Department of Energy
Washington, DC 20585

July 11, 2001

Mr. Peyton S. Baker
[ ]
BWX Technologies of Ohio, Inc.
I Mound Road
P.O. Box 3030
Miamisburg, OH 45343-3030

EA-2001-03

Subject: Preliminary Notice of Violation and Proposed Imposition of Civil Penalty $137,500

Dear Mr. Baker:

This letter refers to the Department of Energy's (DOE) evaluation of several problems and events occurring during calendar year 2000 and early 2001 at the Mound Plant. These included the January 2001 [radioactive material] intake event in Building 38, bioassay program deficiencies, and unresolved safety question program deficiencies.

The DOE Office of Price-Anderson Enforcement (OE), with assistance from the Miamisburg Environmental Management Project (DOE-MEMP), initiated an investigation into these problems and events. An Investigation Summary Report describing the results of that review was issued to Babcock and Wilcox Technologies of Ohio, Inc. (BWXTO) on April 18, 2001. An Enforcement Conference was held on May 23, 2001, in Germantown, Maryland, with yourself and members of your staff to discuss these issues. A Conference Summary Report is enclosed. Based on our evaluation of these problems and events, DOE has concluded that violations of the Quality Assurance Rule (10 CFR 830.122) and Occupational Radiation Protection Rule (10 CFR 835) have occurred. The violations are described in the enclosed Preliminary Notice of Violation (PNOV).

Section I of the PNOV relates to a January 25, 2001, event in Building 38 where a worker received a [radioactive material] intake and [radioactive material] contamination was spread into the involved room. Although the intake was low, it could have been higher due to the breakdowns that occurred. Violations included a Severity Level II problem for multiple radiological work control deficiencies, including
(1) inadequate work planning, (2) hazard evaluation, (3) hazard control, and

(4) violation of established procedures. Additionally, a Severity Level II problem was assessed for the failure to implement proper radiological controls when the worker introduced highly contaminated swipes into a lower level contamination area.

The violations described in Section II of the enclosed PNOV relate to the failure of BWXTO to properly validate a change to computer software associated with managing the timely turn-around-time for bioassay analysis. As a result, 33 voluntary [radioactive material] samples exceeded established turn-around-times by as much as 16 days. While there was no actual safety significance arising from this failure, DOE is concerned because it had previously issued a Severity Level II NOV to BWXTO in February 1998 for similar problems involving failure to conduct software validation and verification when modifications to software were made. Comprehensive corrective actions at that time would have precluded this later problem. A single Severity Level II violation was issued for this breakdown.

The violations described in Section III of the enclosed PNOV involve multiple examples of Radiological Work Permits (RWP) that were found to not include all the radioisotopes for bioassay that were potential exposure hazards for the work activity. As a result, workers who had performed work under the deficient RWP's were not monitored at the time for all potential radiological exposures. This problem was found by BWXTO in a self-assessment activity. A single Severity Level II violation was issued for these problems with RWPs and the bioassay specification process.

The violations described in Section IV of the PNOV involve multiple failures to fully implement and comply with the procedures that govern the review of proposed changes for potential unreviewed safety questions (USQ). DOE's assessments have found continued problems in this area. Although the extent of the deficiencies in this area has declined, DOE is concerned about the long-term failure to get this activity functioning with the desired degree of formality and consistency. DOE has concluded that this violation represents a Severity Level II problem.

To emphasize the need for continued rigorous management attention to the complex decommissioning and decontamination activities at Mound, I am issuing the enclosed PNOV in response to these violations, with a total civil penalty of $137,500. This amount reflects substantial mitigation in some areas, and partial in others. Additionally, due to positive steps, DOE chose not to cite other potential areas of violation separately as discussed further below. The above civil penalty reflects no mitigation for identification of the violations associated with the Building 38 event (Section I) since these problems were disclosed by the response to the event. However, 25% mitigation was provided for the corrective action area due to the comprehensive nature of actions currently being taken to ensure that the BWXTO work control process is properly implemented. However, full mitigation for corrective actions was not granted since prior

corrective actions, if properly implemented, would not have allowed the Building 38 event to occur. Specifically, corrective actions for prior enforcement action 98-12 included implementing an enhanced work control process that would meet Integrated Safety Management System objectives. However, the workers and managers involved in the Building 38 event did not effectively implement this process. Proper implementation and training in 1999 as well as continued management emphasis should have precluded the extensive failure to comply with these requirements.

