities that are the subject of this Notice. This reply should be clearly marked as a "Reply to a Preliminary Notice of Violation" and should include the following for each violation: (1) admission or denial of the alleged violations; (2) any facts set forth which are not correct; and (3) the reasons for the violations if admitted, or if

denied, the basis for the denial. Corrective actions that have been or will be taken to avoid further violations will be delineated with target and completion dates in DOE's Noncompliance Tracking System. In the event the violations set forth in this PNOV are admitted, this Notice will constitute a Final Notice of Violation in compliance with the requirements of 10 CFR 820.25.

Any request for remission or mitigation of the civil penalty must be accompanied by a substantive justification demonstrating extenuating circumstances or other reasons why the assessed penalty should not be paid in full. Within 30 days after issuance of this Notice and Civil Penalty, unless the violations are denied, or remission or mitigation is requested, Bechtel Hanford, Inc., shall pay the civil penalty of \$82,500 imposed under Section 234A of the Act by check, draft, or money order payable to the Treasurer of the United States (Account 891099) mailed to the Director, Office of Enforcement and Investigation, Attention: Office of the Docketing Clerk at the above address. Should Bechtel Hanford, Inc., fail to answer within the time specified, the contractor will be issued an order imposing the civil penalty.

If requesting mitigation of the proposed civil penalty, Bechtel Hanford, Inc., should address the adjustment factors described in Section VIII of 10 CFR 820, Appendix A.

A handwritten signature in black ink, appearing to read 'D. Michaels', is positioned above the typed name and title.

David Michaels, PhD, MPH  
Assistant Secretary  
Environment, Safety and Health

Dated at Washington, DC,  
this 19th day of May 2000