

February 21, 2001

John H. Marburger, Ph.D.
Building 460
[]
P.O. Box 5000
Upton, NY 11973-5000

Subject: Brookhaven Science Associates Price-Anderson Amendments Act Program
Review

Dear Dr. Marburger:

On December 12-13, 2000, the Department of Energy's (DOE) Office of Price-Anderson Enforcement (OE) conducted a review of Brookhaven Science Associates' (BSA) 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 to DOE's Noncompliance Tracking System (NTS), and for internal resolution of nuclear safety noncompliances were evaluated. Review activities included onsite discussion with cognizant personnel and review of applicable documentation prior to and subsequent to the onsite visit. Details of the OE review are enclosed.

Our review noted several positive elements of your PAAA program, including the following:

- Your PAAA Coordinator was proactive with respect to his responsibilities.
- The Coordinator utilized various information sources for screening for possible nuclear safety noncompliances.
- Your screening process included reviews of DOE and internal program assessments for possible noncompliances.
- Recent BSA NTS reports reflected an increasing proportion of assessment or trending-identified noncompliances when compared to event-related noncompliances.
- Appropriate screening decisions were being made regarding noncompliance reportability for recent event or assessment-identified noncompliances.

The review also identified the following PAAA program deficiencies:

- A significant lack of timeliness in assessing and reporting noncompliances was noted; the reporting process was found to take upwards of a year in several instances.

- There was no formal process in place for trending nuclear safety noncompliances by the Coordinator. Furthermore, trending of radiological awareness report issues was not performed by the Radiological Control Division.
- Identified weaknesses in Quality Assurance processes for non-reactor and waste management activities were impacting trending of quality problems.
- No internal procedures had been established to control the conduct of the 10 CFR 835 required triennial assessments of your Radiological Control Program. Furthermore, BSA radiological control assessments did not adequately assess compliance with 10 CFR 835, instead taking credit for DOE assessments in this area.
- Improvement is needed in the timely completion of corrective actions for internally tracked radiological awareness reports and other nuclear safety nonconformance reports.
- No established process was in place for the independent validation of completed corrective actions.

Our review also evaluated recent assessments (DOE and internal) of the implementation of the BSA Internal Dosimetry Program. Overall improvement in program implementation was noted; however, continuing deficiencies in selected areas indicate previous corrective actions have not been fully effective.

Failure to correct the above noted deficiencies associated with BSA's PAAA program may result in a reduction or loss of mitigation as described in the DOE Enforcement Policy (10 CFR 820 Appendix A) in any future enforcement action. Furthermore, failure to correct the Bioassay Program deficiencies could result in future enforcement action.

No reply to this letter is required. However, DOE will continue to monitor your performance in these areas and will schedule a follow-up review in approximately 6 months to provide confidence in your PAAA program. If you have any questions, please contact Steven Zobel at (301) 903-2615.

Sincerely,



R. Keith Christopher
Director
Office of Price-Anderson Enforcement

Enclosure: PAAA Program Review

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Brookhaven National Laboratory
Brookhaven Science Associates
Price-Anderson Amendments Act Program Review

I. Introduction

During December 12-13, 2000, the Department of Energy's (DOE) Office of Price-Anderson Enforcement (OE) conducted an onsite review of Brookhaven Science Associates' (BSA) Price-Anderson Amendments Act (PAAA) program for its activities at Brookhaven National Laboratory (BNL). The review evaluated the program's functions related to: the identification and screening of nuclear safety noncompliances, the determination of a noncompliance's reportability to DOE's Noncompliance Tracking System (NTS), cause determination for noncompliances reported either to the NTS or BSA's onsite tracking system, and noncompliance corrective action implementation and closure. The review also included BSA's Internal Dosimetry Program with respect to the corrective actions described in NTS report NTS-CH-BH-BNL-BNL-1999-0003.

II. PAAA Program Implementation

BNL procedure ESH 1.1.1, "Price-Anderson Amendments Act Compliance Validation and Noncompliance Reporting Program," Revision 3, dated November 2000, describes the Laboratory's PAAA Program. The procedure establishes the position of the PAAA Coordinator, and assigns responsibility for overall administration and coordination of the PAAA program to this individual. The procedure also establishes a PAAA Working Group, whose members, appointed by the Laboratory Director, have responsibility to evaluate identified noncompliances to determine NTS reportability.

OE's review of ESH 1.1.1 identified the following areas for improvement:

- ESH 1.1.1 Section VI, Documenting and Reporting PAAA Noncompliances, indicates a noncompliance is typically submitted to the NTS within 20 days after determination the noncompliance is reportable. This practice conflicts with OE guidance that recommends noncompliances be reported within 20 days of *identification* of the noncompliance. Deficiencies in BSA's timeliness in identification and reporting are noted and described in this report's Section III.

