

April 18, 2000

Dr. Robert W. Kuckuck
[]
University of California
Lawrence Livermore National Laboratory
P. O. Box 808, L-005
Livermore, CA 94551-0808

Subject: Lawrence Livermore National Laboratory Enforcement Program Review

Dear Dr. Kuckuck:

During the period March 14-16, 2000, the Department of Energy (DOE) Office of Enforcement and Investigation (EH-Enforcement) conducted a review of the Lawrence Livermore National Laboratory National Laboratory (LLNL) Price-Anderson Amendments Act (PAAA) Program. This review included an evaluation of the site processes to screen noncompliances for applicability under the PAAA, for reporting and tracking in the Noncompliance Tracking System (NTS) and internal reporting and tracking systems, and for correcting deficiencies in a timely manner. The review also included a limited review of personnel monitoring procedures for Building 332 contained in the Facility Safety Plan.

Our review generally found your PAAA Program to be well established. Specifically, we observed that (1) your PAAA Program is implemented by formal procedure, (2) the PAAA Project is staffed with knowledgeable and experienced personnel, (3) records of the screening and decision process for potential PAAA noncompliances are maintained and auditable, (4) LLNL uses a standard form in its evaluation of potential PAAA issues, (5) noncompliances involving DOE Manual M-232.1-1 occurrences are properly reported into the NTS, and (6) the PAAA Project Office monitors the status of corrective actions for issues tracked in the NTS and in the site's local tracking system.

Our review also identified deficient areas requiring program improvement. The specifics of our observations are documented in the enclosure. DOE's most significant concern is that LLNL is not effectively identifying potential repetitive, programmatic or common problems. Other concerns relate to a statement in your PAAA program procedure about the applicability of 10 CFR 830.120 and your failure to recognize nuclear safety noncompliances by your subcontractors as PAAA issues.

Failure to correct the deficiencies identified in the enclosure could result in a reduction or loss of mitigation as described in the DOE Enforcement Policy (10 CFR 820 Appendix A) for any future enforcement actions.

Additionally, in its limited review personnel monitoring requirements for Building 332, we found an inconsistency between the Facility Safety Plan and practice. LLNL informed the review team that the Facility Safety Plan was being updated to correct the inconsistency. Sharon Hurley of my staff will follow up with LLNL in 60 days on this matter.

No reply to this letter is required. Should you have any questions concerning our review please contact Sharon Hurley of my staff at (301) 903-0100.

Sincerely,



R. Keith Christopher
Director
Office of Enforcement and Investigation

Enclosure: Enforcement Program Review

cc: B. Costner, S-1
D. Michaels, EH-1
M. Zacchero, EH-1
S. Cary, EH-1
S. Hurley, EH-10
D. Stadler, EH-2
O. Pearson, EH-3
J. Fitzgerald, EH-5
C. Huntoon, EM-1
L. Vaughan, EM-10
T. Giaconda, DP-1
D. Minnema, DP-45
J. Turner, DOE-OAK
M. Cornell, DOE-OAK
R. Kopenhaver, DOE-OAK
H. Hatayama, UC
A. Garcia, LLNL
Docket Clerk-EH-10

**ENFORCEMENT PROGRAM REVIEW
LAWRENCE LIVERMORE NATIONAL LABORATORY
PRICE-ANDERSON AMENDMENTS ACT PROGRAM**

I. Introduction

During March 14-16, 2000, the Department of Energy (DOE) Office of Enforcement and Investigation (EH-Enforcement) team conducted an onsite review of the Price-Anderson Amendments Act (PAAA) Program at Lawrence Livermore National Laboratory (LLNL). The team evaluated site processes: (1) to screen deficiencies and problems for applicability under the PAAA, (2) for reporting and tracking issues in the Noncompliance Tracking System (NTS) and in the internal tracking systems, and (3) for correcting deficiencies in a timely manner.

In evaluating site processes, the team held discussions with cognizant LLNL personnel and reviewed documentation pertinent to the review.

II. PAAA Program Overview

LLNL established a PAAA Program infrastructure that is formalized by a procedure titled *Identifying, Reporting, and Tracking Noncompliances with Nuclear Safety Requirements*. This procedure identifies the general responsibilities of key personnel to identify, categorize, report, correct and trend noncompliances with DOE's nuclear safety rules. Experienced personnel are assigned to the site's PAAA Project Office to support the program.

The team found that LLNL's PAAA Program is generally consistent with DOE guidance and is effective in processing noncompliances involving DOE Manual M-232.1-1 occurrences. However, the site's process for identifying and correcting programmatic deficiencies is weak, and the process uses language to screen out potential noncompliances that is not consistent with DOE's guidance and expectations.