For the bioassay software verification and validation problem (Section II), 25% mitigation for identification was given due to your workers finding this issue when investigating the causes for the unanalyzed bioassay samples. However, full mitigation for identification was not given since this problem was raised in a prior enforcement action. Also, 25% mitigation was given for the corrective actions that are now being taken for this area; however, full mitigation was not granted since lasting corrective actions should have been instituted at the time of enforcement action 98-12.

The above civil penalty total includes 100% mitigation for the violations involving RWPs with incorrect bioassay requirements (Section III), due to the self-identification through assessment activities by BWXTO and timely reporting, as well as the comprehensive and timely corrective actions. DOE chose to cite this as a violation, nonetheless, due to the long-standing programmatic problems in the bioassay program at Mound and to emphasize the need for continued vigilance in maintaining the long-term integrity of the bioassay program. The civil penalty includes no mitigation for identification of the problems involving the USQ program (Section IV) since these were identified by DOE assessments, however 50% mitigation was granted for the comprehensive and timely corrective actions that have been taken.

DOE's investigation also found noncompliance conditions in other areas for which enforcement discretion is being exercised not to include them in this action. These other problems involved the August 1, 2000, discovery of 15 unanalyzed bioassay samples, and training, quality improvement and self-assessment problems associated with the USQ process. The bioassay samples were obtained in 1995 by the site's former contractor and were inadvertently mixed with other bioassay samples that were being held by that contractor for potential litigation purposes. DOE chose to exercise discretion in the bioassay sample analysis matter since this problem originated with the prior contractor two years before BWXTO assumed the contract and, given the overall improvement in the bioassay program since that time, enforcement action on this specific issue serves no regulatory or safety enhancement purpose. Discretion was taken in the matter of the other problems with the USQ process since BWXTO has generally made substantial improvement in developing and implementing a USQ process over the past several years. Although these areas were not cited as

violations, it is expected that weaknesses in these areas and related noncompliance conditions will also be corrected.

Notwithstanding the above violations, it is noted that general improvements have been occurring in the BWXTO assessment activities to self-identify problem areas so that appropriate corrective actions may be taken. Additionally, improvements in the USQ and bioassay programs, as noted above, have been occurring at BWXTO. These improvements are encouraging, but continued management attention to the weaknesses reflected in this enforcement action will be critical in order to achieve a substantial and consistent improvement in the safety culture across all groups at Mound.

You are required to respond to this letter and to follow the instructions specified in the enclosed PNOV when preparing your response. Your response should document any additional specific actions taken to date to address the safety problems discussed above. Corrective actions will be tracked in the Noncompliance Tracking System (NTS). You should enter into the NTS (1) any additional actions you plan to prevent recurrence and (2) the anticipated completion dates of such actions. After reviewing your response to the PNOV, including your proposed corrective actions entered into NTS, I will determine whether further enforcement action is necessary to ensure compliance with DOE nuclear safety requirements.

Sincerely,

R. Keith Christopher

R. Keith Christopher
Director
Office of Price-Anderson Enforcement

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

cc: S. Cary, EH-1
M. Zacchero, EH-1
S. Adamovitz, OE
D. Stadler, EH-2
F. Russo, EH-3
R. Jones, EH-5
C. Huntoon, EM-1
H. Himpler, EM-5

E. Chitwood, EM-5
R. Provencher, DOE-MEMP
M. Reker, DOE-MEMP

T. Brown, DOE-OH
R. Higgins, BWXTO
Docket Clerk, OE

PRELIMINARY NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

Babcock and Wilcox Technologies, Inc. of Ohio
Mound Plant

EA 2001-03

As a result of a Department of Energy (DOE) evaluation of the [radioactive material] intake event in Building 38, the bioassay program deficiencies, and the unreviewed safety question (USQ) program deficiencies, several violations of DOE nuclear safety requirements were identified. In accordance with 10 CFR 820, Appendix A, "General Statement of Enforcement Policy," the Department of Energy 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:

I. January 25, 2001, Building 38 [Radioactive Material] Intake Event

A. Radiological Work Control Deficiencies

10 CFR 835.104 dated November 4, 1998, requires that “written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazard created by the activity…”

10 CFR 835.1001(b) dated November 4, 1998, requires that “for specific activities where use of physical design features is demonstrated to be impractical, administrative controls shall be used to maintain radiation exposures ALARA.”

