UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

December 6, 1989

NRC INFORMATION NOTICE NO. 89-81: INADEQUATE CONTROL OF TEMPORARY MODIFICATIONS TO SAFETY-RELATED SYSTEMS

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose:

This information notice is intended to alert addressees to potential problems resulting from inadequate control of temporary modifications to safety-related systems in operating nuclear plants. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

Several NRC design inspections of modifications to safety systems have revealed instances in which the licensee's control of temporary modifications to safety-related systems was inadequate. Specifically, these inspections revealed that temporary modifications were not properly tracked, were not documented in a timely fashion, and were not given a timely technical review. The following findings from four inspections illustrate these concerns.

Zion Nuclear Power Station, Unit 1 (50-295/88-03)

The inspection team reviewed the licensee's "Temporary Alteration Program" for the installation of temporary modifications to the safety systems. This program had the following weaknesses.

1. The program allowed immediate installation of a temporary modification without a safety evaluation as required by 10 CFR 50.59. In accordance with the procedural guidelines, detailed technical analysis was not required for a temporary modification that was installed for less than 30 days. In addition, the program allowed the time frame for performing the technical review to be extended to 60 days if the temporary modifications were installed for use beyond 30 days. Thus, the modification could remain technically unreviewed for 60 days, and if the modification

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was cancelled within 30 days, it might never be analyzed. Because an assessment of the individual and synergistic effects of 30-day modifications on the plant's safety systems was not performed, there was no way of determining whether the safety of the plant had been compromised by operating the systems with temporary modifications.

2. The program did not provide an effective system for tracking the temporary modifications. As a result, many temporary modifications remained installed for a long time without being analyzed.

3. The program did not provide any directive for timely marking of the control room copies of the controlled set of drawings to reflect a modified configuration of the system after the temporary modification had been installed. Control room drawings that do not correctly reflect the as-built plant configuration could impair the capability of plant operators to troubleshoot problems and to operate the plant safely.

Sequoyah Nuclear Plant, Units 1 and 2 (50-327/86-27 and 50-328/86-27)

Temporary modifications at the Sequoyah plant were performed through the Temporary Alteration Control Form (TACF) program and associated administrative procedures. The procedures addressed requirements for generation of follow-up documentation, such as design change requests (DCRs), which include a required detailed technical evaluation and also an evaluation to determine the possible existence of an unreviewed safety question. The inspection team reviewed the TACF program and a sample of the temporary modifications installed through the TACF program. This program had the following weaknesses.

1. The TACF program did not require a DCR to be issued for a temporary modification that was expected to be removed within 60 days of installation. Therefore, such modifications were not given the detailed technical evaluation required by the DCR process. Such a modification could remain unreviewed for 60 days, and if the modification was cancelled within 60 days, it might never be analyzed. Because an assessment of the individual and synergistic effects of 60-day modifications on the plant's safety systems was not performed, there was no way of determining whether the safety of the plant had been compromised by operating the systems with temporary modifications.

2. The TACF program was routinely used to make permanent changes in the plant. The decision to use this temporary modification program for installation of permanent modifications was made at the discretion of station personnel without adequate guidance. Sometimes the decision was based on merely whether the Engineering Department would be able to provide a modification package in a timely fashion. This approach resulted in many installations of permanent modifications without appropriate engineering evaluations.

3. The TACF program did not have an effective system for tracking temporary modifications. This weakness resulted in installation of many permanent changes in plant safety systems without the proper safety evaluation and associated documentation. The program lacked instructions for updating controlled copies of the control room drawings in a timely manner to reflect installed temporary modifications. These weaknesses resulted in many errors in the control room drawings.

Enrico Fermi Atomic Power Plant, Unit 2 (50-341/89-200)

The inspection team reviewed the licensee's "Temporary Modification Program" and a sample of the temporary modifications in detail. One modification was installed during 1987 to silence a "high drywell temperature" alarm that was triggered by steam leaking from a valve in the drywell area. The design temperature of the drywell was 135°F but the actual ambient temperature was about 200°F because of the steam leak. Since the leak could not be fixed while at power, the temporary modification raised the alarm setpoint to silence the alarm. The review of this modification revealed that the licensee's evaluation was inadequate. The effects of higher drywell ambient temperatures on various design attributes, including environmental qualification of equipment in the vicinity, density compensation for the filled instrument sensing lines of the reactor instrumentation passing through the higher temperature area, and higher voltage drop in the cables and wires as a result of higher ambient temperatures, were not evaluated.

Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (50-317/89-200 and 50-318/89-200)

The inspection team reviewed the licensee's "Temporary Modification Control" procedure and a sample of the temporary modifications in detail. The team found that the licensee's temporary modification program failed to ensure the proper review of all modifications by the Plant Review Committee before their installation into the plant, and that the program was not under sufficient management oversight to minimize the number of temporary modifications installed. The licensee's procedure permitted the shift supervisor to install any temporary modification for up to 24 hours without a technical review or a safety evaluation. Although the licensee's technical specifications required that the Plant Review Committee review all proposed changes or modifications to plant systems or equipment affecting nuclear safety, the licensee's procedure allowed the installation of temporary modifications for up to 14 days with interim approval from two SRO licensed individuals, one of whom must be a shift supervisor. The temporary modification tracking system was not being kept up to date.

Discussion:

It is important for licensees to evaluate the temporary modifications to safety-related systems before implementing these modifications. The evaluation includes

verification that the modification will not have an adverse effect on the plant's systems, equipment, or safety. Although licensees have generally met the NRC requirements in 10 CFR 50.59, some licensees have not exercised an adequate level of control for the activities associated with the temporary modifications to safety-related systems, as illustrated in the above-identified deficiencies.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contacts listed below or the appropriate NRR project manager.

José A. Calvo for

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Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
89-80	Potential for Water Hammer, Thermal Stratification, and Steam Binding in High-Pressure Coolant Injection Piping	12/1/89	All holders of OLs or CPs for nuclear power reactors.
89-79	Degraded Coatings and Corrosion of Steel Containment Vessels	12/1/89	All holders of OLs or CPs for LWRs.
89-56, Supp. 1	Questionable Certification of Material Supplied to the Defense Department by Nuclear Suppliers	11/22/89	All holders of OLs or CPs for nuclear power reactors.
89-78	Failure of Packing Nuts on One-Inch Uranium Hexafluoride Cylinder Valves	11/22/89	All NRC licensees authorized to possess and use source material and/or special nuclear material for the heating, emptying, filling, or shipping of uranium hexafluoride in 30- and 48-inch diameter cylinders.
89-77	Debris in Containment Emergency Sumps and Incorrect Screen Configurations	11/21/89	All holders of OLs or CPs for PWRs.
89-76	Biofouling Agent: Zebra Mussel	11/21/89	All holders of OLs or CPs for nuclear power reactors.
89-75	Falsification of Welder Qualifications for Contractor Employees	11/20/89	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
CP = Construction Permit

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		CERossi	CHBerlinger	TechEd
		11/29/89	11/22/89	11/21/89
*OGCB:DOEA:NRR	*RSIB:DRIS:NRR	*SC/RSIB:DRIS:NRR	*C/RSIB:DRIS:NRR	*D/DRIS:NRR
PCWen	SVAthavale	EVImbro	WDLanning	BKGrimes
10/19/89	10/18/89	10/18/89	10/18/89	11/07/89

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Document Name: INFO NOTICE - WEN, ATHAVALE

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		D/DOEA:NRR	C/OGCB:DOEA:NRR	RPB:ARM
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*See previous concurrence

*OGCB:DOEA:NRR	*RSIB:DRIS:NRR	*SC:RISB:DRIS:NRR	*C:RSIB:DRIS:NRR	E7DRIS:NRR
PCWen	SVAthavale	EVImbro	WDLanning	BKGrimes
10/19/89	10/18/89	10/18/89	10/18/89	11/7/89

TECH ED	C:OGCB:DOEA:NRR	D:DOEA:NRR
	CHBerlinger	CERossi
11/ /89	11/ /89	11/ /89

Fermi Nuclear Plant, Unit 2 (50-341/89-200)

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