



August 15, 2016

Document Control Desk

U. S. Nuclear Regulatory Commission

Washington, DC 20555-0001

Subject: Potential Part 21 on Safety Clip, Siemens Part Number 401158

Dear Sirs,

National Technical Systems (NTS) recently submitted a request for extension to complete a failure analysis of the Siemens 401158 Safety Clip. NTS has completed the failure analysis and hereby provides its final evaluation.

Pursuant to the requirements of 10 CFR Part 21, NTS notified the NRC previously of a potential Part 21 condition. The subject Safety Clip is used in commercial grade item medium voltage circuit breakers. The subject circuit breakers are manufactured by Siemens Industry Inc. and are dedicated for use as a basic component by NTS. Affected circuit breakers are Siemens Type 5-3AF-GER-350-1200-78, which are a 350 MVA vertical lift type. The Safety Clip in question is made of a black finish steel and retains the Close Pawl Roller.

During an inspection at Wolf Creek Nuclear Operating Company, it was shown that the subject Safety Clips were cracked, broken, missing, or degraded after 600 to 850 operations. If the Safety Clip breaks and falls off, and the washers and Close Pawl Roller outside bearing and race fall off, then future circuit breaker close operations beyond the next close cycle may not be assured.

Based on NTS's evaluation, it is judged that the failure of the Siemens 401158 Close Pawl Roller Safety Clip was most probably due to a manufacturer lot batch tolerance issue coupled with the acceleration and shock excitation present at the clip's mounting location. It is further judged that the Close Paw Roller Safety Clip location within the Siemens Type 3AF 350 MVA operating mechanism is the only clip location subject to this excitation level.

NTS has provided the Siemens Type 3AF 350 MVA circuit breakers to WCNOG Wolf Creek, PSEG Nuclear LLC Salem, and Entergy ANO. NTS has contacted each utility and recommended that Close Pawl Roller Safety Clip Part Number 401158 be replaced with Safety Clip Part Number 40115. This safety clip is a yellow zinc plated safety clip of different design, and no known problems exist with this safety clip on different type Siemens circuit breakers dedicated by NTS.

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Thank you for your consideration in this matter and if you have any questions, please contact NTS' Senior Director of Nuclear Engineering and Test Services, Tom Brewington at (256) 716-4512 or email at tom.brewington@nts.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Megan Toomey", is written over a horizontal dashed line. The signature is fluid and cursive.

Megan Toomey

Sr. Contracts Manager

NTS Huntsville