10 CFR 830.122(e)(1) dated October 10, 2000, requires that contractors “perform work consistent with technical standards, administrative controls and other hazard controls … using approved instructions, procedures, or other appropriate means.”

Contrary to the above, written procedures were not implemented, administrative controls were not used to maintain radiation exposures ALARA, and work was not performed to established procedures in that–

1. MD-80043, Operation 100, *Radiological Work Permits*, effective October 9, 2000:

   a. Section 3.1 requires radiological work permit (RWP) users to "perform only work or tasks within the work description and work locations described on the RWP in use." Section 5.2 requires personnel to "comply with all RWP requirements to prevent an unnecessary intake of radioactive material." RWP SM-051-00 covered "characterization inside metal gloveboxes" and did not cover fumehood counting of wipes as part of the authorized scope. Further, the RWP specifically prohibited work or entry into High Contamination Areas (HCA). However, on January 25, 2001, a Radiological Point of Contact (RPOC) gave a radiological control technician (RCT) permission and the RCT used RWP SM-051-00 for work not authorized in the RWP's scope and in an area specifically prohibited by the RWP, i.e. counting wipes in Building 38 [ ] fumehood 23, a posted HCA.

   b. Section 6.1.1 requires that "RWPs shall be used to control …entry into Contamination Areas or High Contamination Areas." Further, section 6.2.12 requires that the RWP Task Breakdown Sheet be completed including a description of the task. However, on January 25, 2001, an RCT counted swipes in [ ] fumehood 23, a posted HCA, and no RWP or RWP Task Breakdown Sheet was prepared for entry into fumehood 23 HCA.

2. MD-80036, Operation 10010, *Radiological Personal Protective Equipment*, effective May 31, 2000, Section 4.3.4 requires that a double set of protective clothing (PC) be worn in an HCA. Further Operation 10010, Attachment 1 *Radiological Criteria for Selecting Respirator Type to Be Used* required that a full-face respirator be worn in airborne areas from 0.1 derived air concentration (DAC) to less than 50 DAC. However, on January 25, 2001, an RCT performed work in [ ] fumehood 23, a posted HCA, with airborne activity of up to 9.7 DAC in [the room] and was not wearing double PCs or a full-face respirator. As a result, the RCT received an unplanned, uncontrolled intake of radiological material.

3. MD-10527, *Building 38 Administrative Manual*, Issue 1, effective January 24, 2000, Appendix B, Section 2.2 requires that building operations and activities be scheduled per the Plan of the Day (POD). However, activities conducted in [the room] on January 24, 2001, to

characterize the radiological hazards in gloveboxes and on January 25, 2001, to count highly contaminated wipes, were not included in the POD.

4. PP-1059A, *Integrated Work Control Program*, Issue 4, effective April 25, 2000, specifies the process to be implemented for conducting work safely. However, the requirements of PP-1059A for work control were not met for the activity to count highly contaminated wipes in [the room] on January 25, 2001, in that (1) the work scope was not fully defined; (2) the hazards were not identified and analyzed; (3) the hazard control mechanisms were not selected; (4) required radiological controls were not incorporated into a work procedure; (5) work controls were not incorporated into an approved work package; and (6) work was not performed as defined in the approved work package. As a result, an RCT was exposed to unanticipated airborne radioactivity and received an unplanned, uncontrolled intake of radiological material.

