Department of Energy
National Nuclear Security Administration
Washington, DC 20585

June 4, 2003

Mr. Dennis R. Ruddy
[ ]
BWXT Y-12
P.O. Box 2009
MS 8001
Oak Ridge, TN 37831-8001

EA 2003-03

Subject: Preliminary Notice of Violation and Proposed Imposition of Civil Penalty $96,250

Dear Mr. Ruddy:

This letter refers to the Department of Energy's Office of Price-Anderson Enforcement (OE) investigation of the facts and circumstances concerning quality assurance issues affecting nuclear safety surrounding welding inspection deficiencies in the Y-12 Wet Chemistry Area of Building [ ] from April 2001 through December 2001.

Following consultation with my office, OE initiated an investigation of the weld inspection deficiencies with a full review of relevant documentation and subsequent discussions with NNSA and BWXT Y-12 personnel at Y-12 on December 11-12, 2002. OE findings were provided to you in an Investigation Summary Report dated February 4, 2003. An Enforcement Conference was held with you and members of your staff on March 6, 2003, to discuss the findings associated with the weld inspection deficiencies. An Enforcement Conference Summary is enclosed.

Based on our evaluation of the facts and information that you provided during the Enforcement Conference, NNSA has concluded that violations of 10 CFR 830 Subpart A (Quality Assurance Requirements) occurred. These violations are described in the enclosed Preliminary Notice of Violation (PNOV).

The enclosed PNOV describes violations of the nuclear safety requirements related to your weld inspection activities of welding being performed on the intermediate evaporator and oxide dissolver located in the wet chemistry area of Building [ ]. Of particular concern is the recurrent nature of the weld inspection deficiencies that were originally identified during construction of the Hydrogen Fluoride Supply System. The violations involve failure on the part of BWXT Y-12 personnel to perform required weld inspections on two pieces of uranium processing equipment that you determined to be

safety significant and the failure of BWXT Y-12 management to assure that adequate corrective actions were taken and sustained to prevent recurrence of a known problem.

In accordance with the General Statement of Enforcement Policy, 10 CFR 820, Appendix A, the violations described in the enclosed PNOV have been classified as two Severity Level II violations and one Severity Level III violation. In determining the Severity Level of these violations, NNSA considered the actual and potential safety significance associated with the missed weld inspections, the recurring nature of the problems, and other factors.

To emphasize the importance of maintaining a comprehensive quality program for NNSA nuclear activities, I am issuing the enclosed PNOV and Proposed Civil Penalty in the amount of $96,250. NNSA evaluated the BWXT Y-12 actions in timely identifying and promptly reporting the weld inspection deficiencies. Although significant time elapsed between inspection deficiencies and indentification, once the deficient conditions were identified, BWXT Y-12 performed prompt notifications, and took immediate and aggressive action. In addition, the BWXT Y-12 normal weld quality review process identified the inspection problems, but the process allowed a significant delay in the performance of the review following completion of the weld package which directly contributed to this deficiency. Therefore, due to self-identification and timely notification, 25 percent mitigation of the maximum civil penalty for the work process noncompliances is deemed appropriate. NNSA also evaluated the adequacy of corrective actions taken by BWXT Y-12 in response to the weld inspection deficiencies. Corrective actions taken by BWXT Y-12 should minimize the recurrence of future weld inspection deficiencies. However, in February 2003, BWXT Y-12 discovered that in May 2002, four additional weld inspections were not performed on weld rework activities associated with the oxide dissolver. This discovery indicates compensatory corrective actions directed towards modifying weld inspector behavior and management oversight of weld inspectors was insufficient. Thus, NNSA has determined that no mitigation is warranted for corrective actions taken. Finally, NNSA encourages you to broaden your review of welding and weld inspection activities to the non-nuclear side of your operations.

You are required to respond to this letter and follow the instructions specified in the enclosed PNOV when preparing your response. Your response should document any additional specific actions taken to date. Corrective actions will be tracked in the Noncompliance Tracking System (NTS). You should enter into the NTS (1) any actions that have been or will be taken to prevent recurrence and (2) the target and completion dates of such actions.

After reviewing your response to the PNOV, including your proposed corrective actions, in addition to the results of future assessments or inspections, NNSA will determine whether future enforcement action is necessary to ensure compliance with NNSA nuclear safety requirements.