- ESH 1.1.1 indicates the BNL PAAA Coordinator will review site-wide issues to identify trends related to programmatic or repetitive noncompliances; however, no detail is provided as to how or with what frequency this review should be performed. Deficiencies in trending are noted and described in this report's Section III.
- ESH 1.1.1 lacks necessary detail related to PAAA training. Section VII states that PAAA training is required for the PAAA Working Group and other "responsible" individuals, yet these individuals are not explicitly identified. Discussions with the PAAA Coordinator indicated Section VII was intended to apply to all personnel listed in the ESH 1.1.1 Responsibilities section although this is not stated in Section VII. Furthermore, Section VII offers no information on the scope of the required PAAA training nor does ESH 1.1.1 provide requirements for periodic retraining or indicate if retraining is necessary.

III. Noncompliance Identification, Screening and Reporting

Procedure ESH 1.1.1 requires the PAAA Coordinator to routinely review Laboratory-wide performance information (including Occurrence Reporting and Processing System (ORPS) reports, internal and external assessments, nonconformance reports, employee concerns, Radiological Awareness Reports (RARs), etc.) to identify potential noncompliances with Nuclear Safety Rules. ESH 1.1.1 also requires managers or designees to notify the Coordinator of potential noncompliances "as soon as they become aware of them."

Identified noncompliances determined to be non-reportable are tracked on a database maintained by the Coordinator. Noncompliances screened as potentially reportable by a manager or the Coordinator are presented to the PAAA Working Group for evaluation and determination of NTS reportability.

OE's review of the identification, screening and reporting processes identified the following positive elements:

- BSA's PAAA Coordinator has been proactive in identifying potential information sources for screening.
- Review of the Coordinator database indicated a variety of information sources are routinely evaluated, including ORPS reports, nonconformance reports, RARs, facility memos, facility monthly reports, internal and external assessments, etc. It is noted, however, that the majority of inputs to the database are event related (ORPS or RAR).
- Recent BSA NTS reports reflect an increasing proportion of noncompliances identified through assessments or trend recognition, versus more reactive event-driven reports.

- A review of selected recent events and assessment findings were compared to BSA's completed, or "in-process," noncompliance determinations. This comparison identified that appropriate determinations are being made regarding PAAA applicability and reportability.

OE staff did note a significant deficiency associated with the timeliness of noncompliance identification and reporting. Delays were noted in association with the transmittal of information regarding potential noncompliances to the Coordinator, the evaluation of information by the Coordinator, and in the presentation of potentially reportable noncompliances to the Working Group. A review of selected issues decided on by the Working Group found that upwards of a year can pass between the time an event occurs and the Working Group's final determination. A draft NTS report is then prepared and reviewed by affected upper and middle level managers for concurrence and determination that appropriate corrective actions are described. In any case, all reviewed noncompliances forwarded to the Working Group receive their final determination of reportability well beyond the 20 day guideline for noncompliance reporting described in OE guidance (Operational Procedures, "Identifying, Reporting, and Tracking Nuclear Safety Noncompliances under Price-Anderson Amendments Act of 1988," dated June 1998). Specific deficiencies contributing to these delays include:

- BSA procedures containing requirements for document distribution to the PAAA Coordinator (including subject area documents for RARs, ORPS, and Integrated Assessments) do not specify time frames for reporting. Discussion with the PAAA Coordinator identified one instance where RARs were provided to the Coordinator as a group, rather than forwarding each shortly after the event occurred.
- The BSA PAAA Coordinator stated his non-PAAA responsibilities accounted for approximately 50 percent of his time during calendar year 2000.
- The PAAA Working Group routinely meets on a bimonthly basis; special meetings to review potential issues for reportability are not routinely held.

OE staff also identified a deficiency related to the lack of formal trending of noncompliances. Discussion with the PAAA Coordinator indicated trending is being performed on an informal basis, and is limited by the time constraints discussed above. Procedure ESH 1.1.1 requires trending to be performed but provides no detailed guidance related to periodicity or method. Discussion with the BSA Radiological Control Manager also indicated that no formal trending is performed of site RARs, though these reports constitute a major input into the PAAA screening process.

The review also found that, since BSA's start in March 1998 at BNL to mid-December 2000, BSA had not yet fully implemented 10 CFR 830 in non-reactor facilities. Discussions with BSA staff found that quality assurance mechanisms to identify work

process anomalies are generally not yet in effect, thus hindering the PAAA Coordinator in the identification and trending of non-event related quality issues.

IV. Cause Determination and Corrective Action Verification

OE staff reviewed contractor performance in this area by discussion with cognizant personnel, review of applicable procedures, review of tracking status of ORPS and Assessment Tracking System (ATS) actions, and review of NTS corrective action closure documentation. The following deficiencies were identified:

- Procedure ESH 1.1.1 provides no requirements related to the performance of formal cause determinations for identified noncompliances (reportable or non-reportable). Discussion with the BSA PAAA Coordinator identified that cause determinations are routinely performed for event-driven noncompliances as part of the ORPS process. The Coordinator did point out, however, that no additional cause determinations are typically performed for instances where roll-up or repetitive noncompliances indicate a programmatic problem. Discussion with the BSA Radiological Control Manager identified that root cause determinations for events described in RARs are infrequently performed.
- Procedure ESH 1.1.1 provides no requirements or guidance related to the independent validation of significant corrective action closure. Discussion with the BSA PAAA Coordinator indicated that such validation was typically not performed. The voluntary practice of independently validating the closure of more significant corrective actions has been noted as a positive practice during reviews at other DOE sites.
- Additional attention should be directed to the timely closure of corrective actions associated with the ATS and RAR systems. BSA staff indicated approximately 35 percent of ATS open items were overdue for closure. Although specific closure statistics for RAR reports were not provided, discussion with BSA staff and a review of RAR logs indicated that the majority of all RARs issued after May 2000 remained open as of the date of this review.