The team identified the following positive attributes of the program:

- a. The PAAA Program is well established and implemented by formal procedure.
- b. The PAAA Project is staffed with knowledgeable and experienced personnel.

- c. Records of the screening and decision process for potential PAAA noncompliances are maintained and auditable.
- d. LLNL uses a standard form in its evaluation of potential PAAA issues. The form documents the information reviewed and the basis upon which decisions were made.
- e. Noncompliances involving DOE Manual M-232.1-1 occurrences are properly reported into the NTS, based on those reviewed from 1999 and 2000.
- f. The PAAA Project Office monitors the status of corrective actions for issues tracked in the NTS and in the site's local tracking system.

Several areas of weakness were identified during the review and are detailed in the sections that follow.

III. Identification and Screening of Potential Noncompliances

1. Description of Procedural Requirements

LLNL procedure *Identifying, Reporting, and Tracking Noncompliances with Nuclear Safety Requirements* establishes institutional requirements, responsibilities, and processes for the site's PAAA Program. This procedure places responsibility for identifying, categorizing, reporting, and correcting nuclear safety noncompliances with the Program and/or Facility Associate Director having direct responsibility for the work area of noncompliances. The Deputy Director for Operations has responsibility for PAAA issues affecting multiple directorates. The PAAA Project Office advises and supports LLNL management in meeting this responsibility and serves as the institutional point-of-contact for all PAAA activities. The procedure incorporates a description of the internal and external mechanisms and sources for identifying potential PAAA noncompliances. Based on the team's review, several weaknesses were identified in the procedure, namely:

- a. Under provisions of the procedure, "significant PAAA noncompliances" are reported to DOE in the NTS and "minor PAAA noncompliances" are recorded in the Deficiency Tracking System (DefTrack) site tracking system (a site database containing information on Environment, Safety, and Health deficiencies). However, DOE's present guidance does not allow for such terminology; rather, noncompliances are considered as "NTS Reportable" and "Non-NTS Reportable." The procedure implies that a judgement of significance may be made by the contractor in addition to any DOE reporting criteria, before reporting a noncompliance into the NTS. DOE's guidance does not provide any such additional step.
- b. The EH-Enforcement team found that the LLNL PAAA Program implementing procedure *Identifying, Reporting, and Tracking Noncompliances with Nuclear*

Safety Requirements contains an incorrect statement that 10 CFR 830.120 does not apply to radiological facilities. (LLNL categorizes facilities as nuclear or radiological based on DOE-STD-1027-92.) In Ruling 1995-1, the Office of General Counsel made clear that the scope of 10 CFR 830.120 was not limited to activities involving source, byproduct, or special nuclear material. Instead this regulation applies to all DOE activities that have the potential to cause radiological harm other than those already explicitly excluded by rule.

- c. The team found that the PAAA screening log, which documents the preliminary review of potential PAAA issues, is not incorporated or described in the procedure. The team also found that the standard form used by LLNL to document its evaluations for final determination of PAAA applicability and NTS reportability (i.e., the PAAA Noncompliance Evaluation form) is similarly not incorporated in the implementing procedure. Responsibilities for preparing these documents and the final decision authority for these steps were not clearly stated in the procedure.
- d. The procedure also contained language that stated an issue was not considered to be a “noncompliance” until a legal evaluation and positive determination of such had been made by EH-Enforcement. While EH-Enforcement evaluates issues brought to it by various sources, including reported noncompliances in NTS, it does not consider that it must first make a determination that an issue is a noncompliance before it is considered as such by the contractor. DOE expects that noncompliances, which are above the NTS reporting threshold, will be reported into the NTS. The team was concerned that use of this language in the procedure could result in decisions on reportability in a manner that is not consistent with DOE's enforcement program expectations.

2. Identification of Noncompliances Involving Subcontractors, Suppliers and Vendors

The LLNL PAAA Project Office evaluated two recent occurrences of quality assurance problems with a particular subcontractor. In these occurrences the subcontractor fabricated waste containers that failed to pass LLNL's receipt inspection. In each case, LLNL determined that the occurrence did not constitute a PAAA noncompliance; thus it was not an NTS-reportable or a site-reportable noncompliance with DOE nuclear safety rules because LLNL had placed the cause of the problems with the subcontractor.

- a. DOE holds its primary contractors accountable for ensuring that their subcontractors perform activities in accordance with established requirements. This expectation is noted in the preamble to Part 830 and in its Enforcement Handbook, Operational Procedure “*Enforcement of DOE Nuclear Safety Requirements Under Price-Anderson Amendments Act of 1988.*”
- b. DOE primary contractors are not ordinarily cited for violations resulting from matters not within their control. In the case of items procured from a

subcontractor, DOE would not cite the primary contractor or a subcontractor if a defect in an item occurred and the defect was not avoidable by reasonable quality assurance measures implemented by the primary contractor and the subcontractor. DOE would not ordinarily cite a primary contractor for violations by a subcontractor, as was the case here, if the primary contractor exercised reasonable oversight of the subcontractor and made expectations clear. In these cases, DOE has discretion to hold the subcontractor accountable.

