

**SUBSTATION EXCAVATION GUIDELINES**

Purpose and Scope

The purpose of this standard is to provide guidelines to ensure employees and substation equipment are protected when excavation activities are conducted inside existing in-service substations.

Definitions

The “Soft Dig” technique cuts the soil with a high-pressure water jet supplied by a truck-mounted high-pressure water pump. The water/soil mixture is removed from the excavation by a truck-mounted high volume vacuum pump. The primary advantage to the “Soft Dig” technique is that it is nearly impossible to damage any encountered buried utilities. Another advantage is that all the excavation soils are vacuumed into the truck holding tank and removed from the site. The “Soft Dig” technique leaves the yard rock area virtually free of any contaminating spoils.

The hand digging technique is defined as any excavation that utilizes conventional hand tools.

Mechanical excavation is defined as any excavation technique that utilizes conventional excavation equipment and includes backhoes, trenchers, boring machines, and vertical shaft drilling equipment.

Procedure

Either the “Hand Dig” or the “Soft Dig” technique shall be utilized to remove material from at least the first four (4) feet of the excavation within the fence line of any existing Ameren operating substation. Any excavation deeper than four (4) feet may be completed by conventional methods of excavation, assuming the required electrical approach distances required by Ameren and OSHA exist.

All workers in the substation must be trained for substation entry as required by Ameren and OSHA safety standards.

The location of buried utilities should be determined by Ameren engineering and/or operating personnel and those utilities should be marked, regardless of the method of excavation utilized.

At the completion of the work, the excavation must be barricaded by the responsible designated work group.

These guidelines do not supersede any other Ameren or OSHA safety regulations relating to work activities being conducted on Ameren property.

Approved \_\_\_\_\_

Kevin D. Anders

Approved \_\_\_\_\_

Raymond M. Wiesehan