5. PP-1059B, *Analysis and Control of Hazards*, Issue 6, effective June 30, 2000, specifies the process to analyze and control the hazards associated with work. However, the requirements of PP-1059B to analyze and control hazards were not met for the activity to count contaminated wipes in [the room] on January 25, 2001, in that (1) the PP-1059B work planning checklist was not completed to determine the appropriate type and detail of the work package; (2) the hazards of the work activity were not identified; (3) appropriate hazards controls were not evaluated and selected; (4) hazard controls were not incorporated in a work instruction; and (5) a final work control document was not reviewed and approved by the appropriate management and hazard control specialists.

6. MD-80036, Operation 10015, *Radiological Characterization*, dated October 23, 2000, specifies the required methodology to identify the isotopes that are present and their respective contamination levels. However, the requirements of Operation 10015 were not met for the activity to count highly contaminated wipes in [the room] on January 25, 2001, in that the specified work control process was not utilized and a characterization plan to take into account the radiological isotopes and conditions of all points of the scope of work was not prepared.

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

B. Radiological Control Deficiencies

1. 10 CFR 835.501(a) and (b) require that “personnel entry control shall be maintained for each radiological area” and that the “the degree of

control shall be commensurate with existing and potential radiological hazards within the area."

10 CFR 835.501(d) requires that "written authorizations shall be required to control entry into and perform work within radiological areas."

Contrary to the above, personnel entry control was not maintained commensurate with the existing radiological hazard and written authorization to control entry and perform work within the radiological area was not provided in that on January 25, 2001, an RCT working in [the room] transferred highly contaminated wipes from a passbox to a fumehood, a posted HCA, in order to count the wipes. The RCT activities resulted in an unanticipated Airborne Radioactivity Area (ARA) in [the room]. However, entry control and written authorization were not provided for work activities in the HCA nor the ARA commensurate with the existing radiological hazards.

2. 10 CFR 835.603 requires that each access point to a radiological area shall be posted with conspicuous signs bearing the wording provided in the section.

   10 CFR 835.603(d) requires that the words "Caution, Airborne Radioactivity Area " or "Danger, Airborne Radioactivity Area" shall be posted.

   10 CFR 835.2 defines an ARA as "any area, accessible to individuals, where the concentration of airborne radioactivity exceeds or is likely to exceed the DAC values listed in Appendix A of this part."

   Contrary to the above, on January 25, 2001, when activities within [the room] resulted in airborne radioactivity concentration of 9.7 DAC, which exceeded the values listed in 10 CFR 835 Appendix A, each access point to the room was not posted with the words "Caution, Airborne Radioactivity Area" or "Danger, Airborne Radioactivity Area."

3. 10 CFR 835.401(a)(3) requires that "monitoring of areas shall be performed to detect changes in radiological conditions."

   10 CFR 835.401(a)(6) requires that "monitoring of areas shall be performed to identify and control potential sources of individual exposure to radiation and/or radioactive material."

   Contrary to the above, monitoring of areas was not performed to detect changes in radiological conditions and to identify and control potential sources of individual exposure to radioactive material in that–

a. On January 25, 2001, in [the room], an RCT transferred highly radioactively contaminated wipes and a contaminated meter from a passbox to fumehood 23, a posted HCA, then to fumehood 25 and conducted counting/survey of the 45 wipes. Fumehood 25 and room [ ] were posted for a lower lever of contamination, a Contamination Area (CA). However, at the completion of the activity, a post-job contamination survey was not conducted. These activities resulted in contamination spread outside of the hood, an ARA, and the RCT receiving an unplanned, uncontrolled intake of radioactive material.

b. On January 29, 2001, an RCT entered [the room] to retrieve equipment, moving two contaminated meters and various pieces of contaminated paper from the fumehood to the airlock room [ ]. However, a post-job contamination survey was not conducted. These activities resulted in contamination spread outside of the fumehood and into the airlock.

4. 10 CFR 835.1102(b) requires that "any area in which contamination levels exceed the values specified in Appendix D of this part shall be controlled in a manner commensurate with …the radionuclides present, and the fixed and removable surface contamination levels."

