



Department of Energy
Washington, DC 20585

May 11, 2006

Dr. Jeffrey Wadsworth
President and Chief Executive Officer
UT-Battelle, LLC
P.O. Box 2008
Oak Ridge, TN 37831-6255

Subject: Price-Anderson Amendments Act Program Review

Dear Dr. Wadsworth:

The Office of Price-Anderson Enforcement (OE) recently conducted a review of the Price-Anderson Amendments Act (PAAA) program in use at the Oak Ridge National Laboratory (ORNL). Our review included an evaluation of processes to screen noncompliances for applicability under the PAAA, reporting and tracking in the Noncompliance Tracking System (NTS) and internal tracking systems, and correcting deficiencies in a timely manner.

Overall, we found a maturing, well-documented program that displayed many positive attributes. Several minor weaknesses were identified though these were not considered to be indicative of some larger issue; they were primarily regarded as items that had not yet been reassessed due to other priorities. Examples of observed program strengths are summarized as follows:

- Strong and experienced leadership for the PAAA program.
- Solid and demonstrated management support for the PAAA program.
- UT-Battelle is reviewing many sources of potential noncompliances, and screening a large number of issues.
- UT-Battelle has placed experienced and active individuals on the PAAA Review Board.
- Fifty percent of UT-Battelle's 2005 NTS reports were for deficiencies that were assessment-identified and programmatic issues.
- The PAAA Program Office is conducting a review and providing comments on all root causes analyses, corrective actions and extent of condition reviews for NTS-reported noncompliances.

- The PAAA Program Office develops comprehensive closeout packages to support UT-Battelle and DOE review.
- UT-Battelle conducts an independent effectiveness assessment of corrective actions for all NTS reports.
- A strategic, risk-based approach is being used by UT-Battelle's Independent Oversight group as well as by the Quality Systems and Services Division to identify candidate areas for independent assessments in the coming year.
- In addition to Independent and Management or Self-Assessments, UT-Battelle's quality assurance representatives conduct numerous surveillances that are well-documented, comprehensive, and performed by individuals independent of the line organization.

Examples of observed minor weaknesses are summarized as follows:

- Many steps have been added into the screening and reporting process, but these have not been included in the governing procedures.
- The screening checklist in "Subject Area: Price-Anderson Amendments Act" is still too narrowly focused and is not fully aligned with the nuclear safety rules.
- The consistency of documentation of local screening and tracking of issues varies.
- Some trending of conditions has been performed on selected issues by the PAAA Program Office, but this is not a routine, comprehensive Laboratory process.
- A review of several trending reports found that these appeared to focus primarily on whether there was a statistically significant increase in the frequency of particular types of events under review (e.g., skin and clothing contaminations) rather than assessing whether there are common causes among the events that should be addressed to prevent recurrence.
- There was a large backlog of open NTS reports, some opened several years ago.
- Resources for the Independent Oversight group were limited, with the group leader as the only full-time resource.

Details of the OE review are provided in the enclosure. No reply to this letter is required. Please contact me at (301) 903-0100, or have your staff contact Steven Zobel at (301) 903-2615, if you have any questions regarding this review.

Sincerely,



Stephen M. Sohinki
Director
Office of Price-Anderson Enforcement

Enclosure

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ENCLOSURE

OAK RIDGE NATIONAL LABORATORY PRICE-ANDERSON AMENDMENTS ACT PROGRAM REVIEW

I. Introduction

From December 13-14, 2005, the Office of Price-Anderson Enforcement (OE) performed an onsite review of the Price-Anderson Amendments Act (PAAA) program in use by UT-Battelle at Oak Ridge National Laboratory (ORNL). This was the second PAAA program review conducted at ORNL; the first review was conducted in July 2001 and the results of that were favorable. In 2005, an enforcement action, EA-2005-06, was issued to the contractor for several nuclear safety deficiencies that included certain quality improvement and management assessment processes. The current review included an evaluation of contractor processes for the identification and screening of potential noncompliances, the reporting and tracking of noncompliances in the Noncompliance Tracking System (NTS) and internal tracking systems, the formal tracking and resolution of quality issues, a review of the effectiveness of relevant corrective actions resulting from the 2005 enforcement action, and initiatives aimed at improving the safety culture. OE also conducted a limited review of ORNL's management and independent assessment programs. Overall, the ORNL PAAA program was viewed as effective, with necessary program elements in place and a number of notable program strengths. The OE review did identify several minor areas for improvement, which should be addressed to ensure appropriate mitigation consideration associated with possible future enforcement actions as well as continued OE exercise of discretion for noncompliances of lesser significance. The results of the review are summarized below.

