



## Oregon Occupational Safety & Health Division Technical Guidance

**DATE:** January 28, 2008

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**TO:** All Oregon OSHA Staff

**FROM:** Peggy Munsell, Standards & Appeals Manager

**SUBJECT:** Required clearances from the neutral conductor

This is a response to a question raised as to the required clearance from the neutral conductor on a high voltage electrical system (600V or greater). The National Electrical Safety Code (NESC) sets rules for the practical safeguarding of persons during the installation, operation or maintenance of electrical supply lines, communication lines and associated equipment.

The NESC 2002 edition, within Section 23 states under 230(E):

- 1. Neutral conductors that are **effectively grounded** [emphasis added by Oregon OSHA for this discussion] throughout their length and associated with circuits of 0 to 22 kV to ground may have the same clearance as guys and messengers.*
- 2. All other neutral conductors of supply circuits shall have the same clearance as the phase conductors of the circuit with which they are associated.*

Therefore, neutral conductors that are **effectively grounded** are considered to have zero potential and are **not** considered energized for the purposes of the restricted space that is defined in the Working Near Overhead High Voltage Lines and Equipment regulations located in OAR 437-002-0047 within Division 2/S for general industry and OAR 437-003-0047 within Division 3/K for construction.

**NESC ANSI/IEEE C2-2002** defines effectively grounded as:

*Intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to limit the buildup of voltages to levels below that which may result in undue hazard to persons or to connected equipment.*

Normally on a high voltage electrical system a copper wire connected to the system going directly down the utility pole to ground/earth provides effective grounding. If there is no

evidence of a system fault and the grounds appear to be connected you can be fairly certain the system in that area is effectively grounded. That does not mean you can physically touch the neutral wire. Neutral wires are normally within 10 feet of the primary conductors which are the systems wires you need to maintain 10 feet from.

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