   Contrary to the above, contaminated areas were not controlled commensurate with the level of contamination present in that–

   a. On January 25, 2001, an RCT, working in [ ] fumehood 23, a posted HCA, removed highly contaminated wipes and a contaminated survey meter from a transfer bag. The RCT then placed the empty, contaminated transfer bag open on the floor next to the fumehood such that contamination inside the bag was not contained. Room [ ] was posted for a lower lever of contamination, a CA.

   b. On January 25, 2001, in [the room], an RCT moved a contaminated meter from fumehood 23, a posted HCA, to fumehood 25 without placing the meter in a sealed transfer bag. Room [ ] and fumehood 25 were posted for a lower level of contamination, a CA.

   c. On January 25, 2001, in [the room], an RCT rolled highly contaminated wipes in the paper that lined the work area of fumehood 23, a posted HCA, and then transferred the wipes to fumehood 25 without placing the wipes in an approved containment such as a sealed transfer bag. Room [ ] and fumehood 25 were posted for a lower level of contamination, a CA.
   d. On January 29, 2001, an RCT removed a meter from the contaminated transfer bag and placed the meter on the floor of the

airlock in room [ ] without the meter being in an approved containment such as a sealed transfer bag.

As a result of the actions listed in 3.a through 3.d above, contamination was spread into [the room] and the room [ ] airlock.

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

II. Bioassay Program Tracking System Computer Query Deficiency

10 CFR 830.120(c)(2)(ii) dated April 5, 1994, requires that "design interfaces shall be designed and controlled" and that "verification and validation work shall be completed before approval and implementation of the design."

10 CFR 830.120(c)(2)(iv) dated April 5, 1994, requires that "inspection and testing of specified items, services, and processes shall be conducted using established acceptance and performance criteria."

10 CFR 830.122(f)(3) and (4) dated October 10, 2000, require that design interfaces shall be identified and controlled and that verification and validation work shall be completed before approval and implementation of the design.

10 CFR 830.122(h)(1) dated October 10, 2000, requires that that inspection and testing of specified items, services, and processes shall be conducted using established acceptance and performance criteria.

Contrary to the above, design interfaces between the newly developed computer query for required and voluntary bioassay sample turn-around times and the Mound Environmental Safety and Health (MESH) database between November 2000 and March 2001 were not controlled, and verification and validation of the interface was not completed before using the computer query. As a result, 33 voluntary [radioactive material] bioassay samples exceeded established turn-around times for analysis by as much as 16 days without the required work restrictions being assigned.

This is a Severity Level II violation.
Civil Penalty - $27,500

III. Radiological Work Permits Specify Incorrect Bioassay Requirements

10 CFR 835.104 dated November 4, 1998, requires that "written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazard created by the activity…"

10 CFR 835.1001(b) dated December 14, 1993, requires that “for specific activities where use of physical design features is demonstrated to be impractical, administrative controls shall be used to maintain radiation exposures ALARA.”

Contrary to the above, work was not performed to established procedures and administrative controls were not used to maintain radiation exposures ALARA in that–

MD-80036, Operation 90018, *Radiological Work Permit Preparation*, dated October 29, 1998, specified the use of Table 1, *Bioassay Sampling Requirements by Location* or radiological surveys to identify the radioisotopes for bioassay. Operation 90018, Attachment F *Determination of Radionuclides for Bioassay* dated March 2, 2000, and subsequent revisions during calendar year (CY) 2000 required that the radionuclides contributing 90% or more of the potential dose be included in the bioassay analysis. However, during CY 1999 and 2000, Babcock and Wilcox Technologies, Inc. of Ohio (BWXTO) personnel issued 28 RWPs that did not identify all the radioisotopes for bioassay as required by Operation 90018. As a result, workers who had performed work under the deficient RWPs were not monitored at the time for all potential radiological exposures.

This is a Severity Level II violation.
Civil Penalty - Waived

IV. Unreviewed Safety Question Program Deficiencies

10 CFR 830.120(c)(2)(i) dated April 5, 1994, requires that "…work shall be performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means.”

