



Canadian Standards Association
Mississauga, Ontario
To the Part I Committee

Subject No. 3101

Chair: F.L. Kaempffer

Date: March 29, 2005

Title: Change in Short Circuit Limits, Rule 36-302(3)(b)

Submitted by: Leslie Stoch of L. Stoch and Associates, 4264 Flitter Court, Mississauga, Ontario, L5L 2H8 on January 6, 2003.

Proposal: Change the reference in Rule 36-302(3)(b) to 10,000 amperes from 30,000 amperes.

Reasons for Request: Reference by Rule 36-302(3)(b) to 30,000 amperes is in conflict with Table 51.

Supporting Information: Rule 36-302(3)(a) specifies minimum #2/0 AWG as minimum grounding conductor size. Subrule (3)(b) then goes on to specify that Table 51 should be used when the available fault level exceeds 30,000 amperes.

Using as an example, a 1.0 second fault, Table 51 requires a minimum # 3/0 AWG wire sizes for brazed joints at the 15,000-ampere fault level. It also requires minimum # 3/0 AWG for all except brazed joints at the 20,000-ampere level, and # 4/0 AWG for brazed joints. Since both 15,000 amperes and 20,000 amperes are below 30,000 amperes specified in the Rule, it would appear logical that the cutoff point should be changed to 10,000 amperes.

Chair's Comments: Rule 36-302(3)(b) is based on CEA report 249 D 541 entitled "Simplified Rule for Grounding Customer-Owned High Voltage Substations". The exact suggested wording in the report is "In locations with system circuit currents exceeding 30,000 A, the grounding conductor wire size shall be increased and shall be such that it will not suffer thermal damage or be a fire hazard under the severest fault conditions occurring on the system thus grounded on accordance with Rule 36-300;" The present published rule reflects this intent, although the wording is slightly different. The CEA report includes a study of fault current distribution and notes that only a fraction of the total fault current is injected into the substation's grounding system and the design should be done accordingly. It also states that "in order to avoid needless expense, however, more accurate means of determining the fault current appearing on the substation grounding network are required." Hence the prescriptive requirement in Rule 36-302(3) for remote stations grounds of No. 2/0 AWG copper grounding conductor up to 30,000 A system short circuit currents would appear to make sense.

My recommendation would be close the subject on the basis that the submitter has not made a compelling argument based on ground current distribution calculations similar to those carried out under the CEA report.

Subcommittee Deliberations: Five Members responded, all in favour with the Chair's recommendation.

Subcommittee Recommendation: To close the Subject.