"Are You Safe at 4 feet?"
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Introduction

The purpose of this paper is to make those who must establish arc flash boundaries and select Personal Protective Equipment (PPE) aware of the ambiguities that exist in the current standards that address this area. There is no definitive calculation for establishing arc flash boundaries or incident energy. There are a number of calculation methods available from different standards bodies that yield different results. These standards bodies need to work together to establish a single set of calculation methods for determining the critical parameters to protect workers from arc flash injuries.

Electricity - Power and Danger

The discovery and harnessing of electricity is one of the most significant events for the human race comparable to the discovery and harnessing of fire. Most of the devices we use today are powered by electricity. So electricity is a huge benefit for mankind. However, with its power also comes danger.

When people think of the dangers associated with electricity they usually think in terms of electric shock - of their child poking a hairpin or some such object into an electrical outlet and receiving a serious, if not fatal, shock. Electrical shock is also a real danger when working on live electrical equipment. Death due to electrical shock is not usually the result of very high voltage or current. Currents as low as about 50 MA can be fatal.

Arc Flash is a very different phenomenon. In this case, the currents are very large indeed - in the thousands of Amperes but this current does not pass through the body. Instead, it creates an arc in the air which generates a very high temperature (up to 35,000 Deg F) plasma that expands explosively and may carry with it molten metal and other debris. When this expanding high-temperature plasma strikes a person, the person may be thrown backward and may receive very severe burns if not wearing the proper Personal Protective Equipment (PPE).

Bodies overseeing public safety

A number of bodies with consensus standard making powers came into existence as the use of electricity became more wide spread after the opening of the Pearl Street station in New York in 1890.