In the two occurrences referenced above, it appeared that the subcontractor could have prevented the problems with waste containers through the application of quality assurance controls. After the containers were delivered, LLNL identified the problems promptly at receipt inspection. Early identification of quality problems by LLNL diminished the safety significance of the issue for LLNL since the containers were not accepted for use as initially intended. However, the early identification of quality problems by LLNL did not automatically reduce the potential safety significance of the breakdowns in the subcontractor's processes. Indeed, the breakdowns in the subcontractor's processes were significant enough that it delivered containers that failed receipt inspection. Therefore, EH-Enforcement does not agree with LLNL's logic that the occurrences are neither NTS nor site reportable as potential PAAA issues solely because any quality assurance violations likely occurred within the subcontractor's program.

3. Sources for Identifying PAAA Noncompliances

The PAAA Project Manager indicated that he routinely reviews Occurrence Reporting Processing Systems (ORPS) reports and assessment reports for potential PAAA issues. He also indicated that he used the DefTrack system as another possible source of noncompliances. It did not appear that other sources such as the Employee Concerns Program or the Nonconformance Report (NCR) was being used. Virtually all of the issues that are shown on the 1999 and 2000 logs of potential PAAA issues appear to come from only ORPS or assessment reports.

4. Screening Review of Potential Noncompliances

LLNL uses a database called DefTrack to record and manage the resolution of Environment, Safety, and Health deficiencies from identification through closure. The LLNL *Deficiency Tracking System Policy and Procedures Manual Version 2*, dated May 1995, defines these deficiencies as any identified activity, occurrence or condition that is not in compliance with the environmental, health, and safety requirements of federal and state laws, DOE regulations, LLNL policies, and LLNL manuals. By this procedure, the LLNL directorates are responsible for identifying deficiencies within their areas and for using the DefTrack software as required by their policies and procedures. The LLNL procedure for identifying and tracking PAAA noncompliances places the responsibility for identifying potential PAAA issues on these directorates.

The PAAA Project Manager told the team that he also routinely reviews DefTrack data for identification of PAAA noncompliances and for trending. The PAAA Project Manager explained that around June 1999, LLNL enhanced the DefTrack system to track PAAA noncompliances in a manner that permitted easy retrieval of the records as PAAA noncompliances. Before the enhancement, the PAAA Program Manager reviewed printouts of records from the DefTrack based upon a search of the system that may not have captured all relevant records.

The team requested its own searches of the DefTrack for potential PAAA issues to determine if the system would have produced records prior to June 1999 for use in trending. By using key words and searches on specific fields, the system quickly identified potential PAAA issues discovered by the contractor before June 1999.

LLNL documents the PAAA Project Manager's screening review of issues on a review log. It appears that directorates are now using the DefTrack form to document their conclusion from a screening review of those deficiencies that are potential PAAA issues. The team's review of the PAAA Project Manager's log found that certain language documented as the basis for screening an issue out as a potential PAAA issue was not consistent with DOE's expectations, namely:

- a. Some items were screened out as potential PAAA issues because the issue did not involve radiological material. Application of Part 830 or Part 835 does not have a precondition that the deficiency must have involved radiological material.
- b. Assessment did not involve significant findings. Significance of an issue is not a pre-condition for a PAAA noncompliance.

5. PAAA Evaluation

After an issue is identified as having potential PAAA applicability, the issue is evaluated by personnel from the PAAA Project Office, the responsible line manager, and subject matter experts. LLNL evaluates issues for final determination of PAAA applicability and for reportability consideration using its PAAA Noncompliance Evaluation form. The form guides the user through a series of questions and information fields and documents information considered and the basis for decisions during the screening process. The team found the form to be a useful and an effective tool.

However, the team's review of selected issues evaluated by LLNL gave rise to some concerns that LLNL might apply considerations and exclusions to occurrences or problems that would be viewed by DOE as being PAAA issues and potentially reportable. The following are examples of phrases used in example evaluations that were reviewed and that caused these concerns:

- a. An evaluation considered that several deficiencies on the part of a subcontractor were not a noncompliance for LLNL since the subcontractor committed the errors.
- b. An evaluation concluded that a series of similar occurrences related to surveillance deficiencies for the criticality alarm system were not programmatic because a common cause was not identified for all of the events considered. 'All' is not considered a precondition for a programmatic problem.
- c. Because the inspected items were not placed in service, their failure to satisfy inspection criteria does not constitute a condition affecting nuclear safety.
- d. Because no potential for radiological harm resulted from the condition.

