



Date: 4/29/2021

To: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555  
Fax Number (301)816-5151

**10CFR Part 21 Notification: P21-03302021**

**Subject: Failures of Size 1 and 2 Freedom Series Full Voltage Reversing Starters**

Pursuant to 10CFR 21.21 (d) (3) (ii), Paragon Energy Solutions, LLC is providing written notification of the identification of a defect.

The following information is required per 10CFR 21.21 (d) (4).

**(i) Name and address of the individual or individuals informing the Commission.**

Tracy Bolt, Chief Nuclear Officer  
Paragon Energy Solutions, LLC  
7410 Pebble Drive  
Ft. Worth, TX 76118

**(ii) Identification of the facility, activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.**

Dominion - North Anna Station has identified instances where Size 1 and 2 starters have failed to function as expected in assemblies that were originally supplied by NLI. The Mechanical Interlock exhibited binding that prevented the contactor to close when energized.

The specific part which fails to comply or contains a defect:  
Eaton Starter Model AN56DN\*, AN56GN\*, CN55DN\*, CN55GN\* style Starters and Contactors.

The identified failed starters are utilized in an application of operating MOVs. This is an intermittent duty application.

**Identification of the firm constructing or supplying the basic component which fails to comply or contains a defect.**

Components were originally supplied by  
Nuclear Logistics, LLC  
7410 Pebble Drive, Fort Worth Texas 76118

**(iii) Nature of defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.**

Binding of the mechanical interlock preventing the contactor from closing on demand.

**(iv) The date on which the information of such defect or failure to comply was obtained.**

Date of Discovery: 3/29/2021

**(v) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for being supplied for, or may be supplied for, manufactured or being manufactured for one or more facilities or activities subject to the regulations in this part.**

The issue was identified on supplied Date Codes T4514 (Week 45 of Year 2014) and T4215 (week 42 of year 2015).

Starters have been supplied to the identified plants below within the following date range September 2014 through October 2018. Paragon is in the process of identifying the date codes of the supplied starters and contactors to provide the specific information to the identified plants.

Plant
Beaver Valley
Columbia
Ergytech
Harris
Millstone
NEK KRSKO
North Anna
Prairie Island

**(vi) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.**

The evaluation being performed by Paragon is expected to be completed by May 29, 2021.

The component design that exhibited the failure was revised by the original equipment manufacturer (EATON) in October 2018. There have been no reported failures of the interlock mechanism in vintages manufactured before September 2014 or after October 2018.

The recommendations below are based on the specific application.

The reversing starters and reversing contactors are typically wired in a configuration that will electrically lock out one of the contactors when the other one is being energized to prevent both contactors from being energized at the same time. Therefore, the mechanical interlock is not required to prevent both contactors from being closed at the same time when the electrical interlock configuration is being implemented. In this scenario, the mechanical interlocks are not required and can be removed.

- (vii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.**

The motor control centers that contain the mechanical interlock should be monitored to ensure that there is no binding during operation.

Please contact me with any questions or comments.

Sincerely,



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Chief Nuclear Officer  
Paragon Energy Solutions  
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