

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

May 6, 1992

NRC INFORMATION NOTICE 92-35: HIGHER THAN PREDICTED EROSION/CORROSION IN
UNISOLABLE REACTOR COOLANT PRESSURE BOUNDARY
PIPING INSIDE CONTAINMENT AT A BOILING
WATER REACTOR

Addressees

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

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees to erosion/corrosion rates that could be higher than predicted in certain unisolable reactor coolant pressure boundary piping inside the containment drywell at boiling water reactors. 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

The Pennsylvania Power and Light Company (the licensee) recently performed erosion/corrosion inspections at the Susquehanna Steam Electric Station, Unit 1, and may have identified an unexpectedly high rate of erosion/corrosion in certain main feedwater (FW) piping inside containment (Attachment 1). Erosion of this portion of FW piping is of particular concern since this portion cannot be isolated from the reactor vessel, and erosion/corrosion inspection strategies may not direct attention to that part of the FW system.

When the licensee began operating the unit commercially in June 1982, the nominal wall thickness for the pipe was about 0.688 inch. During the current refueling outage, wall thinning was found in one of the 20 inch by 12 inch reducing tee risers approximately 10 inches downstream from the tee in the 12 inch pipe section, immediately above a circumferential pipe weld. During the previous refueling outage (18 months ago) the licensee had measured the pipe wall as 0.619 inch thick at that location. During the current refueling outage, the licensee measured a thickness of 0.521 inch at the same location. The licensee measured a thickness of 0.482 inch within about 2 inches of that location. The licensee calculated a minimum allowable wall thickness of 0.440 inch for that portion of FW pipe. Previous experience and models had indicated an erosion wear rate of no more than 0.085 inch each cycle. However, the most

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recent measurement indicates a higher wear rate that may be greater than 0.100 inch each cycle.

The licensee evaluated the data for the FW system and determined that continued operation could not be justified for another fuel cycle. Therefore, the licensee repaired, rather than replaced, the FW pipe in accordance with Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

Discussion

The licensee determined that although it had expected to find erosion/corrosion at this location, the magnitude of wall thinning exceeded expectations. The licensee is continuing its investigation to determine the root cause of the unexpected erosion/corrosion rate.

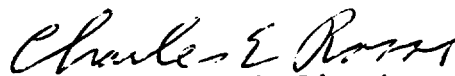
Related Generic Communications

Following a pipe rupture at the Surry Power Station in 1986, the NRC issued Bulletin 87-01, "Thinning of Pipe Walls in Nuclear Power Plants," July 9, 1987. In this bulletin, the staff requested licensees and applicants to inform the NRC about their programs for monitoring the wall thickness of carbon steel piping in both safety-related and nonsafety-related high energy fluid systems.

In 1989, following an audit of the erosion/corrosion programs at 10 plants, the NRC issued Generic Letter (GL) 89-08, "Erosion/Corrosion-Induced Pipe Wall Thinning," May 2, 1989. In this generic letter, the staff requested licensees and applicants to implement long term erosion/corrosion monitoring programs. The staff made this request to obtain assurances that the addressees had implemented procedures or administrative controls to maintain the structural integrity of all carbon steel systems carrying high energy fluids.

The NRC also issued several information notices on the subject of erosion/corrosion.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

