

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS  
WASHINGTON, D.C. 20555-0001

January 19, 2006

NRC INFORMATION NOTICE 2006-02: USE OF GALVANIZED SUPPORTS AND CABLE TRAYS WITH MEGGITT Si 2400 STAINLESS-STEEL-JACKETED ELECTRICAL CABLES

## **ADDRESSEES**

All holders of operating licenses for nuclear reactors except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel; and fuel cycle licensees and certificate holders.

## **PURPOSE**

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to inform addressees of the potential generic issue of using galvanized supports or galvanized cable trays with Meggitt Si 2400 stainless-steel-jacketed electrical cables. Recipients are expected to review the information for applicability to their facilities and consider actions to avoid similar problems. However, suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

## **DESCRIPTION OF CIRCUMSTANCES**

In March 2004, Omega Point Laboratories, Inc. did a fire test of Meggitt Safety Systems, Inc.'s Si 2400 stainless-steel-jacketed electrical cables on behalf of Progress Energy Carolinas, Inc., as described in its license amendment request for the Harris Nuclear Plant dated August 18, 2005 (Accession No. ML052640144). The test did not successfully demonstrate continued electrical functionality of the cables for the complete duration of the fire test. The cable samples were installed on galvanized supports for the fire test. Wherever the cables came in contact with a galvanized support, the cable jacket was degraded. The degradation was attributed to liquid metal embrittlement of the stainless steel cable jacket directly contacting the galvanized support material at high temperatures. The cable jacket failure was not discovered until a hose stream test at the end of the fire test.

A second fire test was done later using stainless steel supports so that no cable samples were in direct contact with galvanized material. No cable jacket degradation was observed during the second test.

## **DISCUSSION**

Meggitt Si 2400 stainless-steel-jacketed cable is designed to function during a fire. The stainless steel jacket acts as a fire barrier. This cable is used in some nuclear facilities to provide power to equipment required for safe shutdown of the facility.

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If galvanized supports are in contact with the stainless steel jacket of the cable, the stainless steel jacket could degrade during a fire event. Degradation of the cable jacket would expose the cable to the fire and possibly result in damage to the cable. Consequently, the equipment being powered by the cable might malfunction during shutdown of the plant. According to Section 4.0 j of Meggitt document ER 05-179 (Revision A, dated October 7, 2005), "Unpacking, Inspection, Installation and Standard Practices of Si 2400 Fire Rated Cable," "Si 2400 Fire Cable may be routed in cable trays; Stainless steel trays are recommended. Cable should not be installed in galvanized trays and should NOT be in direct contact with galvanized or aluminum trays or structures." This statement was added to the document as a result of the unsuccessful March 2004 fire test.

Addressees should be aware that fuel cycle licensees and certificate holders are not held to the same fire protection requirements specified in Title 10 of the Code of Federal Regulations, Part 50, with regard to electrical circuits, but there are a limited number of safety events that could be triggered by damage to electrical cables during a fire at a fuel cycle facility (e.g., loss of power for maintaining a vacuum in gloveboxes). Fuel cycle licensees and certificate holders also may be interested in knowing about this generic issue because there may be potential for loss of some safeguards capabilities during a fire, if power to safeguards equipment were lost.

### **GENERIC IMPLICATIONS**

Galvanized supports and cable trays with Meggitt Si 2400 stainless-steel-jacketed electrical cables can impact the safe shutdown functions of the equipment powered by the cables.

### **CONTACT**

This IN requires no specific action or written response. Please direct any questions about this matter to the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

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Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.