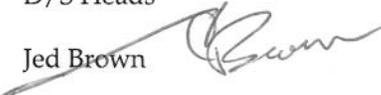


## Memorandum

October 17, 2005

**To:** D/S Heads**From:** Jed Brown **Subject:** Single Line Electrical Drawings

At the last LAM meeting, I gave a presentation on the need to complete Single Line Electrical Drawings (SLEDs) for the AC Power Distribution System on site. A copy of the slides is attached.

The need for SLEDs stems from recommendations of the Electrical Safety Subcommittee (ESS), coupled with a recommendation from the recent DOE Energized Electrical Work Review. Having accurate and readily available SLEDs is central to implementation of NFPA 70E and the overall safety of our electrical workers.

The Electrical Safety Subcommittee has studied this issue extensively and has modeled its approach to that implemented by TD. The divisions/sections are now being asked to create SLEDs in conformance with developed guidelines and models that will be provided by the Electrical Safety Subcommittee. Once completed, FESS will maintain a central repository for the developed AutoCad drawings. A meeting is being planned in the near future between representatives of the ESS and your designated Electrical Coordinator to fully explain the SLED Program.

The dedicated efforts of your D/S Electrical Coordinator(s) and others that you might marshal in support are central to the success of this initiative. For divisions and sections that have more than one Electrical Coordinator, I ask that you indicate to me in writing which one of those you consider to be your primary Coordinator. Others will be considered as Alternate Electrical Coordinators. Doing so will help clarify lines of communication for the SLED Program and other electrical issues. I also ask that you convey and affirm to appropriate personnel in your division/section the role of Electrical Coordinator (ref. FESHM 5042) and that any modifications to the AC Power Distribution System under your authority be brought to the attention of your designated Electrical Coordinator. This will help ensure proper maintenance of developed electrical drawings.

Creating SLEDs will take a great deal of effort from you and your staff. It took one engineer, working part time, 8 years to complete the SLEDs for the TD buildings. While such a schedule is unacceptable, I propose that the necessary generation of all SLEDs be essentially completed by July 1, 2007.

If you have any questions, please contact your ESS member, or Stan Orr, ESS Chair at x-3692.

- c. D/S Electrical Coordinators  
Electrical Safety Subcommittee

# Electrical Safety: Completion of Single Line Diagrams

# From DOE Energized Electrical Work Review:

- Recommendation #8:  
“Fermilab is encouraged to implement the use of the comprehensive method developed by the TD to aid in the performance of arc flash incident energy calculations throughout the Laboratory.”

# Requirements of NFPA 70E:

- Article 120: Establishing an Electrically Safe Work Condition
- Article 205: General Maintenance Requirements
- Incident energy (arc flash) calculations
- Determine limits of approach.
- Fault analysis

# Electrical Safety Subcommittee

- Develop policy and standards.
- Implement through division/section electrical coordinators.
- Provide oversight and monitor progress.
- Provide quality control.

# D/S Electrical Coordinators

- Gather “as built,” collect miscellaneous “notes” and other available documentation.
- Verification.
- Use electricians to help verify and determine unknown parameters.
- Work with D/S draftsmen to convert to AutoCad.
- Final drawings to FESS central repository.

# Role of FESS

- Central repository for drawings.
- Organized by FIMS number.
- Provide convenient access for D/S electrical coordinators.