V. Radiological Assessment Program

OE reviewed documentation and selected site radiological assessments performed to meet the requirements of 10 CFR 835.102, i.e., that all functional elements of the radiological protection program be reviewed every three years. BSA's Radiological Control Division (RCD) developed an assessment schedule that covered relevant functional areas of 10 CFR 835. The following BSA assessments were reviewed:

- Internal Dosimetry Program, September 2000
- Radiological Work Controls/Contamination Controls, dated May 15, 2000

OE noted that DOE's Brookhaven Group (DOE-BHG) conducts an active oversight program in the area of radiological controls. Recent DOE-BHG and BSA assessments of radiological functional areas have been conducted concurrently; discussion with DOE-BHG and contractor personnel indicated this was done to minimize disruption on program implementation and to provide DOE-BHG a basis for evaluation of the contractor's assessment program.

Review of the contractor's radiological assessment program identified the following deficiencies:

- The RCD 10 CFR 835 Radiological Assessment program is not formally described in site assessment or RCD procedures.
- General site assessment procedure ESH 1.2.1, "Corrective Action Management and Tracking for Internal and External Assessments," Revision 3, issued June 2000, requires all organizations to track conditions and corrective actions resulting from internal and external assessments. Discussion with RCD management found that formal Corrective Action Plans (CAPs) were not routinely generated for findings identified in the BSA internal radiological assessments. Formal CAPs are developed, however, for the concurrent DOE radiological assessments, and BSA believes these CAPs typically cover the findings in the internal assessments. OE compared findings from the recent DOE-BHG and contractor assessments of Radiological Work and Contamination Control assessments, and noted several findings unique to the contractor assessment that were not formally addressed in the CAP for the DOE-BHG assessment.
- Review of the contractor Radiological Work Controls and Contamination Controls assessment identified it to be largely effectiveness-based, with little discussion or assessment of 10 CFR 835 compliance. BSA's RCD management indicated that they believe the concurrent DOE radiological assessments provide 10 CFR 835 compliance-based auditing, thereby freeing the contractor to perform more subjective assessments. OE noted that the contractor's reliance on the independent DOE-BHG assessments to provide necessary compliance-based evaluation of 10 CFR 835 implementation appeared inappropriate.

VI. Internal Dosimetry Program Implementation

In response to the OE moratorium on bioassay noncompliances announced in November 1998, BSA conducted a self-assessment of its Internal Dosimetry Program. Based on the results of that assessment, BSA formally generated, on March 31, 1999, NTS report NTS-CH-BH-BNL-BNL-1999-0003 that identified a programmatic breakdown in the Internal Dosimetry Program. One apparent noncompliance identified during the review--failure to conduct routine whole body counts--was judged to be a repeat of a prior noncompliance. A 1999 DOE-BHG review of BSA's Internal Dosimetry Program identified significant deficiencies and corroborated the need for

broad-scope and programmatic corrective action. BSA reported all corrective actions associated with the NTS report as complete in December 1999.

During September 2000, DOE-BHG conducted a follow-up review of BSA's Internal Dosimetry Program. The results of this assessment were formally transmitted to BSA on November 22, 2000, shortly before OE's review. During the time frame of the DOE-BHG follow-up review, the contractor also performed an internal assessment of its Internal Dosimetry Program; that internal assessment report was finalized in September 2000.

The DOE-BHG assessment noted improvement in all areas of BSA's Internal Dosimetry Program. The assessment identified, however, several quality assurance deficiencies that represented potential noncompliances with 10 CFR 830. Discussion with contractor PAAA staff indicated an NTS report was being generated to reflect the newer assessment findings.

Although continuing deficiencies in the Internal Dosimetry area indicate that corrective actions have not been fully effective, no OE action is planned at this time in light of the overall program improvement achieved over the last year and the continuing assessment emphasis in this area. OE, though, will continue to monitor progress in this area through the NTS reporting and closure process.

VII. Conclusion

The above summarizes OE's review of BSA's PAAA Program and the specific weaknesses identified by the OE Review Team during its visit of December 12-13, 2000. The OE review found BSA's PAAA Program to be generally established, formalized by procedure, and basically in conformance with DOE expectations and guidance. Various improvements would be appropriate, though, based on the deficiencies noted in this report.

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 could affect the confidence of DOE in the BSA's PAAA Program and could impact on the application of enforcement discretion in any future enforcement action.