



Department of Energy

Washington, DC 20585

June 27, 2002

Mr. John Mitchell

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BWXT Y-12, L.L.C.

P.O. Box 2009

MS 8001

Oak Ridge, TN 37831-8001

Subject: BWXT Y-12 Price-Anderson Amendments Act Program Review

Dear Mr. Mitchell:

On May 13-14, 2002, the Department of Energy's (DOE) Office of Price-Anderson Enforcement (OE) conducted a review of the BWXT Y-12 Price-Anderson Amendments Act (PAAA) program. As part of this review, your processes for screening nuclear safety noncompliances for applicability under the PAAA, for reporting and tracking to DOE's Noncompliance Tracking System (NTS) and internal tracking systems, and for correcting deficiencies in a timely manner were evaluated. Review activities included onsite discussion with cognizant personnel and review of applicable documentation prior to and subsequent to the onsite visit.

Our review concluded that your PAAA program generally meets DOE expectations and guidance, with the exception of several areas listed below. Our review also identified a number of strengths in your program, which are also listed below. Both of these areas are discussed in more detail in the attached report.

PAAA Program Strengths

- The BWXT Y-12 PAAA Program Manager and staff are knowledgeable and experienced, and report to a senior management position with direct access to the General Manager.
- The PAAA noncompliance determination and reporting process is structured and is described in a formal procedure.
- A Management Assessment and an Independent Assessment of the BWXT Y-12 PAAA noncompliance determination and reporting process were conducted in 2001, with improvements to the process implemented in February 2002.
- A good cross-section across the organization (with representatives in each of the Directorates) is involved in the PAAA screening and reporting process.

- A broad net of potential sources of noncompliance is being considered for PAAA screening.
- The backlog of issues to be screened has been substantially reduced by BWXT.
- The Feedback and Improvement Working Group is a positive step toward identifying broader management and systemic problems.
- BWXT Y-12 has identified and reported into NTS some programmatic issues, as opposed to only reacting to events. However, some improvement in reporting the broader set of identified programmatic problems is needed as discussed below.

PAAA Program Weaknesses

- The *Price-Anderson Amendments Act Policy* (Policy Y12-037) and *Price-Anderson Amendments Act (PAAA) Noncompliance Determination and Reporting (Procedure Y76-001)* both use language that limit application of Part 830 or 835 to conditions with the direct potential to cause radiological harm. In practice we found the issue screenings to also inappropriately use this criterion in looking for direct potential for radiological harm from the issue, as well as applying an overly narrow consideration of whether the issue affected safety. As discussed in the attachment, these approaches should be corrected since they could lead to a corporate failure to understand and properly apply the breadth of the QA Rule.
- Procedure Y76-001 includes language that sets a guideline of 20 days for NTS reporting from the date of determining that the matter is NTS reportable. This is not consistent with DOE's guideline that calls for 20 days for reporting from the date of determining that a PAAA noncompliance exists.
- The screening and reporting of deficiencies for PAAA noncompliances have not been consistently timely.
- Screenings often do not identify the specific noncompliance that occurred (including rule section reference). In some cases this led to classifying conditions as PAAA noncompliances when no noncompliances occurred.
- Several systemic or programmatic problems were identified by BWXT Y-12, and were appropriately addressed through corrective actions; however many of these were not classified as programmatic and thus were not reported into NTS as recommended in longstanding PAAA reporting guidance.
- BWXT Y-12 is not screening individual "secondary sources" such as Radiological Awareness Reports and Nonconformance Reports for PAAA noncompliances, which are only screened quarterly for trends. Some secondary source issues are picked-

up where there is a reportable occurrence through the screening of individual Occurrence and Reporting and Processing System (ORPS) reports.

- BWXT Y-12 experienced a long period of about eight months (September 2001 to May 2002) with no NTS reports.

While improvements in the process and its application have occurred over the past year, it is clear that further improvement and management attention to this area are in order. Failure to correct the weaknesses noted above may result in a potential reduction or loss of mitigation as described in the DOE Enforcement Policy (10 CFR 820 Appendix A) for any future BWXT Y-12 enforcement actions. Further, they will prevent your program from operating effectively. Details of the OE review are provided in the enclosure. No reply to this letter is required. If you have any questions, please contact Susan Adamovitz at (301) 903-0125.

