

WISHA REGIONAL DIRECTIVE

WISHA Services

Department of Labor and Industries

18.35 Grounding Requirements for Temporary Substation Fences Date: August 19, 2005

I. Background

WISHA standards include specific requirements regarding the installation of temporary substation fences (WAC Chapter 296-45-475(3)).

WAC 296-45-475(3) gives direction on the grounding of temporary fences being installed or expanded.

Historically, the application of grounding temporary fences for employee safety has been handled in a variety of ways, with regard to employee exposure. With the new language added to WAC 296-45-475(3), there is a need to clarify WISHA policy regarding the application of grounding temporary fencing for employee and public protection.

II. Scope and Application

This WISHA Regional Directive (WRD), which remains in effect indefinitely, applies to all WISHA enforcement and consultation activities involving WAC 296-45-475 (3). It replaces any previous guidance on the subject, whether formal or informal.

III. Interpretive Guidance

A. What are the requirements for grounding temporary substation fencing?

The basic requirement for grounding to protect employees against hazardous differences in potential can be found in WAC 296-45-345(3).

B. Will employers be cited for failing to ground or bond a temporary substation fence being installed or expanded?

WAC 296-45-345. "Creating an equipotential zone."

The employer must use approved grounding methods (Equipotential zone) or an isolation method to protect employees who are exposed to hazardous differences in potential. When employees are engaged in activities where they may be exposed to potential differences, as they would be in the installation of a temporary substation fence, approved and effective grounding must be used.

Without the presence of a ground mat or ground grid extending the full length of the temporary fence (creating an equipotential zone), this would not be possible.

Therefore, the department will treat the requirement for grounding a temporary substation fence when there is no grounding grid or ground mat to create an equipotential zone as putting the employees at greater risk of hazardous differences in potential. Until such time as the ground grid can be extended, provisions shall be made to protect employees from hazardous differences in potential. Since there can be several ways of accomplishing this, and a wide variety of scenarios associated with this activity (length of fence, conductivity/impedance of the surrounding soil, induction, etc.), it will be the employer's responsibility to implement a grounding or isolation plan for the temporary fence--one that affords an equivalent protection to the standard. Guidance can be found in IEEE Std. 80 "Analysis of Power System Grounding." Therefore, by meeting this criteria, and with consideration given to the standard as it applies to protecting employees from hazardous differences in potential, this section will not be cited.

IV. Special Enforcement and Consultation Protocols

- A. *How should WISHA staff handle inquiries about the grounding requirements of WAC 296-45-475(3)?*

WISHA enforcement and consultation staff are expected to advise employers and others that the department will be enforcing the grounding requirements when there is employee exposure, in accordance with the interpretive guidance above.

Approved: _____

Mel James, Acting Senior Program Manager
WISHA Policy & Technical Services

For further information about this or other WISHA Regional Directives, you may contact WISHA Policy & Technical Services at P.O. Box 44648 or by telephone at (360) 902-5503. You also may review policy information on the WISHA Website (<http://www.lni.wa.gov/Safety/>).