Sincerely,

Linton F. Brooks
[ ]
National Nuclear Security Administration

Enclosures:
Preliminary Notice of Violation
Enforcement Conference Summary Report
List of Attendees

cc: J. Mangeno, NNSA
E. Beckner, NNSA
D. Crandall, NNSA
D. Beck, NNSA
D. Minnema, NNSA PAAA Coordinator
M. Thompson, NNSA
X. Ascanio, NNSA
W. Brumley, YSO
K. Ivey, YSO
M. Glasman, YSO
C. Stair, BWXT Y-12 PAAA Coordinator
R. Azzaro, DNFSB
B. Cook, EH-1
M. Zacchero, EH-1
S. Sohinki, OE
R. Day, OE
Docket Clerk, OE

Preliminary Notice of Violation
and
Proposed Imposition of Civil Penalty

BWXT Y-12
Y-12 Site

EA-2003-03

During an Office of Price-Anderson Enforcement (OE) investigation conducted in December 2002 concerning weld inspection deficiencies associated with weld activity on an oxide dissolver and intermediate evaporator in the wet chemistry area of Building [ ], potential violations of DOE nuclear safety requirements were identified. In accordance with 10 CFR 820, Appendix A, "General Statement of Enforcement Policy," NNSA issues this Preliminary Notice of Violation (PNOV), with proposed civil penalty, pursuant to section 234a of the Atomic Energy Act of 1954, as amended, 42 USC 2282a, and 10 CFR 820. Following an Enforcement Conference held on March 6, 2003, NNSA has concluded that the following violations have occurred. The associated civil penalties are also set forth below.

I. Violation Pertaining to Work Processes

10 CFR 830.122(e)(1) requires that work be performed consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.

Contrary to the above, between April 2001 and December 2001, weld inspection work was not performed consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means. Examples include the following:

A. Weld inspection requirements for the type of welding that was performed in the wet chemistry area of Building [ ] are primarily defined in Engineering Technical Specification 18100, dated 4/20/01, Part 3, Section 3.05(A), “Required Examinations.” Specifically:

1. Paragraph A.4(e) requires that "Liquid-penetrant examine all pressure boundary welds to the pressure boundary after completion of the last layer of weld in accordance with ASME B31.3, para. 341.4." However, 127 final liquid penetrant tests were not performed on welds requiring this examination.

2. Paragraph A.5 requires that an "in-process examination" be performed when radiography of welds is not practicable. However, 18 required "in-process examinations" were not performed or the exam was incomplete.

3. Paragraph A.4(b) requires that weld inspectors, "perform a final visual examination of all welds." However, two welds did not have the required final visual examination performed.

B. Procedure Y53-41-EI-501, dated 1/10/01, "Equipment Test and Inspection Department Inspection Procedure," Appendix B, Section 10(d) requires that inspectors "check the maximum interpass temperature prior to the start of each weld pass, at the edge of the weld." However, this inspection was not performed as required on 10 separate occasions.

C. Procedure Y53-41-EI-501, dated 1/10/01 "Equipment Test and Inspection Department Inspection Procedures," Section 7, "Records" requires that weld inspection reports be retained in accordance with established Energy Systems records management practices and approved records inventory and dispostition schedules. However, the weld examination reports on four welds were not available.

D. Engineering Specification 18100, Part 3, Section 3.05(A) requires, for mild nitric acid and special service pipe welding, that all circumferential butt and miter groove welds be subjected to radiographic examination in accordance with ASME B31.3, paragraph 344.5. Engineering Specification 18100, does provide for an alternative in-process examination approach to weld radiography by stating "When approved by the Engineer in writing **prior to welding**, the following alternative to radiography may be substituted for every field weld that it is not practicable to move to a remote location for radiography." However, BWXT Y-12 personnel failed to ensure required radiographic examination of 14 welds were performed and did not have the requisite engineering approval to perform in-process examinations of welds in lieu of radiography.

E. The Certified Welding Inspector (CWI) has the responsibility for final review and approval of weld inspection reports. In some cases, weldments were installed and tested prior to CWI review and approval of the weld inspection reports. This practice of weldment installation prior to CWI review and approval of weld inspection reports could have compromised the integrity of the oxide dissolver and/or intermediate evaporator if left unreviewed and would have a programmatic impact if the CWI were to find deficiencies in the weld inspections. However, BWXT Y-12 management does not have any administrative controls in place (e.g.,

hold points) to prevent the installation of weldments prior to CWI review and approval of the weld inspection reports.

Collectively, these violations constitute a Severity Level II problem.
Civil Penalty - $41,250

II. Violation Pertaining to Quality Improvement

10 CFR 830.122(c)(2) requires the identification, control, and correction of items, services, and processes that do not meet established requirements.

10 CFR 830.122(c)(3) requires the identification of causes of problems and work to prevent recurrence as a part of correcting the problem.

