

# P80-2013/Cor 1

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**Type of Project:** Corrigendum to IEEE Standard 80-2013

**PAR Request Date:** 14-Mar-2014

**PAR Approval Date:** 12-Jun-2014

**PAR Expiration Date:** 31-Dec-2018

**Status:** PAR for a Corrigendum to an existing IEEE Standard

**Root Project:** 80-2013

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**1.1 Project Number:** P80-2013/Cor 1

**1.2 Type of Document:** Guide

**1.3 Life Cycle:** Full Use

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**2.1 Title:** IEEE Guide for Safety in AC Substation Grounding  
- Corrigendum 1

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**3.1 Working Group:** Grounding (PE/SUB/WGD7)

**Contact Information for Working Group Chair**

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**Contact Information for Working Group Vice-Chair**

None

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**3.2 Sponsoring Society and Committee:** IEEE Power and Energy Society/Substations (PE/SUB)

**Contact Information for Sponsor Chair**

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**4.1 Type of Ballot:** Individual

**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:** 06/2014

**4.3 Projected Completion Date for Submittal to RevCom:** 08/2014

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**5.1 Approximate number of people expected to be actively involved in the development of this project:** 41

**5.2.a. Scope of the complete standard:** This guide is primarily concerned with outdoor AC substations, either conventional or gas-insulated. These include distribution, transmission, and generating plant substations. With proper caution, the methods described herein are also applicable to indoor portions of such substations, or to substations that are wholly indoors. No attempt is made to cover the grounding problems peculiar to DC substations. A quantitative analysis of the effects of lightning surges is also beyond the scope of this guide.

**5.2.b. Scope of the Proposed changes:** The changes made correct errors found during the final review of the document before publication. The changes include errors in equations and the removal of information during the balloting process that was inadvertently removed with track changes.

**5.3 Is the completion of this standard dependent upon the completion of another standard:** No

**5.4 Purpose:** The intent of this guide is to provide guidance and information pertinent to safe grounding practices in AC substation design. The specific purposes of this guide are: a) To establish, as a basis for design, the safe limits of potential differences that can exist in a substation under fault conditions between points that can be contacted by the human body; b) To review substation grounding practices with special reference to safety, and develop criteria for a safe design; c) To provide a procedure for the design of practical grounding systems, based on these criteria; d) To develop analytical methods as an aid in the understanding of a ns solution of typical gradient problems; e) To provide benchmark cases using various commercial software programs. This guide is primarily concerned with safe grounding practices for power frequencies in the range of 50-60 Hz. The problems peculiar to DC substations and the effects of lightning surges are beyond the scope of this guide.

**5.5 Need for the Project:** Provides information on substation grounding philosophy and design equations.

**5.6 Stakeholders for the Standard:** utilities, consultants

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#### **Intellectual Property**

**6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?:** No

**6.1.b. Is the Sponsor aware of possible registration activity related to this project?:** No

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**7.1 Are there other standards or projects with a similar scope?:** No

#### **7.2 Joint Development**

**Is it the intent to develop this document jointly with another organization?:** No

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**8.1 Additional Explanatory Notes (Item Number and Explanation):** The Working Group identified errors during the final review before publication and wish to correct the following before publication.

1) Page 45, lines 7 through 9

The equations changed when the dot was replaced with an X for multiplication inadvertently changing the equation.

2) Table 1, Page 46 and Table 2, Page 48

Alumoweld was inadvertently removed from the list of materials in both of Tables 1 and 2. The intent of the working group was to remove references to only aluminum conductors. Alumoweld is made up of steel and aluminum.

Add back in the alumoweld information in the 2000 edition of the IEEE-80 as shown on the returned galley.

3) Page 108, Lines 5 & 6

The approved draft has the number for Cs is 0.636. The number is not legible in the galley

There were math errors in the answers of the Estep50 and Etouch50 equations in the example on page 108.

4) The following change is to improve the readability of the information by moving information in the one existing table to six (6) separate tables that are closer to the examples being discussed in Annex H.

The draft has only one table, Table 5, referred to in for each example to compare the results of the difference calculation methods for the each of the examples.

The working group believes it would be easier for the reader to compare the results of each example if the table is broken up into six (6) tables placed directly under the six (6) examples where it is being discussed. There is no change in the information. The only required change to the text is referring to the new table number in the last sentence of each of the six (6) paragraph that describes the results of the example.