Contrary to the above, a DOE-MEMP assessment found several examples in CY 2000 where USQ work was not performed to established procedures in that–

A. Procedure MD-10492, *[Radioactive Material] Project Determination of Unreviewed Safety Questions,* (Issue 3), Appendix A, Section 3.1(c) requires that the USQ Process Forms provide specific references to the authorization basis documents related to the proposed change. Three Main-Hill USQ Process Forms failed to do so, specifically–

   1. USQ Process Form U-MHT-2000-188 pertaining to a temporary shutdown of the SM/PP Water Tower.

   2. USQ Process Form U-MHT-2000-196 pertaining to area SW-22 modifications to allow the removal of equipment.

3. USQ Process Form U-MHT-2000-202 pertaining to power supply modifications to the alarms that notify occupants in case of an emergency or accident.

B. Procedure MD-10492, *[Radioactive Material] Project Determination of Unreviewed Safety Questions,* (Issue 3), Appendix A, Section 3.2(a)(1) specifies for the USQ safety evaluation to list the design basis accidents that are related to the change, and to record their probability and consequences. Four of the USQ safety evaluations do not specify the accident probabilities and frequencies, specifically–

1. USQ Process Form U-MHT-2000-188 pertaining to a temporary shutdown of the SM/PP Water Tower.

2. USQ Process Form U-MHT-2000-196 pertaining to area SW-22 modifications to allow the removal of equipment.

3. USQ Process Form U-MHT-2000-201 pertaining to loss of the east stack exhaust fan when required to be in operation.

4. USQ Process Form U-MHT-2000-202 pertaining to supplying standby power to the ADT bells.

C. Procedure MD-10492, *[Radioactive Material] Project Determination of Unreviewed Safety Questions,* (Issue 3), Appendix A, Section 3.2(c)(3) requires the USQ evaluation to determine whether the proposed change could introduce a new accident scenario. One safety evaluation (U-MHT-2000-196) relies on a separate management control (Core Team review/approval) to ensure no new accident scenarios will be introduced. This then removes such review from the USQ process as was required by MD-10492.

D. Procedure MD-10492, *[Radioactive Material] Project Determination of Unreviewed Safety Questions,* (Issue 3), Appendix A, Section 3.2(d)(2) requires that the safety evaluation examine and summarize the details of the proposed activity or issue, and determine if there are new modes of failure. One safety evaluation (MHT-2000-196) only lists the structures, systems and components, and does not explain the basis of why there is no possibility of a different type of equipment malfunction from that addressed in the authorization basis.

E. Procedure MD-10492, *[Radioactive Material] Project Determination of Unreviewed Safety Questions,* (Issue 3), Appendix A, Section 2, requires that the USQ screen identify if the change could impact a structure, system or component described in the authorization basis. The USQ screen (U-MHT-

2000-175) for a change to add an uninterruptible power supply for the data logger in the [radioactive material] monitoring system concluded that the change would not affect a structure, system or component as described in existing safety analyses. However, the data logger is part of the [radioactive material] monitoring system, as described in the Basis for Interim Operation.

F. Procedure MD-10492, *[Radioactive Material] Project Determination of Unreviewed Safety Questions,* (Issue 3) requires that "… the MHT Project will undergo at least one partial USQ program assessment by either an external agency or consultant or by the other nuclear facility PIR Managers within each twelve month period." DOE-MEMP's assessment of the BWXTO USQ process in December 2000 found that no such external or independent assessment was conducted of the MHT USQ program.

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

Pursuant to the provisions of 10 CFR 820.24, BWXTO 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 Price-Anderson Enforcement, Attention: Office of the Docketing Clerk, OE, P.O. Box 2225, Germantown, MD 20874-2225. Copies should also be sent to the Manager, DOE Ohio Operations Office, the Manager, DOE Miamisburg Environmental Management Project, and to the Cognizant DOE Secretarial Office 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 Proposed Civil Penalty" 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.

Any request for remission or mitigation of civil penalty must be accompanied by substantive justification demonstrating extenuating circumstances or other reasons why the assessed penalty should not be paid in full. In requesting mitigation of the proposed civil penalty, BWXTO should address the adjustment factors described in Section IX of 10 CFR 820, Appendix A. Within the 30 days after the issuance of the Notice and Civil Penalty, unless the violations are denied, or remission or mitigation is requested, BWXTO shall pay the civil penalty of $137,500 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 Direct, Office of Price-Anderson Enforcement, Attention: Office of the Docketing Clerk at the above address. Should BWXTO fail to answer within the time specified, the contractor will be issued an order imposing the civil penalty.

