

November 24, 1997

Mr. Ambrose Schwallie  
[ ]  
Westinghouse Savannah River Company  
Building 703-A  
P.O. Box 616  
Aiken, South Carolina 29802

EA 97-11

Subject: Preliminary Notice of Violation (NTS-SR--WSRC-WVIT-1997-0001)

Dear Mr. Schwallie:

This letter refers to the Department of Energy's (DOE) evaluation of the circumstances surrounding Quality Assurance (QA) Program deficiencies associated with three safety grade Nitrogen Systems placed into operation at the Defense Waste Processing Facility (DWPF) in March 1996. [ ] The QA deficiencies involve the failure of Westinghouse Savannah River Company (WSRC) personnel to perform an adequate acceptance review for compliance with design requirements for five safety grade vaporizers procured from a non-qualified vendor (BOC Gases); failure to require BOC Gases to comply with applicable WSRC QA Program requirements while performing installation and repairs on safety grade components; and failure of WSRC corrective actions to identify inadequate vaporizer welds and process deficiencies. As a result of these failures, vaporizers which became components of the safety grade Nitrogen Systems, were placed into operation with inlet and outlet flange welds that did not comply with design requirements. These inadequate welds were discovered after approximately eight months of operation and only when one of the welds cracked and began leaking.

The Office of Enforcement and Investigation initiated an investigation of this matter on April 24, 1997, after the contractor reported the problem. Our Investigation Summary Report is enclosed. Based upon our review of relevant information and discussions with your personnel, DOE has concluded that violations of 10 CFR 830.120 likely occurred. The violations are described in the enclosed Preliminary Notice of Violation.

DOE is especially concerned about these violations because the nitrogen system vaporizers were placed into operation in March 1996 in the DWPF even though quality deficiencies associated with the procurement of the Nitrogen System components and services provided by the vendor (BOC Gases) were identified prior to this time. Specifically, these quality deficiencies were identified by a WSRC Task Team

assessment of the Commercial Grade Dedication (CGD) process. Specific deficiencies included the following: the inappropriate use of a non-qualified vendor (BOC Gases) to perform installation and repairs on safety grade components; the misuse of WSRC CGD procedures to procure and dedicate an entire system for a safety grade application; and the failure to follow administrative requirements in establishing critical characteristics in the CGD package. In addition, the WSRC Task Team identified that training of personnel using CGD was inadequate at all levels. Even after these concerns were raised by your Task Team in February 1996, the Nitrogen Vaporizers were placed into operation in March 1996 with no inspection or evaluation of the inlet and outlet flange welds to ensure the design requirements for safety grade components were met.

The use of safety grade components that do not meet design requirements in a nuclear facility is considered a significant safety concern by DOE. Failure of these components or an adverse consequence does not have to occur for this level of concern, only that an unacceptable risk of such consequences, as defined by your safety basis, is present. In this case, all five Nitrogen Vaporizers in three safety grade Nitrogen Systems were placed into operation with inlet and outlet flange welds that did not meet the design requirements. This condition existed for approximately eight months with the Nitrogen Systems in operation before the condition was discovered. Upon discovering this condition, WSRC declared the Nitrogen Systems inoperable and entered a limiting condition of operation required by the facility Technical Safety Requirements.

DOE considers that your Task Team assessment of the CGD process was comprehensive and identified significant deficiencies with implementation of the CGD process for the Nitrogen Systems and the use of a non-qualified vendor (BOC Gases) to perform repairs on safety grade components. Had timely and comprehensive corrective actions been implemented for the Task Team findings, the use of inadequate Nitrogen System Vaporizers at DWPF could have been prevented. Although these deficiencies were self identified, your corrective actions were not timely or adequate in identifying the inadequate vaporizers prior to their failure in operation. In fact, your contract with BOC Gases continued to allow repairs to be made on safety grade Nitrogen System components with no requirements to notify WSRC when such repairs were made until the inadequate vaporizer welds were discovered in November 1996 more than eight months after the deficiency was identified by your Task Team.

You are required to respond and you should follow the instructions specified in the enclosed PNOV when preparing your response. Your response 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 action plan, DOE will determine whether further actions are necessary to ensure compliance with

the applicable nuclear safety requirements.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter N. Brush", followed by a vertical line.

Peter N. Brush

Acting Assistant Secretary  
Environment, Safety and Health

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Enclosures:  
Preliminary Notice of Violation  
Investigation Summary Report

## PRELIMINARY NOTICE OF VIOLATION

Westinghouse Savannah River Company  
Defense Waste Processing Facility

EA 97-11

During a Department of Energy (DOE) evaluation of activities and events associated with the procurement of three safety grade Nitrogen Systems placed in operation at the Defense Waste Processing Facility (DWPF) in March 1996, violations of DOE nuclear safety requirements were identified. In accordance with the "General Statement of Enforcement Policy," 10 CFR 820, Appendix A, DOE is issuing this Preliminary Notice of Violation. The particular violations include the following:

A. 10 CFR 830.4 (b) General Rule requires with respect to a particular DOE nuclear facility, the contractor responsible for the design, construction, operation, and decommissioning of that facility shall be responsible for implementation, and compliance with, the requirements of this part.

