

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

February 11, 1985

IE Information Notice No. 85-11: LICENSEE PROGRAMS FOR INSPECTION OF
ELECTRICAL RACEWAY AND CABLE INSTALLATIONS

Addressees:

All licensees of nuclear power reactor facilities holding a construction permit (CP).

Purpose:

This information notice is provided to alert recipients of potentially significant problems identified during NRC Construction Appraisal Team (CAT) inspections of licensee programs for the inspection of physical separation requirements for electrical raceway and cable installations. It is expected that recipients will review the information for applicability to their facilities and consider actions, if appropriate, to preclude similar problems from occurring at their facilities. However, suggestions contained in this notice do not constitute NRC requirements and, therefore, no specific action or written response is required.

Description of Circumstances:

Comanche Peak Units 1 and 2

During the NRC CAT inspection conducted at the Comanche Peak Steam Electric Station in January and February 1983, a number of areas were identified in which physical separation criteria for Class 1E electrical raceway and cable were not met. These separation deficiencies were associated with redundant electrical divisions, internal panel wiring, and separation from other equipment such as mechanical components and piping.

The established facility inspection program did not provide adequate controls to ensure that deviations from specified separation criteria were promptly identified and corrected. This resulted in part from a licensee decision not to inspect electrical installations for physical separation until installation was essentially complete. (For details refer to Construction Appraisal Team Inspection Report 50-445/83-18, 50-446/83-12.)

Washington Nuclear Plant Unit 2

During the NRC CAT inspection conducted at the Washington Nuclear Plant Unit 2 in May and June 1983, it was observed that the existing program for inspecting corrective action for identified electrical raceway deficiencies was not adequate. Controls in the Test and Startup organization were inadequate to ensure that deficiencies in transferred systems identified by the contractor were corrected.

Although most of the installed Class 1E cable tray met applicable requirements, instances of failure to meet physical separation criteria were identified during the CAT inspection. (For details refer to Construction Appraisal Team Inspection Report 50-397/83-29.)

Perry Units 1 and 2

During the NRC CAT inspection conducted at the Perry Nuclear Power Plant in August and September 1983, it was determined that separation requirements relative to some electrical raceway installations had not been properly inspected by site personnel. In numerous installed and inspected cable tray segments, quality control (QC) inspections performed to determine the acceptability of Class 1E raceway installations did not follow the applicable procedures. Inspection records indicated physical separation criteria to be acceptable when, in fact, a number of installations examined during the CAT inspection did not conform to applicable requirements. In another area, adequate procedural controls were not established to ensure that the installation of Power Generation Control Complex (PGCC) duct covers (barriers) received appropriate inspections. (For details refer to Construction Appraisal Team Inspection Report 50-440/83-31, 50-441/83-30.)

Nine Mile Point Unit 2

The NRC CAT inspection conducted at the Nine Mile Point Station Unit 2 during November 1983 identified a number of deficiencies in the inspection program for the installation of Class 1E electrical raceway and cable. These deficiencies included the failure to perform adequate inspection, inadequate procedural controls to ensure that installations conform to applicable requirements, and the failure to take appropriate action when deficiencies were identified. Inspection records indicated separation to be acceptable when, in fact, a number of previously inspected installations examined during the NRC CAT inspection did not conform to applicable separation requirements. In the area of procedures, adequate installation and inspection procedure controls had not been established to ensure that the PGCC cable and wiring installations would conform to design requirements. As a result, many of the cable and wiring installations in the control panels of the PGCC did not conform to applicable separation criteria. The inspection program failed to promptly and properly identify and correct these separation deficiencies. (For details refer to Construction Appraisal Team Inspection Report 50-410/83-18.)

Waterford Unit 3

During the NRC CAT inspection conducted at the Waterford Steam Electric Station Unit 3 in February and March 1984, it was determined that the implementation of the QC inspection program did not effectively identify electrical raceway separation deficiencies. The inspection of Class 1E raceway installations relative to physical separation requirements had not been accomplished in accordance with criteria established in the inspection documents. Consequently, many of the raceway installations examined by the NRC CAT did not conform to applicable FSAR commitments in this area. (For details refer to Construction Appraisal Team Inspection Report 50-382/84-07.)

Seabrook

The NRC CAT inspection conducted at the Seabrook Station during May 1984 identified a number of Class 1E cable installations that, after site QC inspection, did not maintain the specified physical separation between redundant electrical divisions. Most of these deficiencies involve cable and control panel wiring that had been transferred to "startup" jurisdiction. Corrective action had not been implemented because the deficiencies had not been properly identified. (For details refer to Construction Appraisal Team Inspection Report 50-443/84-07.)

River Bend Unit 1

During the NRC CAT inspection conducted at the River Bend Unit 1 site in August 1984, it was concluded that the inspection program for electrical raceway and cable was not fully effective. Inspection of some electrical raceway installations for physical separation had not been accomplished in accordance with criteria established in the applicable procedures. A number of installed electrical raceway and cable segments that did not maintain the required separation between redundant divisions were observed by the NRC CAT in raceway and cable that had been previously inspected by site QC inspection personnel. (For details refer to Construction Appraisal Team Inspection Report 50-458/84-23.)

Shearon Harris Unit 1


During the NRC CAT inspection conducted at the Shearon Harris Unit 1 site in October 1984, the NRC CAT identified numerous installations in which the FSAR criteria for physical separation between Non-Class 1E and Class 1E raceway components were not met. Site inspection personnel did not identify the above separation deficiencies because design documents used for installation and inspection specified separation criteria that were different from the FSAR commitment. Thus, the identified deficiencies were the result of the licensee not meeting its FSAR commitments for appropriate analysis of changes in separation criteria as addressed in IEEE Standard 384-74. (For details refer to Construction Appraisal Team Inspection Report 50-400/84-41.)

Discussion:

During the NRC CAT inspections completed in 1983 and 1984, electrical raceway and cable separation deficiencies were identified at eight sites. The deficiencies at seven sites were attributed to inadequate site inspection or an ineffective site inspection program in this area. At one site the deficiency pertained to a conflict between design documents used for installation and the FSAR commitment to conform to IEEE Standard 384-74. In general, IEEE Standard 384-74 provides the separation criteria for Class 1E systems and components. Acceptable separation is achieved by safety class structures, distance, or barriers, or any combination thereof. Additionally, acceptable separation can be established by analysis as provided by IEEE Standard 384-74.

Because separation deficiencies in Class 1E electrical systems, if uncorrected, could adversely affect operational safety, recipients of this notice should review the information presented to avoid similar deficiencies at their facilities.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the Regional Administrator of the appropriate NRC Regional Office or this office.


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

Technical Contact: Roger Rohrbacher, IE
(301) 492-9660

Attachment: List of Recently Issued IE Information Notices

Attachment
IN 85-11
February 11, 1985

LIST OF RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
85-10	Posttensioned Containment Tendon Anchor Head Failure	2/6/85	All power reactor facilities holding an OL or CP
85-09	Isolation Transfer Switches And Post-Fire Shutdown Capability	1/31/85	All power reactor facilities holding an OL or CP
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 & pro- cessing 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

OL = Operating License
CP = Construction Permit