II. General Implementation

UT-Battelle organizes, maintains, and controls its operational documents through a standards-based management system (SBMS). The ORNL PAAA program is described in "Price Anderson Amendments Act Compliance Assurance Program," dated May 18, 2005, which provides an overview of the program's purpose, structure, and policies. More specific PAAA program information and instructions are contained in the following supplementary documents:

- "Price Anderson Amendments Act (PAAA)," dated May 18, 2005,
- "PAAA Screening," dated May 18, 2005,
- "PAAA Training," dated May 18, 2005,

- "Reporting, Tracking, and Closing PAAA Noncompliances," dated May 18, 2005, and
- "Price Anderson Program Officers," dated July 8, 2003.

Though the ORNL PAAA coordinator position is not a direct report to the Laboratory Director, direct access is not restricted and the Deputy Laboratory Director for Operations is a member of the PAAA Review Board, of which the PAAA coordinator is the chairperson. The PAAA coordinator is committed full-time to the position, as is the assistant PAAA coordinator. Both individuals are supported by a full-time secretary. However, PAAA responsibilities are matrixed through the PAAA Program Office to approximately 25 Price Anderson Program Officers (PPO) within the various ORNL divisions. All employees with direct PAAA responsibilities, including members of the PAAA Review Board, receive training as prescribed by the "PAAA Training" procedure.

Strengths:

- Strong and experienced leadership for the PAAA program.
- Solid and demonstrated management support for the PAAA program.
- UT-Battelle has established a solid training program related to PAAA, including:
 - for PPOs: initial training and quarterly review meetings for refresher training and contemporary issues,
 - for general employees: PAAA awareness training, and
 - the PAAA Program Office provides ORNL-wide distribution (including Lab management, PPOs, and PAAA Review Board) of summary information related to complex-wide NTS reviews, DOE Headquarters Office of PAAA Enforcement (OE) enforcement letters, enforcement actions, program reviews, OE guidance and other information.
- PAAA Annual Report (draft for FY-2005) - Good summary of activities of the PAAA program office, PPOs and the PAAA Review Board in screening and reporting. It provides useful information to management on problem compliance areas, fraction of noncompliances identified through assessment versus event-disclosed, process problems, enforcement activity over the past year, and process improvements that have taken place.

Weaknesses:

- Many steps have been added into the screening and reporting process, but these have not been included in the governing procedures (SMBS "Price-Anderson Amendments Act"). Some of these have been added to the Program Description, but that is an information rather than a governing document. Examples include the PAAA Review Board function and authority, quarterly PPO reviews/meetings, PAAA

Program Office review of extent of condition, and expectations of PPOs for documentation of screening.

- The screening checklist in “Price-Anderson Amendments Act” is not consistent with the rules. The checklist places emphasis on noncompliance conditions that are safety basis-related. Many sections of the nuclear safety rules are not covered. This was an issue from the prior PAAA program review and does not appear to have been adequately resolved.
- While the refresher training for general employees is a positive, the training could be further enhanced. The focus is primarily on supporting the screening and reporting process. The training should also include the broader PAAA issue of Rule compliance, such as: reinforcing worker behavior to support rigorous compliance with nuclear safety requirements, adherence to work procedures and radiological controls, stopping work and asking questions when unsure, and reporting unusual conditions to supervision.
- Lack of a management-approved improvement plan for the PAAA screening and reporting process that documents the improvements that were represented by UT-Battelle to be in progress.

III. Identification and Screening

The “PAAA Screening” procedure provides the primary guidance for identifying sources of information to be screened for PAAA issues. Additional procedures providing instructions for PAAA reviews of issues or findings are as follows:

- “Causal Analysis,” dated September 29, 2005,
- “Extent of Condition Review,” dated September 29, 2005,
- “Effectiveness Reviews,” dated September 29, 2005, and
- “Responding to Assessment Results,” dated July 28, 2005.

Though the above-referenced procedures identify primary information sources for noncompliance identification, the PPOs interviewed stated that they also review additional sources of information that are specific to their respective divisions for possible noncompliances. Each PPO indicated that the screening form was used, either directly or as a guide, but each also used their own methods to document their screening and to track issues.

Strengths:

- UT-Battelle is reviewing many sources of information for possible noncompliances, and screening a large number of issues. Over 3,000 issues were screened in 2005.

- Many individuals across the organization are getting involved in making the screening and reporting decisions. This helps to spread the knowledge of the nuclear safety rules. It also creates some challenges, e.g., consistency in evaluation and trending, but these are being addressed.
- The sample of screenings reviewed by the OE team were found to be largely correct. However, several screening results were questionable as noted below.