Sincerely,



Howard M. Wilchins
Acting Director
Office of Price-Anderson Enforcement

Enclosure: PAAA Program Review

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Price-Anderson Amendments Act Program Review BWXT Y-12

I. Introduction

On May 13 and 14, 2002, the Department of Energy (DOE) Office of Price-Anderson Enforcement (OE) conducted a review of the Price-Anderson Amendments Act (PAAA) Program implemented by BWXT Y-12 for its activities at DOE's Y-12 facility. The review evaluated the program's functions related to: the identification and screening of nuclear safety noncompliances, the determinations of reportability to DOE's Noncompliance Tracking System (NTS), cause determination for noncompliances reported either to the NTS or BWXT Y-12's onsite tracking system, and noncompliance corrective action implementation and closure.

II. PAAA Program Implementation

Organizationally, BWXT Y-12 has structured the PAAA program with a PAAA Program Manager reporting to the Director of Performance Assurance, who reports directly to the General Manager. This provides access to senior management for nuclear safety noncompliance concerns. The PAAA Program Manager serves as the BWXT Y-12 PAAA Coordinator, and has a staff to assist in handling PAAA nuclear safety matters on a day-to-day basis.

The BWXT Y-12 PAAA program infrastructure and personnel responsibilities are described in the following BWXT Y-12 documents:

1. BWXT Y-12 Policy Y12-037, *Price-Anderson Amendments Act Compliance Policy*.
2. BWXT Y-12 Procedure Y76-001, *Price-Anderson Amendment Act (PAAA) Noncompliance Determination and Reporting*, (recently revised - February 1, 2002).

Policy Y12-037 establishes management policy to conduct Y-12 activities in a manner that ensures the safety and security of workers, the public, and the environment. It requires that processes and equipment necessary for safety be provided, and that activities be conducted in accordance with applicable procedures and management controls. It also establishes responsibility of all employees to comply with applicable procedures and to stop work when unsafe conditions or those adverse to quality are identified.

Procedure Y76-001 describes the PAAA noncompliance determination and reporting process for BWXT Y-12. The process provides that:

- The Performance Assurance Directorate, through the PAAA Program Manager and PAAA Coordinator, is assigned responsibility for PAAA program policy and direction.
- The position of Line Management PAAA Officer (LMPO) be established, responsible for screening various sources and identifying potential PAAA noncompliance conditions.
- LMPOs are established for the QA, ES&H, Facilities Infrastructure and Services, Engineering, and EUO Restart Divisions.
- Screenings for PAAA noncompliance determination and reportability are reviewed by the PAAA Program Office.
- NTS Reports are prepared by the PAAA Program Office; programmatic reports require the approval of the General Manager.
- Quarterly trending is performed by the LMPO.

A Management Assessment of the PAAA noncompliance determination and reporting process was performed with a report issued in September 2001. The Management Assessment identified several strengths or positives for the process, but also some areas for improvement to be consistent with DOE guidance. Corrective actions for the opportunities for improvement were completed by February 2002. Changes included revision to the Conduct of Operations Manual with additional information on PAAA screening, general awareness training and individual training on PAAA, addition of LMPOs in the various Directorates, and performance of an Independent Assessment.

The Independent Assessment of the PAAA noncompliance determination/reporting process as well as the Management Assessment area was conducted by BWXT Y-12 with a report issued in September 2001. The Independent Assessment identified a number of weaknesses pertaining to the process. Further PAAA determination and reporting process corrective actions for the issues identified in the Independent Assessment were completed by March 2002. Changes included requirements for methodologies for screening secondary sources, improved application of screening of required sources, determinations of repetitive and programmatic problems, trending of historical data, and further training to LMPOs on roles and responsibilities.

The OE review identified positive aspects of the BWXT Y-12 PAAA Program implementation, specifically:

- The BWXT Y-12 PAAA Program Manager and staff are knowledgeable and experienced, and report to a senior management position with direct access to the General Manager.

- The PAAA noncompliance determination and reporting process is structured and is described in a formal procedure.
- A Management Assessment and Independent Assessment of the BWXT Y-12 PAAA noncompliance determination and reporting process were conducted in 2001.
- BWXT Y-12 completed corrective actions to address the weaknesses identified in the Assessments, culminated with a re-issuance of the PAAA determination and reporting procedure (Procedure Y76-001) in February 2002.

The OE review found certain weaknesses in the language of the PAAA program procedure and policy, namely:

- The policy (Policy Y12-037) and procedure (Procedure Y76-001) both use language that limit application of Part 830 or 835 to conditions with the direct potential to cause radiological harm. This deficiency is addressed further in the next section.
- Procedure Y76-001 also includes language that sets a guideline of 20 days for NTS reporting from the date of determining that the matter is NTS reportable. This is not consistent with DOE's guideline that calls for 20 days for reporting from the date of determining that a PAAA noncompliance exists.

