

August 14, 1997

Dr. C. Paul Robinson
[]
Sandia Corporation
Sandia National Laboratories
Albuquerque, NM 87185-1142

EA 97-07

Subject: Preliminary Notice of Violations and Proposed Imposition of Civil Penalty
\$56,250 (NTS-ALO-KO-SNL-7000-1996-0001)

Dear Dr. Robinson:

This letter refers to the Department of Energy's (DOE) evaluation of the circumstances surrounding radiological work control deficiencies associated with certain activities conducted by you in DOE's Radioactive and Mixed Waste Management Facility (RMWMF) at the Sandia National Laboratories. The incident occurred between August 2-16, 1996, when three workers were unknowingly exposed to a highly radioactive (hot) particle while performing waste sorting activities. An investigation of this matter was conducted by the DOE Office of Enforcement and Investigation, and a report was provided to you on May 20, 1997. During this investigation, a second incident was also reviewed which involved the planned venting of [radioactive] waste in the RMWMF on October 24, 1996. During this incident, workers were performing hazardous radiological activities without adequate planning and controls. In addition, because of conflicting Radiation Work Permit (RWP) instructions, these workers continued to work in unknown radiological conditions while airborne radiation monitoring alarms were sounding.

Based on our evaluation of these matters, DOE has concluded that violations of the Occupational Radiation Protection Rule (10 CFR 835) occurred. An enforcement conference was held with members of your staff regarding these issues on July 10, 1997. This conference included a discussion of the facts and circumstances surrounding these incidents, potential violations and the status of corrective actions, as well as the safety significance of the radiological work control problems identified from these events. A Conference Summary Report is enclosed.

The enclosed Preliminary Notice of Violation (PNOV) and Proposed Civil Penalty describes violations involving radiological work controls that occurred between August 2-16, 1996, during waste sorting activities in the RMWMF. During these activities, three workers were unknowingly exposed to a highly radioactive particle [] at intermittent times over a two-week period because of the failure to perform adequate radiological surveys of the work area, and the failure to implement adequate administrative controls in order to maintain personnel radiation exposures As Low As Reasonably Achievable (ALARA). As a result, the workers received unmonitored and uncontrolled radiation exposures [of specified amounts] to their lower extremities (based on Sandia's dose reconstruction). Non-uniform, localized skin exposures to the forearm and knees of the workers [were also received].

While these exposures did not exceed regulatory limits, DOE is particularly concerned because greater exposures could have occurred, given the absence of the requisite level of radiological controls to detect, minimize or prevent the exposures. Additionally, once the radioactive particle was finally discovered on August 16, 1996, it was not properly stored or labeled, nor was there any recognition or discussion relative to the potential exposures to the workers from the particle. As a result no dose reconstruction was initiated until October 25, 1996, after the particle was rediscovered in a storage container.

In accordance with the "General Statement of Enforcement Policy," 10 CFR 820, Appendix A, the violations A and B of the enclosed PNOV have each been classified as a Severity Level II problem. A third violation (C) has been classified as a Severity Level III problem. In determining the Severity Level of these violations, DOE considered the actual or potential safety significance to the workers and the extent to which the safety consequences was limited by the application of established radiological work controls. Additionally, DOE considered the facts associated with the event involving the venting of [radioactive] waste in the RMWMF. The underlying causes of the venting incident involved inadequate work and administrative controls similar to those factors that contributed to the worker exposures in the hot particle event, and thus, are reflective of a broader problem in the application of radiological work controls. In both of these cases, there were multiple failures in the application of basic radiological work controls that, if implemented in a timely manner, would have either prevented or significantly reduced the safety significance of these events.

DOE recognizes that these events, coupled with other radiological deficiencies that have been identified during the same time frame as these incidents, have resulted in your undertaking a number of facility specific and site-wide initiatives to upgrade your radiological work controls program. Nonetheless, to emphasize the need to ensure that radiological hazards are properly identified and controlled to minimize worker exposures to ALARA, I am issuing the enclosed PNOV and Proposed Imposition of Civil Penalties in the amount of \$56,250 (\$28,125 for the violations described in Section A of the PNOV and \$28,125 for the violations described in Section B of the PNOV). The violation described in Section C of the PNOV have been classified at

Severity Level III for which no civil penalty is being assessed.