Weaknesses:

- The PAAA screening and reporting process relies on evaluations made by PPOs. However, as of the date of this program review, the PAAA program office had not conducted any assessments of this process. UT-Battelle indicated that these assessments were planned for 2006.
- The documentation of local screening and tracking of issues varies. An evaluation form is available in the "Reporting, Tracking, and Closing PAAA Noncompliances" procedure. However, PPOs have the discretion to use other methods. Local documentation of evaluations and recordkeeping varies; information can be lost if a PPO leaves.
- Although a large fraction of screenings was found to be correct, several issues were noted. A screening of a radiation worker training issue was not correct: a retraining deadline had been missed but since the individual involved had not been assigned to enter a controlled area during the interim, it was presumed that no noncompliance existed. Though the outcome was fortunate, the worker was not in compliance with the training requirements and this represented a Part 835 noncompliance. Further, three radiological event reports (RER), concerning the identification of contamination, likely involved Part 835 noncompliances based simply on their titles, but their PAAA screenings indicated otherwise. These three RERs, however, could not be located for further evaluation though they were only a year old. Thus, this finding also reflects a records management concern.

IV. Evaluation of NTS Reportability

The PPOs perform the first determination of whether a deficiency or issue is NTS reportable. Those items that are determined to be possibly reportable are forwarded to the PAAA Program Office for further assessment. If the PAAA coordinator's review also determines that the issue is possibly a reportable noncompliance, then a decision package is prepared for later review by the PAAA Review Board (Board). If an issue is determined not to be NTS reportable, it is categorized as internally reportable. The Board is then convened to review and discuss the decision package(s), and to decide, by majority vote, if the issue requires further evaluation or if it is NTS reportable. Noncompliances that clearly meet DOE's NTS reporting thresholds are submitted without Board review. The Board does review these "automatic" NTS reports at its subsequent meeting to determine if any additional information should be provided. Details of the Board's activities and responsibilities are provided in the "Price Anderson

Amendments Act Compliance Assurance Program” description document. A review of several of the Board’s recently completed decision packages found no issues that should have been decided otherwise.

Strengths:

- UT-Battelle has placed experienced individuals on the Board who are also active participants. The Board functions as an autonomous body to decide NTS reportability and effectively reviews each noncompliance issue, thus assuring the proper consideration of extent of condition and demonstrating a good understanding of NTS reporting expectations.
- UT-Battelle reported a good number of assessment-identified and programmatic issues on NTS for 2005. Nine NTS reports for 2005 were UT-Battelle assessment-identified, and four reports were derived from self-disclosing events. This shows good initiative by UT-Battelle in finding programmatic problems. Five other NTS reports, though, were for issues identified in an assessment by DOE’s Office of Independent Oversight (OA), and this matter is addressed further in Section VI.
- In accordance with the “PAAA Screening” procedure, all noncompliance screenings are forwarded to the PAAA Program Office every calendar quarter for review.

Weaknesses:

None were identified.

V. Corrective Action Management

UT-Battelle primarily uses the Assessment and Commitment Tracking System (ACTS) to manage the resolution of issues from assessments and other issues deemed important to the Laboratory. Further, other processes outside of ACTS are used to manage problem resolution, such as the RER process for radiological events, nonconformance reports (NCR’s) for other nuclear safety events, and the local tracking of minor issues. UT-Battelle is undertaking steps to develop a single Issues Management process that includes consistent requirements for causal analysis and extent of condition reviews. Procedures to implement the new Issues Management process are scheduled for issuance in early 2006. Since the process was yet to be implemented, OE was not able to form an opinion on it at the time of this review.

Quality Problem Resolution/Corrective Action

Strengths:

- The PAAA Program Office conducts reviews and provides comments on all root causes analyses, corrective actions, and extent of condition reviews for NTS-reported noncompliances.

- A procedure has been issued describing the PAAA Program Office's expectations for local trending by PPO's of their identified PAAA issues.

Weaknesses:

- Although local trending is being performed by the PPOs, this does not constitute a review for Laboratory-wide issues. Further, some trending of conditions has been performed on selected noncompliance issues by the PAAA Program Office, but this is not a routine, comprehensive process for Laboratory-wide issues. UT-Battelle plans to perform Laboratory-wide trending as part of its new Issues Management process, but that had not yet begun at the time of this review. Procedures to implement the new process are scheduled for issuance in early 2006.
- Additionally, the draft Issues Management process allows "minor" issues to be tracked locally, and some reports, such as RERs, will not be incorporated into the issues management data set, thus impeding the Laboratory's ability to identify cross-cutting precursor conditions and systemic problems.
- OE's review of several trending reports, both by the PAAA Program Office as well as examples of PPO trending reports, found that these appeared to focus primarily on whether there is a statistically significant increase in the frequency of particular type of event, e.g., skin and clothing contaminations. With respect to continuous improvement, when evaluating historical data, a common theme such as a series of skin or clothing contaminations should be reviewed for the purpose of identifying any dominant cause or issue that may be underlying many of the events, and reporting the cause or issue to management so that attention can be focused on resolving the problem. Looking only for a statistically adverse trend does not do this.

