

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

January 31, 1985

IE INFORMATION NOTICE NO. 85-09: ISOLATION TRANSFER SWITCHES AND POST-FIRE  
SHUTDOWN CAPABILITY

Addressees:

All nuclear power reactor facilities holding an operating license (OL) or a construction permit (CP).

Purpose:

This information notice is to alert recipients of potential deficiencies in the electrical design of isolation transfer switches installed outside the control room at many nuclear power plants. The transfer switches provide electrical isolation of certain shutdown circuits from the control room and other essential fire areas during post-fire accident conditions. It is expected that recipients will review the information for applicability to their facilities and consider actions, if appropriate, to preclude a similar problem occurring at their facilities. However, suggestions contained in this notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

During a recent NRC fire protection inspection at the Wolf Creek facility, it was discovered that a fire in the control room could disable the operation of the plant's alternate shutdown system. Isolation transfer switches of certain hot shutdown systems would have to be transferred to the alternate or isolated position before fire damage occurred to the control power circuits of several essential pumps and motor-operated valves at this facility. If the fire damage occurred before the switchover, fuses might blow at the motor control centers or local panels and require replacements to make the affected systems/components operable. This situation existed because the transfer scheme depended on the existing set of fuses in the affected circuit and did not include redundant fuses in all of the alternate shutdown system circuits. For most of the transfer switches, the situation would not cause a problem because the desired effect after isolation is the deenergization of power. In instances where the system/component has to be operable or where operation might be required to override a spurious actuation of a component (such as a motor-operated valve), replacement of fuses may have become necessary. In such cases, troubleshooting/repair would be required to achieve or maintain hot shutdown.

Discussion:

At the Wolf Creek facility, where the concern was discovered, the transfer switches at the remote shutdown panel had redundant fusing. The only transfer switches identified as a concern were those at other local stations that mainly involve support systems operability or correction of spurious operations. The facility is either modifying existing switches or installing new switches for certain components so that redundant fusing will exist with a new (different) set of fuses switched into the circuit when the switch is placed in the isolated mode. Alternate shutdown procedures also are being revised so that shutdown could be achieved under fire conditions which result in immediate evacuation of the control room and control room circuit damage that causes maloperation of equipment prior to isolation outside the control room.

This situation may exist at other facilities and may involve the shutdown panel and other local stations that are needed for alternate shutdown capability. This could include the switches and other circuits on the alternate/remote shutdown panel. Operability of the hot shutdown systems, including the ability to overcome a fire or fire suppressant induced maloperation of hot shutdown equipment and the plant's power distribution system, must exist without repairs, including replacement of fuses. Section III.G.1 of Appendix R to 10 CFR 50 addresses fire protection of safe shutdown capability. Meeting this requirement for the affected circuits will ensure that redundant fuses are part of the transfer schemes.

No specific action or written response is required by this information notice. However, if you have any questions regarding this notice, please contact the Regional Administrator of the appropriate NRC regional office or the technical contact listed below.

  
Edward L. Jordan, Director  
Division of Emergency Preparedness  
and Engineering Response  
Office of Inspection and Enforcement

Technical Contact: W. T. LeFave, NRR  
(301)492-9470

V. D. Thomas, IE  
(301)492-4755

Attachment: List of Recently Issued IE Information Notices

Attachment  
IN 85-09  
January 31, 1985

LIST OF RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
85-08	Industry Experience On Certain Materials Used In Safety-Related Equipment	1/30/85	All power reactor facilities holding an OL or CP
85-07	Contaminated Radiography Source Shipments	1/29/85	All NRC licensees authorized to possess industrial radiography sources
85-06	Contamination of Breathing Air Systems	1/23/85	All power reactor facilities holding an OL or CP
85-05	Pipe Whip Restraints	1/23/85	All power reactor facilities holding an OL or CP
85-04	Inadequate Management Of Security Response Drills	1/17/85	All power reactor facilities holding an OL or CP, & fuel fabrication & processing facilities
85-03	Separation Of Primary Reactor Coolant Pump Shaft And Impeller	1/15/85	All pressurized water power reactor facilities holding an OL or CP
85-02	Improper Installation And Testing Of Differential Pressure Transmitters	1/15/85	All power reactor facilities holding an OL or CP
85-01	Continuous Supervision Of Irradiators	1/10/85	All material licensees possessing irradiators that are not self-shielded and contain more than 10,000 curies of radioactive material

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OL = Operating License  
CP = Construction Permit