Contrary to the above, between November 2000 and February 2002, the identification, control, and correction of items, services, and processes that do not meet established requirements; and the identification of causes of problems and work to prevent recurrence as a part of correcting the problem did not occur in that BWXT Y-12 failed to adequately implement or sustain corrective actions directed at preventing recurrence of known weld inspection deficiencies. Specifically:

A. In a Lockheed Martin Energy Systems (LMES) report dated December 1998, entitled, “Oak Ridge Y-12 Plant Welding Program Assessment,” routine assessment of welding inspectors was listed as a “most noteworthy” corrective action. This corrective action was directed at preventing recurrence of weld inspections deficiencies associated with the Hydrogen Fluoride Supply System (HFSS). A LMES report dated July 1999, entitled “Independent Assessment of Hydrogen Fluoride Supply System Line Item Project ” it is stated that “Assessments of individual ET&I inspector performance were not being conducted on a regular basis.” On June 8, 2000, during an Enforcment Conference associated with the HFSS welding issues, LMES addressed two implemented corrective actions directed at preventing recurrence of welding inspector deficiencies: (1) begin weekly inspector performance assessments and (2) special supervisory oversight of welding inspectors until confirmation of procedure compliance. In a report dated March 2001, entitled, “EA 2000-11 Preliminary Notice of Violation Status Report,” BWXT Y-12 identified the necessary actions it must complete to achieve closure of the subject PNOV. One of the actions listed as implemented was the “implementation of a program to standardize supervisory review and performance of weld inspectors in the field.” This oversight function was not performed for much of the time during which the welding inspection deficiencies were occurring. In a December 2, 2002, presentation to OE, BWXT Y-12 management listed common inspection elements between HFSS and Wet Chemistry. One of the items listed noted “insufficient quality and supervisory oversight of field inspectors.” The failure of BWXT Y-12 to sustain corrective actions directed at supervisory oversight of welding inspectors reduced the likelihood of detecting weld inspection deficiencies in a timely manner.

B. Following the issuance of the July 1999, report entitled "Independent Assessment of the Hydrogen Fluoride Supply System Line Item Project," LMES implemented the use of weld history cards to clearly define weld inspection requirements. However, the use of weld history cards was confined to construction welding inspection only. Although the application of weld history cards has proven beneficial in improving weld inspector performance for construction welding, BWXT Y-12 and its predecessor contractor failed to extend the application of weld history cards to maintenance welding thus missing an opportunity to reduce the likelihood of recurrence of weld inspection deficiencies as previously identified during welding on the HFSS.

C. In October 2002, BWXT Y-12 identified the need to perform a 100 percent Quality Assurance over check of completed weld inspection records. In February 2003 it was discovered that weld packages completed over the time period April 2002 to October 2002 did not receive this over check. Upon review of the weld packages over this time period, it was determined that an additional 13 weld inspections were not performed as required and were not identified as part of the CWI review. Further, four of these 13 missed weld inspections were found to have occurred after the intial discovery of the weld inspection problems in February 2002 and all four were associated with weld rework activity being performed on the oxide dissolver. The discovery of the additional weld inspections deficiencies calls into question the adequacy of BWXT Y-12 identified and implemented corrective actions directed towards modifying welding inspector behavior and management oversight of welding inspectors.

Collectively, these violations constitute a Severity Level II problem.
Civil Penalty - $55,000

III. Violation Pertaining to Program Management

10 CFR 830.122(a)(2) requires the establishment of management processes, including planning, scheduling, and providing resources for the work.

Contrary to the above, between April 2001 and December 2001, BWXT Y-12 management failed to provide adequate resources to assess weld inspector performance. Specifically, the BWXT Y-12 Quality Program Description (Y60-101PD), Section 2.1.3(a), dated October 16, 2000, states that senior managers are to ensure that adequate resources are provided to accomplish their quality goals. However, during much of the time that weld inspection activities were taking place on the oxide dissolver and intermediate evaporator, the CWI assumed the responsibilities of Welding Inspection Supervisor in addition to his regularly assigned duties. A major responsibility of both of these positions is the regular supervisory oversight of welding inspectors to provide real time feedback and enable improvement in weld inspector performance. Due to the additional workload demands placed upon the CWI, he was unable to provide an adequate level of oversight. Discussions with BWXT Y-12 management indicated that they were aware of the additional burden placed upon the CWI and the

adverse impact that this was having on supervisory oversight of welding inspectors. However, it was their belief that the Welding Inspection Supervisor would return to duty in the near future. Thus, they did not assign additional personnel to assist the CWI so that routine oversight of welding inspectors could be reinitiated. The management failure to provide sufficient oversight to ensure that frequent audits and evaluations were performed to identify inconsistencies in the welding program was cited by BWXT Y-12 as the root cause for welding inspection deficiencies in the wet chemistry area.

This violation constitutes a Severity Level III violation.