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.

Sincerely,

R. Keith Christopher

R. Keith Christopher
Director
Office of Price-Anderson Enforcement

Dated at Washington, DC,
this 11th day of July 2001

Enforcement Conference Summary

The DOE Office of Price-Anderson Enforcement (OE) held an Enforcement Conference with Babcock and Wilcox Technologies of Ohio, Inc. (BWXTO) personnel on May 23, 2001, in Germantown, Maryland. OE held the meeting to discuss the facts, circumstances, and corrective actions pertaining to the January 25, 2001, [radioactive material] uptake event in Building 38, bioassay program deficiencies, and the unreviewed safety question program deficiencies.

The conference was called to order by R. Keith Christopher, Director, Office of Price-Anderson Enforcement. A list of attendees is attached. Information and key areas discussed at the conference are summarized below, and material provided by BWXTO during the conference was incorporated into the docket file.

P. S. Baker, [ ], BWXTO provided an introduction and summary of the various issues. Mr. Baker stated that BWXTO's areas of concern were the formality of operations, continuous improvement opportunities and a legacy issue of a questioning attitude. He then outlined areas of continuous improvement including implementing improvements in radiological controls, emphasizing accountability for procedural compliance, implementing a different formal causal analysis, and revising issues management to include a Compliance Review Board.

R. L. Higgins, [ ], discussed the 15 unanalyzed [radioactive material] bioassay samples collected in 1995. Mr. Higgins acknowledged that BWXTO had several opportunities to identify the unanalyzed samples but the lack of a questioning attitude contributed to the issue. He further stated that BWXTO had corrected the problem by implementing a new Mound Environmental Safety and Health (MESH) sample receipt module such that there was no potential for recurrence. Mr. Higgins then summarized the causal analysis of the 15 unanalyzed bioassay samples from 1995 and of the factors that contributed to the failure to find the unanalyzed samples for five years. He discussed the combined investigation team's findings as documented in *Discovery of Five-Year Old Unanalyzed Bioassay Samples* and the resulting corrective actions.

Mr. Higgins discussed the issue of the Mound radiological work permits specifying incorrect bioassay requirements. He noted that the issue had been self-identified as the result of a BWXTO internal audit and then outlined the history of the problem. Since BWXTO considered the potential for an undetected exposure to be a serious problem, a stop work order for all work involving bioassay except [radioactive material] was issued. Mr. Higgins then summarized the deficiencies and short-term corrective actions associated with the issue.

Radiological or historical characterization data had not been used consistently to identify the required isotopes for bioassay monitoring. Short-term corrective actions included changes in radiological characterization, bioassay determinations and RWP roster control. Long-term corrective actions included establishing an accountability process for radiological control personnel, revising Radiological Point of Contact training, revising and communicating radiological control Quality Assurance Plan, and developing a Radiological Control Program Improvement Plan.

Mr. Jay Maisler, [ ], discussed the issue of bioassay sample turnaround times being exceeded without assigning work restrictions. Mr. Maisler outlined the history of the issue and identified the direct cause as an incorrect MESH computer query. Further, one of the root causes had been identified as the lack of recent training in Technical Manual MD-10196, *Software Quality Assurance Plan*. The only record of training on file for software quality assurance dated back to 1991. Mr. Higgins discussed the relationship of this current problem with the previous enforcement action (EA98-12) issued in 1998 for failure to perform verification and validation (V&V) of new computer software for the MESH system. Mr. Higgins stated that the computer query had not been considered new software that required V&V. Mr. Maisler then discussed corrective actions which included implementing a training course, revising all associated radiological control procedures to include the requirements of MD-10196, developing a schedule of assessments to focus on legacy issues, and developing a listing of computer software for which configuration management is required. Mr. Maisler then discussed the status of corrective actions and mitigation factors to be considered. Mr. Maisler corrected some information previously supplied to OE.

