

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

July 15, 1985

IE INFORMATION NOTICE NO. 85-56: INADEQUATE ENVIRONMENT CONTROL FOR COMPONENTS  
AND SYSTEMS IN EXTENDED STORAGE OR LAYUP

Addressees:

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

Purpose:

This information notice is being provided to alert addressees to problems which can occur if equipment is improperly stored or laid up during construction or extended plant outages. Addressees also are reminded that programs for proper storage and preservation of materials and components are required by NRC regulations (10 CFR 50, Appendix B), even though not specifically addressed as license 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 information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

Licensee event reports, 10 CFR 50.55(e) reports, and NRC inspection reports contain many instances where materials and components have been seriously degraded due to improper storage, protection, or lay up, both at facilities under construction and facilities with operating licenses. A number of representative examples are described in the following paragraphs.

A recent NRC inspection at Nine Mile Point Unit 2 disclosed that the cooling water heat exchanger for the high pressure core spray diesel generator had water standing in the tube side of the unit. The heat exchanger had been delivered to the site and had been "stored in place" in 1977, but was not yet in service. The source of the water is unknown, but it has been hypothesized that the heat exchanger had been inadequately drained after a manufacturer's hydro-test in 1976. The site construction organization had no program for inspection or surveillance of equipment in storage. Significant corrosion damage was observed on the copper alloy tubes and the carbon steel tube sheets and water boxes.

Corrosion damage similar to that described above was found during an NRC inspection at Hope Creek. In that instance, the two heat exchangers were supplied for the engine cooling system for the plant emergency diesel generators. The heat exchangers had been received onsite sometime before, and stored in place. They had not yet been placed in service.

In November 1984 the licensee for H. B. Robinson Unit 2 notified the NRC that, while preparing for restart after a 10 month outage, numerous pinhole leaks had been detected in the stainless steel service water piping. Further examination of the piping disclosed other corrosion pits that had not penetrated through the wall. Temporary repairs were accomplished by the use of about 800 welded sleeves. The licensee has submitted plans for future complete replacement of the affected pipe. The corrosion has been attributed to microbiological growth in the stagnant water that was in the system during the extended outage. Proper layup of the system could have precluded damage. IE Information Notice 85-30 provides additional information on this phenomenon.

At Palo Verde, the licensee reported in June 1984 that corrosion attack had been found on internal surfaces of two Unit 2 auxiliary feedwater pumps. The pumps had not been operated. In December 1984, the licensee reported that the corrosion had been caused by contaminated water inadvertently left in the pumps after prestartup flushing of the system.

#### Discussion:

The cases cited above are a small sample of the wide variety of instances where improper storage or layup has resulted in significant damage and extended plant outages. Many of the events are related to balance-of-plant equipment and are not reportable to the NRC. They do, however, often cause extended outages. The Robinson service water piping damage extended the plant outage for 4 months, and additional down time will be required in the future to install the replacement pipe.

At Palo Verde, it required extensive work and 6 months time to finally resolve that the pumps were still serviceable.

10 CFR 50.34(a)(7) requires that each applicant for a construction permit shall provide a description of the quality assurance program to be applied to the construction of the facility in accordance with the requirements of 10 CFR 50, Appendix B. 10 CFR 50.34(b)(6)(ii) requires a description of how the requirements of Appendix B will be satisfied during the operation of each nuclear power facility. Among the requirements of Appendix B, Criterion XIII addresses storage, cleaning, and preservation of materials and equipment.

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No specific action or written response to this information notice is required. If you need additional information 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: J. B. Henderson, IE  
492-9654

Attachment: List of Recently Issued IE Information Notices

LIST OF RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
85-55	Revised Emergency Exercise Frequency Rule	7/15/85	All power reactor facilities holding an OL or CP
85-54	Teletherapy Unit Malfunction	7/15/85	All NRC licensees authorized to use teletherapy units
85-53	Performance Of NRC-Licensed Individuals While On Duty	7/12/85	All power reactor facilities holding an OL or CP
85-52	Errors In Dose Assessment Computer Codes And Reporting Requirements Under 10 CFR Part 21	7/10/85	All power reactor facilities holding an OL or CP
85-51	Inadvertent Loss Or Improper Actuation Of Safety-Related Equipment	7/10/85	All power reactor facilities holding an OL or CP
85-50	Complete Loss Of Main And Auxiliary Feedwater At A PWR Designed By Babcock & Wilcox	7/8/85	All power reactor facilities holding an OL or CP
85-49	Relay Calibration Problem	7/1/85	All power reactor facilities holding an OL or CP
85-48	Respirator Users Notice: Defective Self-Contained Breathing Apparatus Air Cylinders	6/19/85	All power reactor facilities holding an OL or CP, research, and test reactor, fuel cycle and Priority 1 material licensees
85-47	Potential Effect Of Line-Induced Vibration On Certain Target Rock Solenoid-Operated Valves	6/18/85	All power reactor facilities holding an OL or CP

OL = Operating License  
CP = Construction Permit