III. Evaluation of Noncompliance Identification and Screening Process

BWXT Y-12 Procedure Y76-001, *Price-Anderson Amendment Act (PAAA) Noncompliance Determination and Reporting* requires that BWXT Y-12 activities comply with nuclear safety rules, adequate resources are applied to the development of oversight of the PAAA Compliance Program, personnel are trained on nuclear safety requirements, and a Compliance Program network of LMPOs is structured to facilitate implementation and compliance with requirements. Additionally, this procedure establishes a process of self-regulation to ensure that PAAA noncompliances are identified, appropriately reported, and corrected in a timely manner by BWXT Y-12.

The PAAA determination process involves screening of various primary and secondary sources by the individual LMPOs in each Directorate, and review of all screenings by the PAAA Coordinator. Sources screened include occurrence reports, assessment-identified deficiencies, Defense Nuclear Facilities Safety Board (DNFSB) reviews, management walk-arounds, nonconformance reports, nuclear criticality safety deficiencies, and radiological awareness reports. The PAAA Coordinator also reviews and approves screening methodologies to be used by the individual Directorates. Quarterly trending is also recommended to ensure that adverse trends are identified. Screening of secondary sources was not being done for individual Radiological Awareness Reports (RAR) and Nonconformance Reports (NCR), although these were reviewed on a quarterly basis. The individual RARs, NCRs and other appropriate

secondary sources should be screened so that noncompliances with nuclear safety requirements are identified as such in a timelier manner.

BWXT Y-12 has also formed a team of senior individuals and managers called the Facility Improvement Working Group, or FIWG. That Group convenes quarterly to analyze Y-12 operational and safety performance, develop performance trends, and formulate recommendations for senior management. The FIWG prepares Quarterly and Annual Feedback and Improvement Reports, and provides quarterly briefings of executive management. The activities of the FIWG represent an excellent opportunity for uncovering broader systemic or programmatic issues, as well as precursor conditions and trends before they result in a significant adverse event.

Since January 2002, the backlog of issues to be screened for PAAA noncompliance determination has been substantially reduced, from 258 to 19 by May 2002, which should result in greater timeliness of PAAA determination. Additionally, the issues considered for screening have substantially increased under BWXT as compared to the previous contractor, indicating that a much broader net is being cast for potential compliance deficiencies.

In reviewing a number of BWXT Y-12 screening documentation files from prior to March 2002, it was found that often the screening was not being completed until several months after identification of the problem. Some were over a year, although a number of others were completed in 1 to 3 months. The examples in *Operational Procedures – Identifying, Reporting, and Tracking Nuclear Safety Noncompliances Under Price Anderson Amendments Act of 1988*, June 1998 suggest that DOE considers timely identification of noncompliances to be about 15 days from discovery of an adverse condition. BWXT Y-12 appears to now be making a serious effort to complete its screening in a more timely manner.

The OE review found that a number of deficiencies were incorrectly being screened out as PAAA noncompliances. The basis for exclusion used two different terms: one that the deficiency did not affect “nuclear or radiological safety,” and the other that the deficiency did not have the direct potential for radiological harm. As applied in the BWXT screening, these terms were used inappropriately. 10 CFR 830.1 states that the rule “...governs the conduct of DOE contractors...and other persons conducting activities (including providing items and services) that affect, or may affect, the safety of DOE nuclear facilities.” BWXT’s screenings to determine PAAA applicability in several cases appeared to conclude that because the deficiency did not actually or have the potential to result in immediate or direct radiological consequences, the problem was not a PAAA deficiency. Nuclear safety includes an integrated layering of various programs, procedures, safety features and equipment, and trained and qualified personnel resulting in a defense-in-depth approach. A failure or violation in any one of these generally does not lead to immediate or direct safety consequences. However, a failure or violation in any of these does represent a degradation in the level of safety intended and thus the deficiency should be considered to affect safety. The approach apparently being used by BWXT impermissibly removes significant areas of PAAA

applicability, such as training, procurement, assessment, or safety feature degradation. These illustrate a few areas where an individual violation would not cause a direct radiological consequence because of other layers of protection in the defense-in-depth scheme, however, these clearly affect the safety measures that are instituted and thus should be considered as affecting safety.

