




Date: February 5, 2014

From: Mark A. Scott, PE   
Electrical Safety Authority Having Jurisdiction (AHJ)

Re: **AHJ Acceptance of Non-Construction Subcontractor Qualified  
Electrical Workers Rev 0**

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## General requirements

1. LBNL applies administrative controls on all electrical work performed by subcontractors on site in accordance with NFPA 70E, *Standard for Electrical Safety in the Workplace*. PUB-3000 Chapter 8 (Electrical Safety) and Chapter 18 (Lockout/Tagout) establish specific policies and procedures to implement and comply with NFPA 70E.
2. LBNL PUB-3000 Chapter 8 (Electrical Safety) is mostly based on the 2004 edition of NFPA 70E, with some revisions following NFPA 70E-2009. Because available training from third-party sources uses NFPA 70-2012, some allowances may be made to accommodate improvements over PUB-3000 requirements at the request of the subcontractor. These must be specifically approved by the LBNL Electrical Safety AHJ.
3. The Subcontractor is expected to have adopted and implemented a comprehensive Electrical Safety Program consistent with the requirements of NFPA 70E and meeting the electrical hazards faced by the employees on the work site. The requirements listed in this document are of special interest to LBNL in ensuring compliance to NFPA 70E. However, compliance with these requirements alone does not relieve the Subcontractor of any of the requirements to meet NFPA 70E.

## Assurance and Oversight

1. The LBNL EHS Electrical Safety AHJ will coordinate field audits of electrical safe work practices on an as needed basis.

## Authorization of Electrical Work Onsite

1. **Deenergized Work:** All deenergized electrical work on systems connected to the utility must be specifically authorized by an LBNL Subcontractor Lockout/Tagout (LOTO) Permit.
  - a. Lockout Before Work: Qualified electrical workers performing work on exposed electrical circuits shall first apply their personal LOTO lock and tag to the circuit in accordance with an approved LBNL LOTO Permit.
  - b. A live-dead-live functional check of the voltage tester is required in conjunction with absence of voltage verification. Exposed parts must be tested with a properly rated contact tester, not a proximity tester. Proximity testers may be required in addition to, but never in lieu of, contact testing.
2. **Energized Work:** All energized electrical work (including testing & troubleshooting) must be specifically authorized by an Energized Electrical Work Permit (EERP).
3. **Qualified Electrical Workers:** Only LBNL-approved Qualified Electrical Workers may perform electrical work on systems connected to the utility. This applies both to energized diagnostics and work performed in an electrically safe work condition.

## AHJ Acceptance of Subcontractor Qualified Electrical Workers

1. Qualified Electrical Workers are approved by LBNL if their credentials and training are accepted by the LBNL Electrical Safety Authority Having Jurisdiction (AHJ).
2. In accordance with NFPA 70E, a Qualified Electrical Worker is one who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify and avoid the hazards involved. Detailed programmatic requirements are listed in NFPA 70E-2012 110.2.
3. In order to verify electrical worker qualifications, the Subcontractor is required to provide a statement of qualification with supporting materials, which are then reviewed by the LBNL Electrical Safety AHJ. These include:
  - a. A copy of the Subcontractor's Electrical Safety Program, which LBNL will retain on file.
  - b. Contact information (phone number and email) of the Subcontractor's safety representative who can address questions and concerns that might come up during the course of work at the Lab.

- c. A company letterhead, officially signed document stating that the named employees are considered by the Subcontractor to be Qualified Electrical Workers under the definition of NFPA 70E. For each employee, the document should state:
  - i. Type and length of job experience, basically describing why the person is considered to be an electrical worker.
  - ii. Any restrictions on their scope of work (such as voltage or type of equipment).
  - iii. Confirmation of NFPA 70E electrical safety training for each employee. The training shall be of the classroom or on the job type, minimum 8 hours, taken within the last 36 months. Training shall also include a practical demonstration of absence of voltage verification, with selection of an appropriately rated voltage detector and appropriately rated PPE.
  - iv. Confirmation of current first aid/CPR training with expiration date. This can be a statement or a copy of the employee's card issued to them by the training company.
  - v. State of California electrician's license number and type, if applicable. This certification shall be for "general electrician" unless otherwise approved by LBNL for specific jobs where a general electrician's certification is not necessary.
4. The LBNL Electrical Safety AHJ will review the submitted documents. Suitable submittals will be accepted. The LBNL Electrical Safety AHJ may request more information about the supporting electrical safety program, training records, PPE specifications or a particular individual's experience. Accepted submittals will be entered into the LBNL EHS registry of Qualified Electrical Workers.
5. LBNL reserves the right to revoke a worker's status as Qualified Electrical Worker at any time when actions and behaviors pose a risk to themselves or others, or otherwise cause a concern that the worker is not in fact qualified for the task being performed.
6. Additionally, LBNL also reserves the right to revoke the Qualified Electrical Worker status for all of the Subcontractor's workers if systemic deficiencies are discovered during the course of work. In either case, the LBNL EHS Electrical Safety AHJ will be in contact with your designated safety representative to quickly resolve the issues.

## **Electrical Safe Work Practices**

### **1. Job Briefing:**

- a. Before starting each job, the RI shall conduct a job briefing with the employees involved.
- b. The briefing shall cover such subjects as hazards associated with the job, work procedures involved, special precautions, energy source controls, personal protective equipment requirements, and the information on the LOTO permit or EEWP, if required.
- c. Additional job briefings shall be held if changes that might affect the safety of employees occur during the course of the work.

### **2. Test Before Touch:**

- a. Qualified electrical workers shall perform an absence of voltage verification prior to touching any exposed circuit part, even if the circuit is under LOTO. This is called "Test Before Touch".
- b. Test Before Touch is required for every circuit, every phase, every time.
- c. A live-dead-live functional check of the voltage tester is required in conjunction with Test Before Touch.
- d. Exposed parts <600 VAC must be tested with a contact tester, not a proximity tester. Proximity testers may be required in addition to, but never in lieu of, contact testing.
- e. Qualified Electrical Workers are expected to have their voltage gloves and contact voltage tester with them at all times.

### **3. PPE/Tools:**

- a. Qualified electrical workers shall be fully proficient in selecting, inspecting and wearing the required electrical PPE and tools to perform their tasks.
  - i. Properly rated insulated tools are required within the limited approach boundary.
  - ii. Shock protection PPE will be worn for all tasks within the restricted approach boundary.
  - iii. Arc flash protection PPE will be worn for all tasks within the arc flash boundary.
- b. Full PPE requirements also apply to testing for absence of voltage. PPE requirements will be listed in the LOTO Permit or the EEWP.