Additionally, although it was indicated that reviews for potential repetitive, programmatic or common problems were being performed by the PAAA Project Manager's office, the files did not show evidence that such reviews were being performed routinely, or that they were productive in uncovering such weaknesses. The only cases for such weaknesses being identified appeared to be from assessments, and most often they appeared to be DOE assessments.

IV. Reporting PAAA Noncompliances

1. Description of Process

Once a determination is made that an issue has PAAA applicability, the responsible line manager, the PAAA Project Office, and subject matter experts either categorize the issue either as "significant" and reportable into the NTS and DefTrack or "minor" and reportable only into the DefTrack.

2. Weaknesses

The team found that noncompliances involving DOE Manual M-232.1-1 occurrences were being reported into the NTS consistent with DOE expectations. However, the team noted that the LLNL had not updated its implementing procedure, *Identifying, Reporting, and Tracking Noncompliances with Nuclear Safety Requirements* to reflect changes in the use of the terms "minor noncompliance" and "significant noncompliances," or to incorporate other changes in DOE's guidance contained in *Operational Procedures "Identifying, Reporting, and Tracking Nuclear Safety Noncompliances under Price-Anderson Amendments Act of 1988," June 1998*.

Also, the team found that LLNL was not accurately identifying in NTS issues identified by DOE or other sources as such. Rather, LLNL classified all NTS issues as "contractor identified" if the contractor applied the PAAA label, regardless of the organization that identified the issue.

V. Corrective Actions and Closure

1. Description of Process

The responsible LLNL organization develops corrective actions. LLNL tracks the corrective actions, using the NTS and the DefTrack systems. Additionally, the PAAA Project Manager documents corrective actions with the PAAA Noncompliance Evaluation form.

2. Weaknesses

The team noted no significant deficiencies with this process. However, the team noted a weakness with respect to verification of completion of corrective actions. It was noted that closure of corrective actions was based on a statement from the directorate that the action had been completed, along with receipt of some copy of changed procedures or other documents though these documents were not reviewed or verified. Although DOE sets no expectations on a degree of verification that should be performed, it does hold contractors accountable that actions were in fact, completed as reported to DOE. The team relayed several cases in which DOE has taken enforcement action when DOE found that contractors had failed to complete corrective actions. These contractors had similarly not been performing a routine independent verification of completion of corrective actions, relying on line organization statements that actions had been completed. These other organizations typically put in place a process for a QA-type organization to decide on and conduct an appropriate level of verification. LLNL might want to review potential risks in this area.

VI. Bioassay Program

Bioassay health and safety requirements for the Plutonium Facility [building] are contained in the Facility Safety Plan, FSP-[]-99, and December 1999. This document provides that "personnel who spend more than 20% of their time in the RMA (radioactive materials area) are required to participate in the routine Internal Radiation Monitoring program to verify that they have not inhaled or ingested radioactive material. This program is administered by the HCD and consists of an annual lung count and a semiannual urine bioassay."

A team member interviewed various safety personnel for [the building] and discussed radiation monitoring issues for employees who work within the building's RMA. The team member inquired if security personnel were included in the [building] bioassay program given their presence throughout the facility. The team was informed that security personnel did not participate in the bioassay program, as it was not deemed necessary based on their job assignment. It was explained that the 20% or greater time amount is a general guideline for radiation workers who spend a significant portion of their time in the RMA laboratories. Security personnel, although present within the RMA, do not routinely enter RMA laboratories but monitor the RMA hallways and

entry/exit points. Therefore, LLNL's practice was to exclude security personnel from routine bioassay monitoring; this practice, though, was not described anywhere. The team member was told that FSP-[]-99 was to be updated to incorporate this routine bioassay exclusion. EH-Enforcement recommends that LLNL review all personnel monitoring requirements in FSP-[]-99 to identify any other inconsistencies between the document and practice. EH-Enforcement will follow up on this issue in 60 days with LLNL.

VII. CONCLUSION

The EH-Enforcement review of the LLNL PAAA Program found the program to be well established, formalized by procedure and staffed with experienced personnel.

The review found deficiencies in certain areas of the PAAA Program. The most notable deficiency involved a lack of evidence that reviews for potential repetitive, programmatic or common problems was being routinely performed. These deficiencies are described in this report and should be addressed by the contractor to receive mitigation consideration in any future enforcement deliberations and to ensure that nuclear safety problems receive appropriate recognition and action. Any actions taken to address these deficiencies should be coordinated with the Oakland DOE Operations Office and responsible DOE Program Office.