NTS Report Completion

NTS report closure is controlled by the "Reporting, Tracking and Closing PAAA Noncompliances" procedure. This procedure places substantial responsibility on the issue owner to ensure that all corrective actions are completed and to provide sufficient documentation to support a closure evaluation by an independent reviewer. For NTS reports, that independent reviewer is the PAAA Program Office. The issue owner is responsible for performing a causal analysis and developing appropriate corrective actions.

Strengths:

- The closure procedure mandates that an independent review be conducted to confirm that corrective actions have been completed for all PAAA issues in ACTS. The PAAA Program Office serves as the independent reviewer for all NTS reports.
- The PAAA Program Office develops comprehensive closeout packages to support UT-Battelle and DOE Operations Office reviews.

- UT-Battelle conducts an independent effectiveness assessment of corrective actions for all NTS reports. OE reviewed an effectiveness assessment and found it to be a comprehensive review by verifying completion of the corrective actions, evaluating the appropriateness of the corrective actions to correct the problems, and by verifying that the actions are leading to performance improvement.

Weaknesses:

Although significantly improved PAAA processes have recently been put into effect, there remained a backlog of open NTS reports, some of which had been opened several years ago. As of the end of FY-05, 26 NTS reports are still listed as open. Further, while 18 NTS reports were opened in FY-05, only three were completed during that period. UT-Battelle needs to improve its efforts at getting completion packages prepared to support local DOE review.

VI. Assessment Program

OE evaluated the implementation of UT-Battelle's assessment programs because effective assessment programs are the most proactive methods to identify and address nuclear safety problems before they result in a serious nuclear safety incidents. It should be noted that the review of the assessment programs was limited in scope, and therefore, did not constitute a comprehensive evaluation. This review focused primarily on the independent assessment portion of the assessment program since the management assessment area had already been identified as a problem area in a recent enforcement action (EA 2005-06). UT-Battelle outlined its corrective actions for this deficiency at its October 25, 2005, enforcement conference.

OE found that the UT-Battelle assessment program is governed by multiple procedures. Formal assessment activities fall into multiple categories: management assessments, which are referred to as self assessments; surveillances performed by quality assurance (QA) representatives who report to the QA program but are assigned to regularly follow a particular organization; independent assessments by the Quality Systems and Services Division (QSSD); and assessments by the Independent Oversight (IO) organization, that are also independent assessments. Assessment findings are entered into ACTS for resolution management.

The QSSD and IO independent assessment plans are coordinated, with IO assessments generally focusing on the more sensitive issues or problematic areas, as well as including vertical slice assessments of individual laboratory divisions. The IO schedule for FY-06 reflects a good mix of independent assessments aimed at: vertical slice reviews of selected divisions (5); verification of NTS corrective actions (5); and safety functional areas (5), including safety basis, self-assessment program, work control/planning, effectiveness evaluation process, and worker safety. The QSSD assessment plan listed eight independent assessments planned for FY-06. These included three that pertained to internal matters (personnel, complaints, etc.) and three that related to quality or safety processes (nonconformances and corrective actions, National Volunteer Laboratory Accreditation Program accreditation (conducted by the

National Institute of Standards and Technology), and SBMS). Other independent assessments are conducted by QSSD as requested by management or for other purposes, such as NTS report corrective action verification. QSSD personnel stated that they perform 15-20 such independent assessments annually.

ORNL personnel also outlined various improvement initiatives for both the QSSD and IO assessment activities. For example, QSSD getting line management more involved in identifying areas to be assessed, QSSD better coordinating with IO, the training of personnel in the conduct of performance-oriented assessments, the establishment of qualification requirements for lead auditors, the development of tools and procedures to support the conduct of assessments, and the development of a Lab-wide assessment schedule. Further, the IO group is (1) implementing an improved risk-based process to select areas to be assessed, (2) ensuring a mix of organizational performance and management system assessments, improved assessment plans, lines-of-inquiry, and documentation, (3) developing guidelines to ensure consistency of assessments, (4) hiring additional staff, and (5) enhancing existing processes to streamline assessment report preparation and issuance. ORNL is also taking steps to better institutionalize the management assessment/self-assessment program, including a better definition of expectations, better guidance to support assessments, better planning, and steps to ensure more consistency in the performance of self-assessments.