The base civil penalty for each of the Severity Level II violations described in the PNOV is \$37,500. Therefore, the total civil penalty for these violations would normally have been \$75,000. The penalty adjustment factors set forth in the Enforcement Policy were considered and DOE has concluded that a 25% reduction in the base civil penalty is warranted. Although no mitigation was considered under the facts of the case for timely identification and reporting of the violations, DOE has concluded that the implementation of your corrective actions with respect to the radiological work control problems identified in the RMWMF were comprehensive. Because of the recurring nature of some of these violations, full mitigation for corrective actions (i.e., 50% of the base civil penalty) was not considered appropriate. Although the site-wide initiatives you have proposed are aggressive and broad ranging, DOE is not prepared at this time to assume the success of those proposed actions as a basis for further mitigation of the civil penalty.

You are required to respond to this letter and you should follow the instructions specified in the enclosed Notice when preparing your response. In your response you should document the specific actions taken and any additional actions you plan to take to prevent recurrence. After reviewing your response to this Notice and the status of your corrective action plan, 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

Enclosures:
Preliminary Notice of Violation and
Proposed Imposition of Civil Penalty
Enforcement Conference Summary Report
List of Attendees

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

Sandia National Laboratories
Radioactive and Mixed Waste Management Facility
EA 97-07

As a result of the Department of Energy's (DOE) evaluation of activities associated with unplanned radiological exposures to three workers during waste sorting activities conducted between August 2-16, 1996, in the Radioactive and Mixed Waste Management Facility (RMWMF), violations of DOE requirements were identified. In accordance with the "General Statement of Enforcement Policy," 10 CFR 820, Appendix A, DOE proposes to impose civil penalties 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 penalties are set forth below:

A. 10 CFR 835.401(a) requires that monitoring of individuals and areas be performed to (1) document radiological conditions in the workplace; and (2) detect changes in radiological conditions.

Contrary to the above, during August 2-16, 1996, monitoring of areas in the RMWMF was not performed to document and detect changes in radiological conditions in that:

1. When the waste bag DR890015 was opened, monitoring of the waste contents for [] radiation was not performed to determine if the contact handling limit [] contained in the amendment to the "Site Health and Safety Plan Form, Radioactive and Mixed Waste Management for the Historical Radioactive and Mixed Waste Disposal Request Validation and Waste Disposal Project (HDRV)" approved April 5, 1996, had been exceeded.
2. After the initial spread of radioactive contamination in RMWMF [Room] on August 2, 1996, workers were allowed to re-enter the contaminated area and begin decontamination of [the room] without re-entry radiological surveys being taken to determine the initial contamination or radiation levels.
3. After decontamination activities had been completed on August 6, 1996, direct radiation surveys to detect [] radiation were not performed in [the room] to determine if the contamination had been adequately removed. As a result of these inadequate surveys, undetected fixed contamination, a hot particle, remained in the work area (room) and workers were unnecessarily exposed to the remaining radioactive hot particle during subsequent work activities.

4. During August 6-15, 1996, no direct radiological surveys were performed in [the room] to detect the presence of the hot particle. As a result, workers continued to perform waste sorting activities in the area and were unknowingly intermittently exposed to the hot particle.

This constitutes a Severity Level II Violation.
Civil Penalty - \$28,125

B. 10 CFR 835.1001(b) requires that 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, during August 2-16, 1996, during waste sorting activities in the RMWMF, the following administrative controls and procedural requirements to maintain personnel radiation exposures ALARA were not implemented or adhered to in that:

1. Procedure FOP 96-05, "Waste Handling and Sorting for Repackaging or Treatment under the Historical Radioactive and Mixed Waste Disposal Request Validation and Waste Disposal Project (HDRV)," Revision 1, approved March 29, 1996, requires that "an RWP shall be requested prior to performing decontamination." However, during August 2-6, 1996, workers performed more than 10 hours of decontamination activities in [a room] under the general radiation work permit (RWP) R3-96-0009 which, in the "Work Description" section, described only waste sorting activities. An RWP for performing decontamination activities was not requested or put into place prior to decontamination activities.