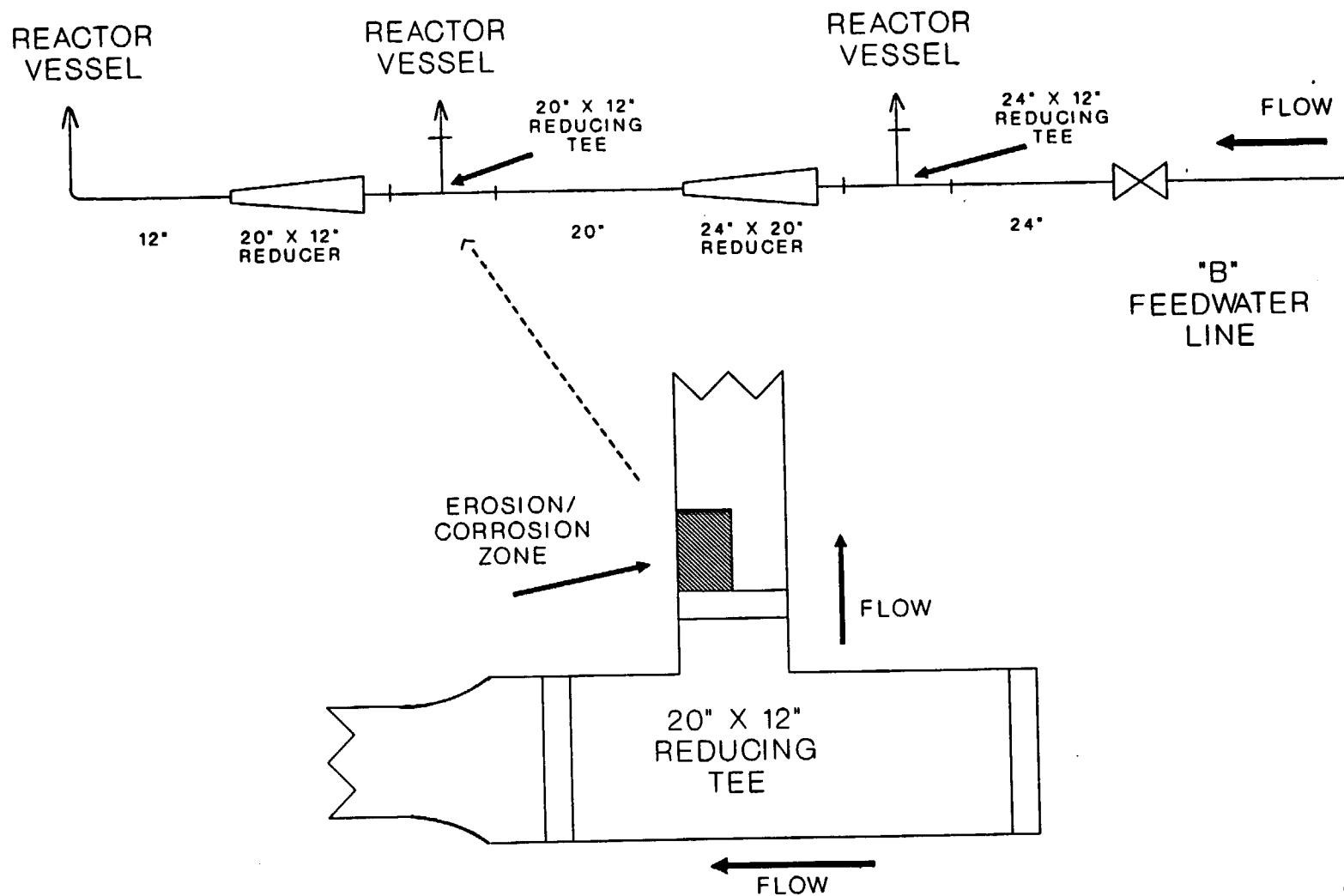


Charles E. Rossi, Director
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Office of Nuclear Reactor Regulation

Technical contacts:	K. I. Parczewski, NRR (301) 504-2705	S. Barber, Region I (717) 542-2134
	David Gamberoni, NRR (301) 504-1171	John White, Region I (215) 337-5114

Attachments:

1. Feedwater System Erosion/Corrosion Location
2. List of Recently Issued NRC Information Notices



FEEDWATER SYSTEM EROSION/CORROSION LOCATION

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
92-34	New Exposure Limits for Airborne Uranium and Thorium	05/06/92	All licensees whose operations can cause airborne concentrations of uranium and thorium.
92-33	Increased Instrument Response Time When Pressure Dampening Devices are Installed	04/30/92	All holders of OLs or CPs for nuclear power reactors.
92-32	Problems Identified with Emergency Ventilation Systems for Near-Site (Within 10 Miles) Emergency Operations Facilities and Technical Support Centers	04/29/92	All holders of OLs or CPs for nuclear power reactors.
92-31	Electrical Connection Problem in Johnson Yokogawa Corporation YS-80 Programmable Indicating Controllers	04/27/92	All holders of OLs or CPs for nuclear power reactors.
92-30	Falsification of Plant Records	04/23/92	All holders of OLs or CPs for nuclear power reactors and all licensed operators and senior operators.
92-21, Supp. 1	Spent Fuel Pool Reactivity Calculations	04/22/92	All holders of OLs or CPs for nuclear power reactors.
92-29	Potential Breaker Miscoordination Caused by Instantaneous Trip Circuitry	04/17/92	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
CP = Construction Permit