Strengths:

- Senior UT-Battelle management support of and value placed in the assessment program was demonstrated by the conduct of two program assessments in 2005 by IO. Comprehensive independent assessments of the quality assurance program and the radiological protection program were conducted at the Laboratory Director's request.
- A strategic, risk-based approach is being used by UT-Battelle's IO group as well as by QSSD to identify candidate areas for independent assessments in the coming year. Management input is obtained, but these two groups function independently to select the areas to be assessed.
- Collectively, these groups are performing a reasonable number of independent assessments each year.
- A review of several sample assessment reports by IO found that these reports were well-documented, reflected a comprehensive review of the subject area, and identified substantive recommendations for improving the performance of the areas assessed.
- In addition to the independent and management, or self, assessments, UT-Battelle's QA representatives conduct numerous surveillances that are well-documented, comprehensive, and performed by individuals independent of the line organization.

Weaknesses:

- Five of the NTS reports filed in FY-05 by UT-Battelle resulted from an OA inspection. These identified programmatic noncompliance conditions related to inadequate supporting analyses for documented safety analyses, errors and omissions in the safety-related equipment list, improper application of the potentially inadequate safety analysis/unreviewed safety question (USQ) process, deficiencies in the USQ process, and deficiencies in the new Issues Management process. Such issues were discoverable by UT-Battelle, but UT-Battelle's assessment program failed to do so.
- Resources for the IO group are inadequate, with the group leader as the only full-time staff. Individuals from other organizations and independent contractors are used to supplement IO, and steps were being taken to bring another individual into this group. Even with that change, IO staffing still appears minimal for this critical function.

VII. Safety Culture Improvement

Weaknesses in the nuclear safety culture have been noted by UT-Battelle and OE as an underlying problem in several of the enforcement actions over the past few years. As a part of this program review, OE obtained information on progress and continuing initiatives in this area. In August 2004, UT-Battelle issued its five-year strategic plan to improve safety, which focused on three strategies: change culture and behavior, provide staff with the knowledge and tools necessary for safe operation, and create safer workspaces.

One of the fundamental steps by UT-Battelle management has been to ensure that all managers are communicating the message that all accidents are preventable. With strong leadership by the Laboratory Director, UT-Battelle undertook steps to conduct rolling safety stand-down meetings with all staff, initiated a Laboratory space manager program, initiated "technical safety seminars," increased administrative disciplinary action for unsafe conduct, and emphasized safety in manager and worker performance evaluations. Also, in 2005, UT-Battelle conducted a confidential employee survey to obtain baseline information on worker impressions on key organizational issues. To further improve in this area, UT-Battelle has established a Safety Leadership Initiative. This is based on a UT-Battelle conclusion that safety leadership is the critical element in culture change and sustaining a safety-conscious work environment. A Safety Leadership Plan was approved in December 2005 to build upon the prior safety culture improvement steps. The Safety Leadership Initiative includes:

- Providing "Safety Leadership" training for senior and mid-level managers, including supervisors and group leaders.
- Providing human performance training to ORNL staff.
- Implementing the DuPont Safety Training Observation Program (STOP) process.

- Adding human performance and development elements into managers' performance appraisals, including elements for training, expectations for management observations of work, and requiring managers to discuss the impact of their time spent observing work activities.
- Engaging guest lecturers on behavior-based safety and human performance.
- Improving the effectiveness of the ORNL management (self) assessment process.
- Incorporating human performance improvement concepts into work processes.
- Setting injury reduction goals.
- Continuing to employ safety culture surveys.

UT-Battelle's Safety Leadership Plan has also identified parameters to determine if improvement is being achieved, including: continued reductions in the number and severity of injuries; continued improvement in the ratio of issues identified through observation and assessment versus self-disclosing events; indicators of improvement from employee safety culture surveys; improved employee engagement with and ownership of the Safety Leadership Program; and the reduction in errors and mistakes that result in injuries and occurrences. UT-Battelle management is clearly focusing considerable attention and employing comprehensive steps to improve ORNL's safety culture.

VIII. Conclusion

The above summarizes OE's review of the ORNL PAAA program conducted during December 13-14, 2005. In general, the PAAA program has improved since the July 2001 review. Any weaknesses identified during this review should be addressed to facilitate OE's exercise of discretion as well as for mitigation consideration in any future enforcement action, and to ensure that nuclear safety problems receive appropriate recognition and corrective action. Any actions taken to address these items should be appropriately coordinated with the local DOE office.