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

May 6, 1993

NRC INFORMATION NOTICE 93-34, SUPPLEMENT 1: POTENTIAL FOR LOSS OF EMERGENCY COOLING FUNCTION DUE TO A COMBINATION OF OPERATIONAL AND POST-LOCA DEBRIS IN CONTAINMENT

Addressees

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

Purpose

The U.S. Nuclear Regulatory Commission (NRC) issued Information Notice (IN) 93-34 because of the possible problems that could occur with operational and post-accident debris blocking emergency core cooling pump strainers in a boiling-water reactor (BWR) or containment sump screens in a pressurized-water reactor (PWR). The IN was based, in part, on an event that occurred at the Perry Nuclear Plant. The NRC is issuing this supplement to IN 93-34 to alert addressees to additional information relating to that event. 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 are not NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances

IN 93-34 described clogging of emergency core cooling (ECC) pump suction strainers at the Perry Nuclear Plant, a BWR-6. The latest strainer clogging event occurred in March 1993, 2 months after the licensee had replaced the strainers and thoroughly cleaned the suppression pool. After the IN was issued, the licensee chemically analyzed the debris on the strainer. The debris consisted of fibers from air filter material that had been inadvertently introduced into the suppression pool and corrosion products that had been filtered from the pool by the fibers adhering to the surface of the strainer. A small amount of the fibrous filter material also was found in the suppression pool near the weir wall.

The licensee uses the fibrous material in the drywell in three air filters that each have a surface area of about 5.57 square meters [60 square feet]. In addition, there are six similar air filters in containment. The purpose of the filters is to provide filtered air in containment and the drywell during reactor outages. It has been the licensee's practice to replace the filter material at the end of each outage and to leave the material in the drywell and containment during operation of the plant at power. As a result of the

March 1993 event, the licensee intends to remove the filter material from the drywell before startup to eliminate this source of fibrous material from the drywell.

Discussion

NUREG-0897, Rev. 1, "Containment Emergency Sump Performance," which was written in conjunction with resolution of Unresolved Safety Issue (USI) A-43, addresses transport of fibrous thermal insulation from the containment to the strainers during a loss-of-coolant accident (LOCA). Resolution of USI A-43, in part, was based on strainer head loss tests with fibrous thermal insulation obstructing flow. USI A-43 did not address the consequences on head loss of the filtering action of the fibrous material on the strainer. The Perry event showed that filtering corrosion products, dust, and other debris from the drywell during a LOCA may cause an unexpectedly rapid loss of net positive suction head for the ECC pumps when they are needed to perform their intended function.

Related Generic Communications

- NRC Information Notice 92-71: "Partial Plugging of Suppression Pool Strainers at a Foreign BWR"
- NRC Information Notice 88-28: "Potential for Loss of Post LOCA Recirculation Capability Due to Insulation Debris Blockage"

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 contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Brian K. Grimes, Director
Division of Operating Reactor Support
Office of Nuclear Reactor Regulation

Technical contact: Roger W. Woodruff, NRR
(301) 504-2917

Attachment:
List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
93-34	Potential for Loss of Emergency Cooling Function Due to A Combination of Operational and Post-Loca Debris in Containment	04/26/93	All holders of OLs or CPs for nuclear power reactors.
93-33	Potential Deficiency of Certain Class 1E Instrumentation and Control Cables	04/28/93	All holders of OLs or CPs for nuclear power reactors.
93-32	Nonconservative Inputs for Boron Dilution Event Analysis	04/21/93	All holders of OLs or CPs for pressurized water reactors (PWRs).
93-31	Training of Nurses Responsible for the Care of Patients with Brachytherapy Implants	04/13/93	All U.S. Nuclear Regulatory Commission medical licensees.
93-30	NRC Requirements for Evaluation of Wipe Test Results; Calibration of Count Rate Survey Instruments	04/12/93	All U.S. Nuclear Regulatory Commission medical licensees.
93-29	Problems with the Use of Unshielded Test Leads in Reactor Protection System Circuitry	04/12/93	All holders of OLs or CPs for nuclear power reactors.
93-28	Failure to Consider Loss of DC Bus in the Emergency Core Cooling System Evaluation May Lead to Nonconservative Analysis	04/09/93	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
CP = Construction Permit

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*SEE PREVIOUS CONCURRENCE

*SCSB:DSSA	*OGCB:DORS	*BC:SCSB:DSSA	*D:DSSA	TECH ED.	*PDIII-3
RWWoodruff	PCWen/vsb	RJBarrett	ACThadani	*w/cmt	JNHannon
05/04/93	05/04/93	05/05/93	05/05/93	05/05/93	05/05/93

BC:OGCB:DORS	D:DORS
*GHMarcus	BKGrimes
05/05/93	05/5/93

DOCUMENT NAME: 93-34SUP1.IN

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05/04/93	05/04/93	05/05/93	05/05/93	05/05/93	05/05/93

BC:OGCB:DORS	D:DORS
for GHMarcus	BKGrimes
05/05/93	05/ /93

DOCUMENT NAME: 429.ins

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RWWoodruff	PCWen/vsb	RJBarrett	ACThadani for G.Holahan		JNHannon
05/4/93	05/4/93	05/5/93	05/5/93	05/ /93	05/5/93

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