



Lawrence Livermore National Laboratory
HAZARDS CONTROL DEPARTMENT

November 14, 2001

Mr. Rich Stark, EH-53
U.S Department of Energy
19901 Germantown Road
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FAX: 301-903-6172

Subject: LLNL's Electrical Safety Program in Light of the DNFSB Concerns

Dear Mr. Stark:

It is our understanding that EH is preparing to respond to the Defense Nuclear Facilities Safety Board (DNFSB) letters dated June 21 and April 16, 2001, concerning the electrical safety programs at several DOE sites. At the request of Pat Tran, we are providing input to you about LLNL's electrical safety program in light of the DNFSB concerns. We hope that you will find this information useful in preparing your response.

1. As stated in the April 16, 2001 memo, page 1, paragraph 2, the DOE Electrical Safety Handbook is not contractually required by DOE at defense nuclear facilities. In keeping with the intent of the handbook authors, LLNL uses this handbook as a guidance document rather than a Work Smart Standard. When our Electrical Safety Engineer was interviewed by the DNFSB on September 21, 2000, there was some discussion about this topic, and Ajit Gwal remarked that the LLNL Authority Having Jurisdiction (AHJ) structure was superior to the one recommended in the handbook.
2. The April 16th memo, page 3, paragraph 3 states, "although (LLNL) had established an AHJ program, no structured effort had been made to identify nonlisted and noncompliant electrical equipment that failed to meet the acceptance criteria set forth in the *Electrical Safety* handbook."
 - In fact, LLNL has instituted a very aggressive program to specifically address this concern. Our Electrical Safety Engineer was invited to address the DOE Electrical Safety Committee meeting at the Princeton Plasma Physics Laboratory (PPPL) on July 31, 2001, specifically about LLNL's AHJ equipment inspection program implementation and training. This session was well received by DOE and contractor representatives, and we have been contacted by several sites requesting assistance in establishing similar programs.

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- Since September 2000, we have been delivering 40-hour AHJ field representative training to technically experienced employees who have been nominated by their Departments for this function. To date, some 50 employees have completed the training, and we expect to have approximately 40 more trained by July 2002. We have contracted with Underwriters Laboratories (UL) to provide a portion of this training.
 - LLNL Technical Release Representatives (TRRs) were briefed on August 18, 1999, on the AHJ program's impact on their processing of purchase requests. Specific NRTL language has been inserted into the LLNL Terms and Conditions by Procurement as of March 21, 2001.
 - A communication campaign is in progress to effect a staged rollout of the AHJ equipment inspection program. The rollout was announced in Newslines on June 8th, 2001, and has been reinforced in general distribution Lessons Learned bulletins, ES&H Team meetings, and Department meetings. Equipment Supervisors are responsible for checking to see whether their equipment has an NRTL label on it. If it does not, they contact a certified AHJ Field Representative, who examines the equipment and determines its acceptability. If the AHJ rejects the equipment, it must be corrected or removed from service. All inspected equipment is tracked through a secure-server web-accessed database system (LiveLink) and bar-code labels.
 - All non-NRTL equipment in LLNL Safety Significant or Safety Class nuclear facilities has been AHJ inspected and documented, as of September 12, 2001.
 - LLNL is on a five-year implementation schedule to identify and inspect all other existing non-compliant equipment. This schedule was approved by Mike Hooper of DOE OAK on July 12, 2000.
 - The Lab has dedicated approximately \$130K to the training effort thus far. In addition, support time from technical editors, programmers, instructional designers and the Program AHJ salary bring the Lab's total financial commitment to approximately \$500K.
3. Electrical Safety Committee: The memo states on page 4, final paragraph, that the LLNL electrical safety committee, known locally as the Electrical Safety Advisory Board (ESAB) is not fulfilling the roles outlined in the *Electrical Safety* handbook in seven specific areas. Even though the *Electrical Safety* handbook is not an adopted Work Smart Standard, the ESAB actively fulfills each of the named functions, as follows:
- "Presents management with the requirements and training needed to implement the electrical safety program." The ESAB is specifically chartered to determine electrical safety training requirements and to approve electrical safety training curricula. The new AHJ field representative training, for example, is a product of a subcommittee of the ESAB (the AHJ Working Group), led by the Program AHJ, and staffed by members of the ESAB,

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including the chair and the secretary. The working group meets weekly and reports to the ESAB at each monthly ESAB meeting.

- *"Advises management of the need to fund and support these requirements."* The ESAB reports through the ES&H Working Group. Senior management has been responsive to support of the electrical safety mission. (See above description of resource commitment to the AHJ program.)
- *"Maintains and assists in the implementation of the electrical safety program."* This is the primary function of the ESAB. It reviews all policy documents and actively incorporates the requirements of the cross-section of Lab activities into a singular program.
- *"Develops and maintains the electrical safety manual."* This is done by the ESAB. The LLNL Electrical Safety Manual is comprised of four chapters contained in the LLNL ES&H manual. They are:
 - 16.1 Electrical Safety
 - 16.2 Work and Design Controls for Electrical Equipment
 - 16.3 LLNL AHJ Requirements for Approving Electrical Equipment, Installations, and Work
 - 12.6 LLNL Lockout / Tagout Program
- *"Assists the departments by interpreting the electrical requirements of DOE Orders, criteria, and guides, as well as other codes, standards, and practices."* This is primarily a function of the Building and Program AHJs, but they both sit on the ESAB, and the decisions are made with committee input.
- *"Maintains a copy of each interpretation given."* All interpretations are kept on the AHJ LiveLink database for easy access by field representatives, DOE personnel, and interested employees.
- *"Publishes electrical safety bulletins."* These are issued by the ESAB and released in Lessons Learned format. The Lessons Learned are distributed Lab-wide.

I hope you find this information helpful in formulating your response. Please do not hesitate to contact our Electrical Safety subject matter expert, Keith Gershon, or me if you need further assistance.

Sincerely,



James O. Jackson
Department Head
Hazards Control Department

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JOJ/kdg/agm: HC-SPD-01-009

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