2. The amendment to the "Site Health and Safety Plan Form, Radioactive and Mixed Waste Management for the Historical Radioactive and Mixed Waste Disposal Request Validation and Waste Disposal Project (HDRV)" approved April 5, 1996, contains an action guideline which requires that since "exposure levels on items greater than [specified limit] cannot be contact-handled," those "items will be remote handled." However, this action guideline was not implemented after May 30, 1996, when the RWP R3-96-0009 radiological hold point was revised from the original requirement [].

3. Procedure RPO-06-605, "Radiological Work Permits," Issue No. 4, effective February 28, 1996, requires the following:

a. "Job-specific radiation work permits (RWPs) shall be used to control non-routine operations or work in areas with changing radiological conditions." However, a general RWP, in effect for one year, was used to control work during waste sorting activities conducted August 2-16, 1996, which involved changing radiological conditions.

b. The "active RWP shall be revised if radiological conditions change such that workers should know of the changes." However, on August 2, 1996, after the spread of radiological contamination in [a room] resulting in a change in radiological conditions, the active general RWP R3-96-0009 was not reviewed for possible revisions to reflect the changed radiological conditions.

c. "All revisions to RWPs shall be documented on both the work site copy/copies and the original prior to allowing work to continue or resume under the RWP." On May 30, 1996, the Special Instructions of the original RWP R3-96-0009 were revised to require a radiological hold point for "dose rates greater than [specified limit]" and to further require a "job-specific RWP to continue" work. However, the revised work site copy of the RWP used by the waste handlers did not include the same language requiring a job-specific RWP to continue work, and the changes to the revised work site copy were not dated.

d. "All blanks must be completed" on the RWP Request form including signing and dating the form. However, the Request form for RWP R3-96-0009 was not signed and dated by the job supervisor as required.

This constitutes a Severity Level II Violation.
Civil Penalty - \$28,125

C. 10 CFR 835.601(a) requires that radioactive items, or containers of radioactive materials, shall be individually labeled if adequate warning is not provided by control measures and required posting.

Contrary to the above, on August 16, 1996, upon discovery of the hot particle and placement in a radioactive source storage container located in [a room], radiological control personnel did not adequately label the bag containing the hot particle or the source storage container to warn of high [] dose rates. The outside of the bag containing the hot particle was marked [with dose rate values] and no other information was provided. The outside of the source storage container was also not labeled to indicate high [] dose rates.

This constitutes a Severity Level III Violation.

Pursuant to the provision of 10 CFR 820.24, Sandia Corporation is hereby required

within 30 days of the date of this Notice and Proposed Imposition of Civil Penalty, to submit a written statement or explanation to the Director, Office of Enforcement and Investigation, Office of the Assistant Secretary for Environment, Safety and Health, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, Attention: Office of the Docketing Clerk, CXXI, Suite 300, with copies to the Manager, DOE Albuquerque Operations Office, the Acting Area Manager, DOE Kirtland Area Office, and to the Cognizant DOE Secretarial Office for the facility that is the subject of this Notice. This reply should be clearly marked as a "Reply to Preliminary Notice of Violation and Proposed Civil Penalty" and should include for each violation: (1) admission or denial of the alleged violations, (2) the facts admitted, and if denied, the reasons 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 violations, and (5) the date when full compliance will be achieved.

Any request for remission or mitigation of civil penalty must be accompanied by a substantive justification demonstrating extenuating circumstances or other reasons why the assessed penalty should not be imposed in full. Unless the violations are denied, or remission or mitigation is requested within the 30 days after issuance of the Preliminary Notice of Violation and Civil Penalty, Sandia Corporation shall pay the civil penalty of \$56,250 (imposed under Section 234A of the Act) by check, draft or money order payable to the Treasurer of the United States (Account Number 891099) mailed to the Director, Office of Enforcement and Investigation, U.S. Department of Energy. Should the contractor fail to answer within the time specified, an order imposing the civil penalty will be issued.

If requesting mitigation of the proposed penalty, Sandia Corporation should address the adjustment factors described in Section VIII of 10 CFR 820, Appendix A.

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

Date at Washington, D.C.
this 14th day of August 1997