Additionally, several of the BWXT screens used the terminology that the deficiency did not have the potential to cause radiological harm, and thus issues were incorrectly excluded as PAAA noncompliances. The definition in 10 CFR 830 of a nonreactor nuclear facility indicates such a facility “means those facilities, activities or operations that involve, or will involve, radioactive and/or fissionable materials in such form and quantity that a nuclear or a nuclear explosive hazard potentially exists to workers, the public, or the environment.” The Office of the General Counsel Ruling 1995-1, 61 FR 4209, in response to the first question set forth therein pertaining to whether Part 830 and Part 835 only applied to facilities handling source, byproduct or special nuclear materials, indicated that:

The requirements in Part 830 and Part 835 cover all activities under DOE’s auspices with the potential to cause radiological harm.

(and)

Part 830 covers activities at facilities even where no nuclear material is present such as facilities that prepare the nonnuclear components of nuclear weapons, but which could cause radiological damage at a later time.

at page 4210.

It is clear that Y-12 is included under the definition of nonreactor nuclear facility set forth in the rule and thus, all requirements of the rule apply to it. It is appropriate to apply the quality assurance rule using the graded approach, but the rule does not permit the constraint of direct potential for radiological harm as an applicability threshold for requirements within the QA Rule.

In one example BWXT incorrectly determined that lack of records to demonstrate that required training for assemblers had been completed was not a PAAA noncompliance because the training failure did not result in any radiological harm. Another example of the failure to apply the appropriate PAAA applicability standard involved lack of evidence to demonstrate that certain quality assurance (QA)/safety management controls had been conducted, namely vendor evaluation requirements. The contractor position was that other controls (vendor certifications) would likely have caught deficiencies and thus the lack of required vendor evaluations did not have the potential for radiological harm. These are quite plainly incorrect and potentially harmful restrictions of rule applicability, and clearly should be corrected.

BWXT has identified several systemic or programmatic problems through various sources, such as management assessments. Examples included: finding that Job Hazards Analyses were not being placed in the document control system and thus were not being maintained as controlled documents, vital quality records (weapons QA, Radiological Work Permit (RWP) files, personal air monitoring files, and material release records) were not being protected from deterioration or damage while in storage, and personnel in a particular building were found to not be following procedures in a step-by-step manner. Such problems were addressed by BWXT Y-12 as programmatic problems, and appropriate corrective measures were taken to fix these programmatic problems. The only deficiency from a PAAA determination standpoint was an apparent reluctance to classify these problems and others as programmatic and to report them into the NTS.

In summary the OE review noted a number of strengths in the BWXT Y-12 PAAA screening or determination process, namely:

- A good cross-section across the organization (with representatives in each of the Directorates) is involved in the PAAA screening and reporting process.
- A broad net of potential sources of noncompliance is to be considered for PAAA screening.
- The backlog of issues to be screened has been substantially reduced between January and May of this year.
- The FIWG is a positive step toward identifying broader management and systemic problems.

Also, the OE review noted certain weaknesses in the PAAA screenings or determinations being performed by BWXT Y-12, most notably:

- The screening of deficiencies to identify PAAA noncompliances is not consistently timely.
- Heavy reliance is placed on “no potential for radiological harm or not directly affecting nuclear or radiological safety” as the basis for not classifying a deficiency as a PAAA noncompliance in screening determinations, leading to several misclassifications.
- The screening procedure checklist inappropriately uses the above language as preconditions for a noncompliance. Such misleading language also appears in the BWXT Y-12 PAAA Policy.
- Screenings often do not identify the specific noncompliance that occurred (including rule section reference). In some cases this led to classifying conditions as PAAA noncompliances when no noncompliances occurred.

- Several systemic or programmatic problems were identified by BWXT Y-12, and were appropriately addressed through corrective actions, but many of these were not classified as programmatic. (Despite this, a few major programmatic issues have been identified by BWXT and reported into NTS.)
- BWXT is not screening individual “secondary sources” such as RARs and NCRs for PAAA noncompliances. These are only screened quarterly for trends. (Although some secondary source issues are picked-up where there is a reportable occurrence through the screening of individual ORPS reports.)

The above PAAA determination weaknesses were from matters reviewed under the prior BWXT process, as there was limited data with the new procedure at the time of the OE visit. However, some of the problems may persist since they were not addressed in the revision to the procedure.

IV. Evaluation of NTS Reportability Process

The OE review found that the BWXT Y-12 process to consider issues for NTS reportability was at times lengthy. For problems reported into NTS, the duration from identification of the condition or occurrence until submittal of the NTS report varied from about 1 month to as long as 11 months. Similarly, review of NTS screening documentation for non-NTS reported examples showed that the duration from identification of the problem or condition until determination of reportability ranged from 1 to 10 months, with several in the 3 to 4 month range. DOE's reporting guidance in *Operational Procedures – Identifying, Reporting, and Tracking Nuclear Safety Noncompliances Under Price Anderson Amendments Act of 1988*, June 1998 indicates that DOE considers timely identification of noncompliances to be about 15 days from discovery of an adverse condition, and timely reporting to be within about 20 days of determining that a noncompliance exists. The BWXT process appears to be somewhat longer than DOE's guideline.