Pursuant to the provisions of 10 CFR 820.24, BWXT Y-12 is hereby required within 30 days of the date of the Preliminary Notice of Violation and Proposed Imposition of Civil Penalty, to submit a written statement or explanation to one of the following addresses:

(if sent by U.S. Postal Service):

Director, Office of Price-Anderson Enforcement
Attention: Office of the Docketing Clerk
EH-10, 270 Corporate Square Building
U.S. Department of Energy
1000 Independence Avenue, SW
Washington DC 20585-0270

(if sent by overnight carrier):

Director, Office of Price-Anderson Enforcement
Attention: Office of the Docketing Clerk
EH-10, 270 Corporate Square Building
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290

Copies should also be sent to the Manager, NNSA Y-12 Site Office, and to my office as well. 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 in this PNOV which you believe are not correct, and (3) the reasons for the violations if admitted, or if denied, the basis for denial. Corrective actions that have been or will be taken to avoid future violations should be delineated with target and completion dates in OE's Noncompliance Tracking System. In the event the violations set forth in the Preliminary Notice of Violation are admitted, this PNOV will constitute a Final Order in compliance with the requirements of 10 CFR 820.24.

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 paid in full. Within the 30 days after the issuance of the PNOV and civil penalty, unless the violations are denied, or remission or additional mitigation is requested, BWXT Y-12 shall pay the civil penalty of $96,250 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 Price-Anderson Enforcement Attention: Office of the Docketing Clerk, at one of the above addresses. If BWXT Y-12 should fail to answer within the time specified, the contractor will be issued an order imposing the civil penalty. Should additional mitigation of the proposed civil penalty be requested, BWXT Y-12 should address the adjustment factors described in section IX of 10 CFR 820, Appendix A.

Linton F. Brooks
[ ]
National Nuclear Security Adminstration

Dated at Washington, DC
this 3rd day of June, 2003

ENFORCEMENT CONFERENCE SUMMARY

Welding Inspection Deficiencies in the Wet Chemistry Area of Building [ ] (NTS-Y12--BWXT-Y12SITE-2002-0001)

On March 6, 2003, the Office of Price-Anderson Enforcement (OE) and the National Nuclear Security Administration (NNSA) held an Enforcement Conference with BWXT Y-12, in Germantown Maryland. The meeting was called to discuss the facts, circumstances, and corrective actions pertaining to nuclear safety issues associated with the BWXT Y-12 welding inspection deficiencies in the wet chemistry area of Building [ ] over the period April 2001 thorugh December 2001. Mr. Stephen Sohinki,]], called the meeting to order. Mr. Sohinki stated that OE and NNSA had convened the meeting to (1) address issues noted in the February 4, 2003, Investigation Summary Report, (2) discuss corrective actions taken to prevent recurrence, and (3) discuss mitagation factors for NNSA consideration. Information and key areas discussed at the conference are summarized below, and material provided by BWXT Y-12 during the conference was incorporated into the docket.

Mr. Dennis R. Ruddy, [ ] opened the meeting by indicating that he had recently received additional pertinent information regarding the discovery of missed weld inspections that went undetected by the Certified Welding Inspector (CWI) during the review weld inspection reports. It was agreed that more detailed information concerning this discovery would be provided to OE and NNSA by March 12, 2003. Mr. Ruddy then continued his presentation by discussing the chronology of events associated with corrective actions resulting from the Hydrogen Fluoride Supply System (HFSS) welding issues. Mr. Ruddy then addressed the resource allocation issues noted in the Investigation Summary Report, outlining the chronology of events and stating that it was the BWXT Y-12 position that resource allocation was not a significant contributing factor to the events which led to the weld inspection deficiencies. Mr. Ruddy stated that he felt that the CWI was not over burdened such that he could not perform his assigned duties and that if he felt he was overburdened he should have informed his management. Mr. Ruddy then discussed the BWXT Y-12 investigatory activities upon discovery of the weld inspection deficiencies, causal analysis conducted and resultant corrective actions taken to prevent recurrence. Mr. Ruddy then discussed the effectiveness of corrective actions taken by presenting weld inspection data prior to discovery of the deficiencies and compared that to data over the period October 2002 through January 2003. Mr. Ruddy

then concluded his presentation by discussing mitigation factors for OE and NNSA consideration.

Mr. Sohinki stated that OE and NNSA would consider the information presented by BWXT Y-12 together with the entire record, when OE and NNSA undertakes its enforcement deliberations. Mr. Sohinki then adjourned the conference.

March 6, 2003

Welding Inspection Deficiencies
Enforcement Conference List of Attendees

DOE – Office of Price-Anderson Enforcement

Stephen M. Sohinki, Presiding Officer
Richard Day, Enforcement Officer

NNSA – Headquaters

Sam Johnson, [ ]
Rodney Lehman, [ ]
Doug Minnema, PAAA Coordinator

NNSA – Y-12 Site Office

Ted Sherry, [ ]
Michael Glasman, [ ]

BWXT Y-12

Dennis R. Ruddy, [ ]
Buddy Conner, [ ]
A.C. Hollins, Division Manager [ ]
James Elliott, [ ]
Conard Stair, [ ]