

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

April 14, 1994

NRC INFORMATION NOTICE 94-31: POTENTIAL FAILURE OF WILCO, LEXAN-TYPE HN-4-L
FIRE HOSE NOZZLES

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 the addressees of the potential for failure of Lexan-type HN-4-L fire hose nozzles. 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

On August 3, 1992, the licensee for the H.B. Robinson facility experienced a failure of a 1 1/2-inch Lexan-type HN-4-L fire hose nozzle during a routine fire hose hydrostatic pressure test. Following the failure, the licensee revised their procedures to require the use of a ball-style shutoff nozzle during future pressurization tests. On June 17, 1993, the licensee experienced another failure of a Lexan-type HN-4-L nozzle during a regularly scheduled fire hose station flush. The nozzle failed when it was pressurized to nominal firemain pressure. Following this event, the licensee replaced Lexan-type HN-4-L nozzles with ball-style shutoff nozzles.

Discussion

During a fire hose pressurization test on August 3, 1992, the Lexan-type HN-4-L nozzle attached to a hose being tested was shut to pressurize the hose to the final test pressure of 1,756 kPa [254.7 psia]. With the hose pressurized to approximately 1,204 kPa [174.7 psia], the nozzle failed. Following a review of the event, the licensee revised their fire hose hydrostatic test procedure to require the use of ball-style shutoff nozzles. On June 17, 1993, a similar failure of a Lexan-type HN-4-L nozzle occurred during a routine flush of an installed fire hose station. With the nozzle shut and the fire hose charged to the nominal system pressure of 1,032 kPa [149.7 psia], the nozzle failed.

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The nozzles were both 1 1/2-inch diameter, Lexan (polycarbonate) fog nozzles. Originally, Wilco (Wilson and Cousins Company) manufactured these nozzles, which are now manufactured by the A. Burks Pump Company. They are designated as Model HN-4-L and are approved by Factory Mutual Insurance Company for fire hose station use. The testing performed by Factory Mutual included a hydrostatic test at 6,895 Kpa (1000 psi) and an operational test at pressures up to 2,069 Kpa (300 psi).

Though the licensee does not track the installation of fire nozzles, it is estimated that both nozzles had probably been in service for several years. The nozzles consist of a stationary inner casing attached to the fire hose fitting. An outer shell is threaded onto this inner casing. The outer shell is twisted to adjust or start/stop flow. In both of the failures, the inner casing separated at the third land for the inner casing-outer shell thread. No indications of imminent failure were present in either failure. An examination of the threaded area on some disassembled nozzles did not reveal indications of cracking.

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.

CT Grimes

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

Technical contacts: C. Ogle, RII
(803) 383-4571

W. Orders, RII
(803) 383-4571

P. Madden, NRR
(301) 504-2854

Attachment:

List of Recently Issued NRC Information Notices

Computer Printout: see Jacket

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
90-68, Supp. 1	Stress Corrosion Cracking of Reactor Coolant Pump Bolts	04/14/94	All holders of OI or CPs for pressurized water reactors.
94-30	Leaking Shutdown Cooling Isolation Valves at Cooper Nuclear Station	04/12/94	All holders of OIs or CPs for nuclear power reactors.
94-29	Charging Pump Trip during a Loss-of-Coolant Event Caused by Low Suction Pressure	04/11/94	All holders of OIs or CPs for pressurized water reactors.
92-51, Supp. 1	Misapplication and Inadequate Testing of Molded-Case Circuit Breakers	04/12/94	All holders of OIs or CPs for nuclear power reactors.
94-28	Potential Problems with Fire-Barrier Penetration Seals	04/05/94	All holders of OIs or CPs for nuclear power reactors.
94-27	Facility Operating Concerns Resulting from Local Area Flooding	03/31/94	All holders of OIs or CPs for nuclear power reactors.
94-26	Personnel Hazards and Other Problems from Smoldering Fire-Retardant Material in the Drywell of a Boiling-Water Reactor	03/28/94	All holders of OIs or CPs for nuclear power reactors.
93-17, Rev. 1	Safety Systems Response to Loss of Coolant and Loss of Offsite Power	03/25/94	All holders of OIs or CPs for nuclear power.

OL = Operating License
CP = Construction Permit

The nozzles were both 1 1/2-inch diameter, Lexan (polycarbonate) fog nozzles. Originally, Wilco (Wilson and Cousins Company) manufactured these nozzles, which are now manufactured by the A. Burks Pump Company. They are designated as Model HN-4-L and are approved by Factory Mutual Insurance Company for fire hose station use. The testing performed by Factory Mutual included a hydrostatic test at 6,895 Kpa (1000 psi) and an operational test at pressures up to 2,069 Kpa (300 psi).

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orig /s/'d by CIGrimes/for

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*See previous concurrences

SPLB:DSSA*	SPLB:DSSA*	SPLB:DSSA*	DSSA:NRR*	OGCB:DORS*
PMadden	SWest	CMcCracken	ATHadani	TJKim
10/15/93	10/15/93	10/15/93	10/15/93	10/28/93
Tech Ed*	OGCB:DORS*	DORS:NRR		
DGables	AKugler	BKGrimes		
10/25/93	03/17/94	04/8/94		
DOCUMENT NAME:	94-31.IN			

The nozzles were both 1 1/2-inch diameter, Lexan (polycarbonate) fog nozzles. Originally, Wilco (Wilson and Cousins Company) manufactured these nozzles, which are now manufactured by the A. Burks Pump Company. They are designated as Model HN-4-L and are approved by Factory Mutual Insurance Company for fire hose station use. The testing performed by Factory Mutual included a hydrostatic test at 6,895 Kpa (1000 psi) and an operational test at pressures up to 2,069 Kpa (300 psi).

Though the licensee does not track the installation of fire nozzles, it is estimated that both nozzles had probably been in service for several years. The nozzles consist of a stationary inner casing attached to the fire hose fitting. An outer shell is threaded onto this inner casing. The outer shell is twisted to adjust or start/stop flow. In both of the failures, the inner casing separated at the third land for the inner casing-outer shell thread. No indications of imminent failure were present in either failure. An examination of the threaded area on some disassembled nozzles did not reveal indications of cracking.

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The nozzles were both 1 1/2-inch diameter, Lexan (polycarbonate) fog nozzles. They were originally produced by Wilco (Wilson and Cousins Company), but are now manufactured by Prosser Industries. They are designated as Model HN-4-L and were approved by Factory Mutual Insurance Company for fire hose station use. Though the licensee does not track the installation of fire nozzles, it is estimated that both nozzles had probably been in service for several years. The nozzles consist of a stationary inner casing attached to the fire hose fitting. Onto this inner casing, an outer shell is threaded. The outer shell is twisted to adjust or start/stop flow. In both of the failures, the inner casing separated at the third land for the inner casing-outer shell thread. No indications of imminent failure were present in either failure. An examination of the threaded area on some disassembled nozzles did not reveal indications of cracking.

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