10 CFR 830.120 (a) General Rule requires the contractor responsible for a DOE nuclear facility to conduct its work in accordance with a DOE approved Quality Assurance (QA) Program.

Contrary to the above WSRC, as the contractor responsible for the design, construction, and operation of the DWPF, subcontracted with BOC Gases (a supplier/vendor) to perform work on safety grade components in this facility and did not require BOC Gases to perform that work in accordance with a DOE approved QA Program. As a result of this failure, weld repairs to inlet and outlet flanges on five Nitrogen System vaporizers were performed by BOC Gases that did not meet the WSRC QA Program requirements for this facility in that (1) the weld repairs did not comply with established design (criteria) requirements and technical standards required by 10 CFR 830.120(c)(2)(i); (2) inspections of the weld repairs were not performed to established acceptance criteria required by 10 CFR 830.120(c)(2)(iv); and (3) documents and records of the weld inspections were not prepared, reviewed, and maintained as required by 10 CFR 830.120(c)(1)(iv). The deficient welds were not discovered by WSRC until one weld cracked and began leaking after approximately eight months of operation.

This constitutes a Severity Level III Violation.

B. 10 CFR 830.120 (c)(2)(iii) Procurement requires that procured items and

services shall meet established requirements and perform as specified. Prospective suppliers shall be evaluated and selected on the basis of specified criteria. Processes to ensure that approved suppliers continue to provide acceptable items, and services shall be established and implemented.

Contrary to the above, WSRC procured items that did not meet established requirements or perform as specified in that

WSRC procured commercial grade Nitrogen System components and installation services from a "nonqualified" supplier/vendor (BOC Gases) and accepted components for use in a safety grade system. The Nitrogen Systems were accepted by WSRC and placed into operation in March 1996 with vaporizer inlet and outlet flange welds that did not meet the established design requirements. Subsequently, after approximately eight months of operation and after a leak in one vaporizer weld was discovered, WSRC determined that all of the inlet and outlet flange welds on five vaporizers did not meet the design requirements. Based upon this discovery, WSRC determined all of these vaporizers to be inoperable and entered a limiting condition of operation required by the facility Technical Safety Requirements (TSR).

This constitutes a Severity Level III Violation.

- C. 10 CFR 830.120 (c)(1)(iii) Quality Improvement requires processes to detect and prevent quality problems be established and implemented. Items that do not meet established requirements shall be identified, controlled, and corrected... Corrected shall include identifying the causes of problems and working to prevent recurrence.

Contrary to the above, WSRC did not implement a quality improvement process to identify, control, and correct the cause of inadequate welds on safety class nitrogen system components in that

1. In December 1995 WSRC identified welds on piping components supplied by a vendor/supplier (BOC Gases) that did not meet the design specification. Although, WSRC deleted these piping components from the vendor/suppliers scope, no quality process was used to determine if the same problem existed in the remaining equipment.
2. In January 1996 a WSRC Task Team identified that significant deficiencies existed with the CGD package (X-CGD-S-00001/Rev1) used by WSRC to qualify bulk nitrogen equipment in addition to services supplied by BOC Gases. Specific deficiencies included the following:
  - a. The contract with BOC Gases requires BOC Gases to service and repair the systems. The vendor (BOC Gases) is unqualified to perform work on these Safety Class Systems.

- b. The CGD package does not contain the information required by WSRC procedures (Replacement Item Evaluation) for determining necessary critical characteristics.

Despite WSRC becoming aware of these deficiencies, WSRC failed to implement adequate quality assurance controls in the contract with BOC Gases. Subsequently, on November 11, 1996, a vaporizer, modified by BOC Gases in the same procurement as the piping components, was discovered to be leaking while in operation. Upon inspection, five safety grade Nitrogen System vaporizers supplied and modified by BOC Gases were determined to have inlet and outlet flange welds that did not meet the design requirements.

This constitutes a Severity Level III Violation.

Pursuant to the provisions of 10 CFR Part 820. 24, Westinghouse Savannah River Company is hereby required within 30 days of the date of this Notice, to submit a written statement or explanation to the Director, Office of Enforcement and Investigation, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, Attention: Office of the Docketing Clerk, EH-10, CXXI, with copies to Greg Rudy, Acting Area Manager, DOE Savannah River 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 a Preliminary Notice of Violation" and should include the following for each violation: (1) admission or denial of the alleged violations; (2) the long term corrective steps that will be taken; and (3) the date when completion of corrective steps will be achieved.

Sincerely,

Peter N. Brush

A



Acting Assistant Secretary

Environment, Safety and Health

Dated at Washington, D.C.  
this 24th day of November 1997