



Department of Energy
Office of Science
Washington, DC 20585

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MEMORANDUM FOR DISTRIBUTION

FROM: MILTON D. JOHNSON 
CHIEF OPERATING OFFICER

SUBJECT: Department of Energy Electrical Safety Month

The Department of Energy (DOE) declared May 2004 to be Electrical Safety Month. Like the rest of the Department, the Office of Science (SC) laboratories have exhibited an unacceptably high rate of electrical safety occurrences over a long period of time. At the April 20 videoconference that many SC staff participated in, it was noted that SC accounts for nearly 20 percent of DOE's electrical safety occurrences. The SC labs generally account for only 10 percent of all DOE occurrences. In addition, the Occupational Safety and Health Administration (OSHA) recently completed safety inspections at all of the SC laboratories and identified instances of noncompliance with their current standards. Nearly 50 percent of the instances were related to OSHA's electrical safety standards.

The Office of Science expects the labs to take actions to improve their performance in electrical safety, and we expect that, one year from now, we can demonstrate significantly improved performance. While each lab must formulate a plan of action based on its unique situation, we offer several specific actions for consideration. First, take a critical look at your operations and apply lessons learned to improve performance. Second, improve the physical condition by correcting the electrical safety hazards recently identified by OSHA.

Lessons Learned Applied to Operations

There are several recurring types of electrical safety occurrences and recurring causes. A rigorous review of lessons learned and application to your operations should help to reduce their occurrence in the future.

- **Personnel errors** including working on energized equipment without authorization or personnel protective equipment, wiring mistakes coupled with failure to verify safe-energy conditions, and leaving unsafe conditions (e.g., improper grounding).
- **Work control problems**, primarily mistakes in establishing and clearing lockout/tagouts.



- **Configuration management weaknesses;** such as inaccurate drawings and failing to verify the as-built conditions.
- **Electrical intrusion events;** such as contacting underground utilities or concealed utilities within structures.
- **Vehicles** such as dump trucks, excavators, and forklifts striking power lines.

The Department's Office of Environment, Safety and Health (EH) recently prepared a report that describes commonly made electrical safety errors and identifies lessons learned and specific actions that should be taken to prevent similar occurrences. The report is available on EH's Web site at www.eh.doe.gov/paa. The report contains specific measures to prevent future electrical safety occurrences and questions addressing the safety responsibilities of managers, work planners, supervisors, and others. The SC laboratories will find ample opportunities to improve their operations based on a careful review of this report.

Improving the Physical Condition

Actions to improve the physical condition of the facilities by promptly responding to and correcting the instances identified in the OSHA inspections will result in improved electrical safety. Sustaining these improvements in such a way that the instances that OSHA identified do not recur will be essential to overall improvement in electrical safety. The most common electrical instances identified by OSHA were:

- Improper use of extension cords, for example, using metal boxes with duplex or double duplex outlets, using for higher than rated electrical load, and damaged wire or attachments.
- Electrical equipment (e.g., breakers and disconnects) not labeled or labels illegible.
- Access to electrical panels, breakers, and disconnects blocked by other equipment or inappropriately stored items.
- Equipment not properly grounded, for example, no ground wire or ground pins missing.
- Flexible wiring (e.g., extension cords) used in lieu of required fixed wiring.
- Ground fault circuit interrupters not installed or inoperable in wet areas or near equipment using water (e.g., metal sinks).

Action Plans

I request that specific plans incorporating the elements discussed above along with additional site specific actions be documented within 60 days of this memorandum. Copies of these plans should be provided to my office and to Jay Larson of SC-83, Jay.Larson@science.doe.gov.

Plans should be no more than 10 pages long. They should briefly describe specific actions that will be taken to improve operations based on a careful review of the nature of the electrical safety occurrences at your site and available lessons learned. Plans should also include a summary-level schedule for correcting the OSHA instances. An item-by-item schedule is not necessary. We expect that most electrical safety hazards will be corrected within one year.

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