

**Northeast Utilities Contractor
Substation Access Briefing Sheet
January 2006**

Summary

Over the last few years, Northeast Utilities (NU) has experienced a number of near miss incidents with employees and contractors accessing electric substations without the appropriate level of knowledge and skills. Fortunately, no injuries or serious equipment damage occurred – but they could have if other factors/errors were present. A tri-state Electric Hazard Awareness Team (EHAT), representing all electric business units developed a uniform and consistent process for granting substation entry privileges throughout the NU system. NU’s Executive Environmental, Health, and Safety Committee (EEHSC) has authorized its implementation.

The main goal of EHAT is to ensure that NU employees and contractors have the necessary knowledge and skills to safely enter and work in NU substations. EHAT also developed an access matrix, training modules and certification process. Each of those, as well as your own responsibilities are described in detail below:

Access Matrix

EHAT developed an access matrix that meets the following key criteria:

- affords a high level of safety for entrants;
- ease of understanding and administration;
- applicable to all levels of employees.

As shown below, the matrix classifies entrants by the type of work they are approved to perform and by whether or not they are approved to perform it in a substation unescorted.

Type of Work Type of Entry	I Observation/ Inspection/ Simple Deliveries <small>(in accordance with minimum safe working distance for UNQUALIFIED persons)</small>	II Nonelectrical Physical Work <small>(in accordance with minimum safe working distance for UNQUALIFIED persons)</small>	III Electrical Work (Physical & Nonphysical) <small>(in accordance with minimum safe working distance for QUALIFIED persons)</small> And Certain Other Work <small>(described below)</small>
Escorted Entry – required if entrant has NOT completed Unescorted Access training (or validation)	. . . entrant has NOT completed Unescorted Access training (or validation)	. . . entrant has NOT completed Unescorted Access training (or validation)
Unescorted Access – allowed if entrant has completed Unescorted Access training (or validation)	. . . entrant has completed Unescorted Access training (or validation)	. . . entrant has completed Unescorted Access training (or validation)
Escort Privileges – allowed if entrant has completed Escort training (or validation) & been granted Escort Privileges for Type I Work	. . . entrant has completed Escort training (or validation) & been granted Escort Privileges for Type I & II Work	. . . entrant has completed Escort training (or validation) & been granted Escort Privileges for Type I, II, & III Work

NOTE: all entries are contingent upon business need.



Type I Work: Observation/Inspection/Simple Deliveries

Work and activities performed in accordance with the minimum safe working distance for UNQUALIFIED persons involving walking through, observing, inspecting, monitoring, touring, taking readings, using a hand-held camera, carrying materials by hand, and similar activities that are largely passive in nature and do not affect the physical or electrical condition of the facility. Examples:

- Tours for public officials
- Visual observations and inspections (e.g., safety, engineering)
- Visual verification of drawings (not involving conductive measuring devices)
- Unloading boxes off a pickup truck by hand
- Parking a vehicle inside the gate of a substation
- Pre-bid walk downs

Type II Work: Non-electrical Physical Work

Work performed in accordance with the minimum safe working distance for UNQUALIFIED persons in which persons use their hands, tools, controls, or other means to manipulate, operate, or affect the condition of vehicles, equipment, machinery, soil, or physical plant that are not part of the electrical system within the facility, except as specifically identified as Type III Work. Examples:

- Performing vehicle, building, or grounds maintenance, including shoveling snow, controlling weeds, and repairing fencing
- Digging by hand, including taking soil samples
- Operating a forklift, backhoe, or other mechanized equipment
- Operating a portable generator that is electrically independent of the substation
- Servicing the telecommunications system
- Delivering concrete and construction materials
- Cleaning up environmental spills
- Using a liftgate, hand truck, or dolly to offload a truck or move materials

Note: All jobs need to be analyzed through a Job Hazard Analysis (JHA) or other means to identify potential encroachments closer than the UNQUALIFIED distance (e.g., an air hose letting go and flailing closer than the UNQUALIFIED distance). If controls cannot be put in place to prevent the encroachment, the work must be considered to be Type III Work.

Type III Work: Electrical Work (Physical and Nonphysical)

All work and activities of any kind, including observation and inspection, performed in accordance with the minimum safe working distance for QUALIFIED persons or having the potential to encroach closer than the UNQUALIFIED distance, and the following specific work or activities performed in accordance with the minimum safe working distance for UNQUALIFIED persons:

- All electrical-related maintenance and construction
- Crane and boom operation
- Any other Type I or II activity that actually encroaches closer than the UNQUALIFIED distance must immediately be considered Type III

Type III Workers are limited to those with the appropriate electrical background or experience. Type III Workers performing physical electrical work must be electrical journeyman level or possess equivalent experience. The technical training that Type III Workers have previously received provides the skills and information necessary for these persons to work safely while performing electrical work.



The examples listed for these three Types of Work are provided as guidance and apply unless site-specific exceptions are authorized by competent authority (DSSE, Construction Rep., etc.). If there is any question about the category of any given work activity, it must be treated at the higher level until determined otherwise by competent authority.

Type of Entry

All entrants are classified as either Escorted Entrants, Unescorted Entrants, or Escorts for their respective skill levels.

- Escorted Entrants require an approved Escort (described below) of their same skill level or higher level to be with them at all times.
- Unescorted Entrants have completed specified training and been judged capable of entering a substation and performing work activities at their respective skill levels by themselves. Unescorted Entrants are not automatically granted Escort privileges.
- Escorts have completed additional training in the duties and responsibilities of being an Escort, and have been granted Escort privileges in their respective skill levels by their own supervision and electrical supervision or other designated authority. Escorts may escort persons of their own and lower skill levels. (For example, a Type II Escort may escort Type I and II Workers but not Type III Workers.)

Note: To avoid confusion as it applies to substation access, the word “qualified” is specifically limited to its electrical sense (e.g., a qualified electrical worker, or Type III entrant), as opposed to saying, for example, that a person is “qualified” as a Type I entrant or “qualified” for unescorted access.

Entrant Certification

Prospective entrants must be certified/trained for the Type of Entry (Escorted, Unescorted, Escort) they are authorized to make by their employer. It is the responsibility of each entrant to be self-accountable for his or her own limitations and expertise.

Certification/training for all entrants is based on the minimum knowledge, skill, and ability criteria specified by OSHA:

1. What is safe to touch and what is not safe to touch in the specific areas that will be entered;
2. The maximum voltage in the area;
3. The minimum approach distances for the maximum voltage in the area;
4. How to recognize and properly use protective equipment.

Persons with Unescorted Access must receive additional training in PPE requirements, notification procedures, security and emergency response, first aid/CPR, etc. Certification for Unescorted Access requires successful completion of the appropriate training and, contractor management approval and written documentation.

Persons desiring Escort privileges must receive additional training in the duties and responsibilities of being an Escort. Certification for Escort privileges requires successful completion of the appropriate training and contractor management approval and written documentation.

Third Party Lessees

Lease agreements for third parties to site their cellular towers and other equipment within substations are being reviewed with the goal of incorporating these requirements.



NU Substations with Electrical Equipment Owned by Others

NU entry rules apply to NU employees and NU contractors, and the equipment owners' rules apply to their employees and contractors.

Non-NU Substations

NU entry rules apply to NU employees and NU contractors entering substations owned by others.