BWXT Y-12 has reported into NTS several major programmatic problems in the 1-1/2 years since it has taken over management of Y-12. These have included programmatic problems in fire protection equipment maintenance and documentation, calibration of equipment, management assessment, root cause determination and corrective action development. Identification of these systemic or programmatic problems is a positive safety management step, since these problems can be addressed and corrected before they result in a significant adverse event. While it is a strength that some of these are being identified and reported into NTS, a number of other programmatic problems are not being classified as programmatic as noted in the previous section, and thus not being reported into NTS.

Also, BWXT Y-12 was active in reporting a number of problem areas and events into NTS during its first almost 11 months of management responsibility for Y-12. However, from September 2001 until just prior to the OE visit in May 2002, no NTS reports were filed in that 8-month period. When questioned about this during the OE site visit, BWXT

indicated that this was not due to any particular shift in willingness to report or reporting threshold, but was more the result of redirecting management focus and resources to reduce the PAAA screening backlog. This had the unintended result of deferring any decision-making on NTS reportability.

In summary, the OE review noted a strength in the BWXT Y-12 reportability process, namely:

- BWXT Y-12 has identified and reported into NTS some programmatic issues, as opposed to only reacting to events. However, some improvement in reporting the broader set of programmatic problems that are found is needed.

Also, the OE review identified some weaknesses in the PAAA reportability process, most notably:

- BWXT Y-12 has not been timely in submitting reportable noncompliances.
- Several programmatic issues were not classified as programmatic (as noted in Section III above) and thus were not reported into NTS.
- BWXT Y-12 experienced a long period of about 8 months (September 2001 to May 2002) with no NTS reports.

Note that the reportability weaknesses were based largely on OE review of BWXT reportability determinations using the previous BWXT process. That process was revised and issued in March 2002, and thus these issues may be corrected in the revised process. Only limited data was available at the time of the OE visit, so no firm conclusion can be reached in that regard.

V. Evaluation of Root Cause Analysis and Corrective Action Process

BWXT Y-12 Procedure Y76-001 requires cause determinations for NTS reportable PAAA noncompliances. Procedure Y15-312INS, *Issues Management*, requires formal cause determinations for Level A Findings, which are those with the potential for serious impact on safety, health, environment, operations, quality, safeguards and security, or mission performance if not corrected. Informal cause determinations are required for Level B Findings, which are those with the potential for moderate impacts on the above factors. The process for conducting these root cause investigations has been proceduralized including requirements for investigator training, guidance on choosing a root cause method, and the development and implementation of corrective actions.

Corrective actions for both internal and NTS reportable noncompliances are tracked in accordance with the Issues Management process, per Procedure Y15-312INS. A manager is assigned responsibility as the “Accountable Manager” for each issue. The Accountable Manager monitors status of corrective actions and ensures all actions are completed, including verification of closure.

In reviewing the timeliness of completion of corrective actions, the following observations were made:

- In general, BWXT Y-12 has been timely in completing corrective actions for the 11 NTS reports submitted by BWXT Y-12 as of the date of the OE site visit. Almost all BWXT NTS corrective actions were completed in a timely manner, or within about 4 months of identification of the condition or the occurrence.
- Only a few NTS reports were considerably longer on corrective action completion. In one case the issue pertained to a major problem with the Fire Protection Program that required significant changes and evaluations over a 28-month period.
- In general, BWXT Y-12 was found to also be timely in completing corrective actions for non-NTS reported noncompliances. OE's review of 12 non-NTS reported noncompliances found that in most cases corrective actions were completed and the matter closed within about 5 months.
- Only 1 of the 12 examples reviewed had an extended timeframe for completion of the corrective actions. That one involved actions to correct ASME Code compliance issues, and understandably required 18 months to complete.

No significant weaknesses were identified with the preparation and tracking of corrective actions for PAAA noncompliances.

VI. Conclusion

The DOE Enforcement Policy (10 CFR 820, Appendix A) provides positive incentives for contractors who identify, report, and promptly and comprehensively correct nuclear safety noncompliances. The above noted deficiencies, if not corrected, could affect the confidence of DOE in BWXT Y-12's PAAA Program and could impact the application of enforcement discretion for BWXT potential violations. Nevertheless, significant strengths in the BWXT Y-12 program have been noted.