Mr. Maisler discussed the January 25, 2001, Building 38 [radioactive material] uptake event. Mr. Maisler indicated that poor planning and lack of planning led to the event and intake. Details of the problems included the required pre-job briefing was not conducted; the requirements of the RWP were violated; and a series of problems occurred with contamination control. Mr. Maisler attributed the problems to schedule pressures which involved completing radiological surveys and identifying the radiological source term in order to lower the facility rating from a Category 3 nuclear facility to a Radiological Facility. The facility rating impacted the scope of work being supplied to subcontractors for working bids. The schedule pressures resulted in the performance of work prior to the availability of experienced personnel. Additionally, the Radiological Point of Contact (RPOC), the first level of supervision, was carrying a significant workload such that he could not devote the necessary resources to the task. OE questioned the lack of work planning and the failure to follow BWXTO's procedures for work and hazards control. Mr. Maisler discussed the consequences, which included an unplanned exposure to a worker, the spread of contamination throughout room [ ] and the airlock, which required significant effort to decontaminate, and the creation of an unknown airborne radioactivity area. Actions to prevent recurrence included briefing all RPOCs on lessons-

learned, issuing a letter from the Radiological Control Manager (RCM) to all radiological controls personnel discussing balancing priorities, and issuing a letter from the Site Manager to all employees emphasizing the importance of properly planning hazardous activities. Additionally, the RCM and deputy RCM met with the RPOCs and all Special Metallurgical/[Radioactive Material] Production [ ] RCTs and re-enforced that RWPs are not work-planning documents. The Integrated Safety Management Program Manager met with the RCM, the radiological control supervisors and the RPOCs to discuss the integrated work control process. Finally, Conduct of Operations training was provided to radiological controls personnel using this event and the developed lessons learned description.

Mr. J. Stapleton, [ ], discussed the history of the unreviewed safety question (USQ) program deficiencies. He described the history of the USQ problem, beginning with some substantial program weaknesses, including inadequate procedures and lack of qualification requirements, identified in 1998 by a DOE assessment. BWXTO at that time developed and implemented comprehensive procedures and training of personnel. Mr. Stapleton also noted the extensive self-assessment process that BWXTO has conducted of the USQ program. He acknowledged the problems that were noted in the DOE investigation summary, and that had been identified by DOE. He believed these implementation issues would be addressed by various corrective actions including a site-wide USQ training course, developing a qualification standard for USQ evaluators, and conducting inter-departmental USQ assessments.

Mr. Higgins stated that BWXTO did not challenge any of the findings documented OE's Investigation Summary Report.

Mr. Christopher indicated that DOE would consider the information presented by BWXTO when DOE undertakes its enforcement deliberations. Mr. Christopher then adjourned the conference.

BWX Technologies of Ohio, Inc.
Mound Plant Bioassay program Deficiencies,
Unreviewed Safety Question Program
Deficiencies and [Radioactive Material] Uptake Event in Building 38

Enforcement Conference List of Attendees

Office of Price-Anderson Enforcement

R. Keith Christopher, Director
Susan Adamovitz, Senior Enforcement Specialist
Anthony Weadock, Enforcement Specialist
Peter Rodrik, Enforcement Specialist
Hank George, Technical Advisor

Office of Safety, Health and Security, EM-5

Hank Himpler, DOE PAAA Coordinator
Ellen Chitwood, DOE PAAA Coordinator
Maria Gavrilas-Guinn, Radiological Control Program Advisor
Tom Evans, Safety and Health Officer

Closure Office for Ohio, EM-31

Kimberly Chaney, Director
Don Mackenzie, Health Physicist

Ohio Field Office

Rick Provencher, DOE-MEMP Director

BWX Technologies of Ohio, Inc.

Peyton S. Baker, [ ]
Jay Maisler, [ ]
Jeff Stapleton, [ ]
Rich Higgins, [ ]
Sanita Webb, [ ]
Florence Phillips, [ ]

Referenced NTS Numbers

NTS-OH-MB-BWO-BWO01-2000-0002,
NTS-OH-MB-BWO-BWO04-2000-0001,
NTS-OH-MB-BWO-BWO04-2000-0004,
NTS-OH-MB-BWO-BWO02-2001-0001, and
NTS-OH-MB-BWO-BWO04-2001-0002