

Part 21 (PAR)

Event # 51938

|  |                             |   |       |
|--|-----------------------------|---|-------|
| <b>Rep Org:</b> NUTHERM INTERNATIONAL, INC   |                             | <b>Notification Date / Time:</b> 05/17/2016 15:51 (EDT) |       |
| <b>Supplier:</b> NUTHERM INTERNATIONAL, INC. |                             | <b>Event Date / Time:</b> 05/17/2016 (CDT)              |       |
| <b>Last Modification:</b> 05/17/2016         |                             |   |       |
| <b>Region:</b> 3                             | <b>Docket #:</b>            |   |       |
| <b>City:</b> MOUNT VERNON                    | <b>Agreement State:</b> Yes |   |       |
| <b>County:</b>                               | <b>License #:</b>           |   |       |
| <b>State:</b> IL                             |                             |   |       |
| <b>NRC Notified by:</b> THOMAS STERBIS       |                             | <b>Notifications:</b> ANNE DeFRANCISCO                  | R1DO  |
| <b>HQ Ops Officer:</b> KARL DIEDERICH        |                             | GEORGE HOPPER   | R2DO  |
| <b>Emergency Class:</b> NON EMERGENCY        |                             | PART 21/50.55 REACTORS                                  | EMAIL |
| <b>10 CFR Section:</b>                       |                             |   |       |
| 21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE     |                             |   |       |

## PART 21 REPORT - DEFECT IN A SIGNAL CONVERTER TRANSFORMER

The following report was received from the manufacturer via fax:

Nutherm International, Inc. reported on a defect found in "Moore Industries SCT Signal Converter (Part Number SCT/4-20MA/10-50MA/117VAC/UB) based upon the failure analysis of a failed component. The conclusion was that the wire insulation in T2 transformer was damaged by the transformer manufacturing facility during assembly. This damage reduced the insulation resistance and dielectric breakdown between the windings of the transformer. These damaged transformers were subsequently installed by Moore Industries into the signal converters. The failure of the transformer resulted in early, catastrophic failure of the signal converter.

"Moore Industries tested the transformers remaining in stock and found one (1) of the remaining two-hundred nineteen (219) transformers exhibited this condition. In all documented cases involving failure of this transformer, the impacted units had passed pre-installation functional testing but failed within four months after installation."

Affected nuclear power stations include: Peach Bottom Atomic Power Station and the Sequoyah Nuclear Station.

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IE19  
NRR



501 South 11th Street Mount Vernon, IL 62864 Phone: 618-244-8000 Fax: 618-244-8641

May 17, 2016

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Notification under 10CFR 21.21 (d) (3) (ii) for Moore Industries SCT Signal Converter

Pursuant to 10CFR 21.21 (d) (3) (ii), Nutherm International, Inc. is providing written notification of the identification of a potential defect found in Moore Industries SCT Series Signal Converter.

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

- i. Name and address of the individual or individuals informing the NRC.

Thomas A. Sterbis, President  
Nutherm International, Inc.  
501 South 11th Street  
Mount Vernon, Illinois 62864

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

It has been identified that Nutherm International, Inc has supplied SCT Series Signal Converters to the following facilities:

Exelon Generation Company, LLC – Peach Bottom Atomic Power Station  
Tennessee Valley Authority – Sequoyah Nuclear Station

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

Nutherm International, Inc., 501 South 11th Street. Mount Vernon, Illinois 62864.

- iv. Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

Peach Bottom returned to Nutherm a failed Moore Industries Signal Converter, Part Number SCT/4-20MA/10-50MA/117VAC/UB, for failure analysis. The conclusion of the failure analysis was that the wire insulation in T2 transformer was damaged by the transformer manufacturing facility during assembly. This damage reduced the insulation resistance and dielectric breakdown between the windings of the transformer. These damaged transformers were subsequently installed by Moore Industries into the signal converters. The failure of the transformer resulted in early,

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catastrophic failure of the signal converter.

Moore Industries tested the transformers remaining in stock and found one (1) of the remaining two-hundred nineteen (219) transformers exhibited this condition. In all documented cases of failure due to failure of this transformer, the impacted units passed functional testing but failed within four months after installation.

It has been determined that no visual inspection of the transformer or testing after the transformer is installed will discover this defect. This defect can only be found by performing testing on the transformer prior to installation.

- v. The date on which the information of such defect or failure to comply was obtained.

May 16, 2016.

- vi. In the case of a basic component which contains a defect or failure to comply, the number and location of all such components in use at, supplied for one or more facilities or activities subject to the regulations of 10CFR21.

Exelon Generation Company, LLC – Peach Bottom Atomic Power Station

Part Number: SCT/4-20MA/10-50MA/117VAC/UB

| <u>Purchase Order</u> | <u>Nutherm Traceability Number</u> | <u>Serial No.</u> |
|-----------------------|------------------------------------|-------------------|
| 90 065122             | 13337-01R0 1/01                    | 2318694           |

Shipped March 6, 2014

Tennessee Valley Authority – Sequoyah Nuclear Station

Part Number: SCT/10-50MA/10-50MA/117VAC

| <u>Purchase Order</u> | <u>Nutherm Traceability Number</u> | <u>Serial No.</u> |
|-----------------------|------------------------------------|-------------------|
| 582226                | 13102-01R1 1/01                    | 2299491           |
|                       | 13102-01R1 1/02                    | 2299492           |
|                       | 13102-01R1 1/03                    | 2299493           |

Shipped October 17, 2013

- vii. 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 manufacturer has completed corrective actions to prevent installing any nonconforming transformers into any signal converters. The transformers are tested prior to installation to assure that they do not have this manufacturing defect. All units manufactured after December 18, 2015 are manufactured after implementation of this corrective action.

The impacted customers were notified of this condition May 17, 2016.

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- viii. 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.

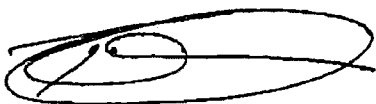
Replacement of the units listed above is suggested.

- ix. In the case of an early site permit, the entities to whom an early site permit was transferred.

Not applicable.

If you have any questions please contact Adrienne Smith at 618-244-6000, extension 3034, email [adrienne.smith@nutherm.com](mailto:adrienne.smith@nutherm.com) or Rodger Edwards at 618-244-6000, extension 3050 email [rodger.edwards@nutherm.com](mailto:rodger.edwards@nutherm.com).

Sincerely,  
**NUTHERM INTERNATIONAL, Inc.**



Thomas A. Sterbis  
President

TAS/abs