

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Virgil C. Summer Nuclear Station

DOCKET NUMBER (2)
0151010101395

PAGE (3)
1 OF 04

TITLE (4)
Outside Design Basis Pressure For Charging/Safety Injection System

EVENT DATE (5)
MONTH: 01 DAY: 28 YEAR: 94

LER NUMBER (6)
002

REPORT DATE (7)
MONTH: 02 DAY: 22 YEAR: 94

OTHER FACILITIES INVOLVED (8)
FACILITY NAME: DOCKET NUMBER (8)
0151010101

OPERATING MODE (9) 1

POWER LEVEL (10) 1,0,0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 43. (Check one or more of the following) (11)

20.402(a)	20.408(a)	50.726(a)(2)(iv)	73.71(b)
20.408(a)(1)(i)	50.736(a)(1)	50.736(a)(2)(iv)	73.71(e)
20.408(a)(1)(ii)	50.736(a)(2)	50.736(a)(2)(v)	OTHER (Specify in Attach Order and in Text, NRC Form 356A)
20.408(a)(1)(iii)	50.736(a)(2)(i)	50.736(a)(2)(vii)(A)	
20.408(a)(1)(iv)	50.736(a)(2)(ii)	50.736(a)(2)(vii)(B)	
20.408(a)(1)(v)	50.736(a)(2)(iii)	50.736(a)(2)(viii)	
20.408(a)(1)(vi)	50.736(a)(2)(iv)	50.736(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)
NAME: J. R. Proper
Supervisor, Nuclear Licensing & Operating Experience

TELEPHONE NUMBER
AREA CODE: 803
345-4088

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE (SYSTEM)	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE (SYSTEM)	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
A	B, Q		N				

SUPPLEMENTAL REPORT EXPECTED (14)
YES (If yes, complete EXPECTED SUBMISSION DATE) NO X

EXPECTED SUBMISSION DATE (15)
MONTH: DAY: YEAR:

ABSTRACT (Limit to 1400 spaces, i.e., approximately 1700 single-spaced typewritten lines) (16)

Engineering review of a runout test for the Charging/Safety Injection pumps identified a condition which was outside the design basis for the plant. Actual operating pressures were found to exceed the ASME design pressure of 2735 psig, as provided by the plant's Architect Engineer. During system operation, the plant has observed discharge pressures of 2740-2750 psig on the "A" pump and 2775-2800 psig on the "B" pump.

This event resulted from personnel error in failing to reconcile differences between actual pressure conditions and design documents. Source document review determined that while a non-conforming condition did exist, there was no impact on the ability of the system to perform its function. Component operation and system function are not impaired with normal operating pressures of ≤ 2850 psig and upset pressures up to 2900 psig.

Operation and Surveillance procedures have been revised to limit the system normal operating pressure to ≤ 2850 psig and upset pressure to ≤ 2900 psig. A preliminary comparison has also been made of design and normal operating pressures for other safety-related systems to confirm that this error was an isolated event. Additional actions will involve (1) an Engineering personnel review of this event and its consequences by April 15, 1994, (2) evaluation of safety-related systems to reconcile any design documentation discrepancies within existing programmatic controls by September 2, 1994, and (3) modify all design documentation for the Charging/Safety Injection System by December 31, 1994.

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TEXT IF MORE SPACE IS REQUIRED: USE ADDITIONAL NRC Form 306A (2/117)

PLANT IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

EQUIPMENT IDENTIFICATION:

Charging/Safety Injection System - EIIS - BQ

IDENTIFICATION OF EVENT:

An engineering review of the flow characteristics for Charging/Safety Injection Pumps XPP-043 A and B determined that discharge pressures for the components were exceeding the ASME design pressure of 2735 psig for the system.

EVENT DATE AND TIME: January 28, 1994, at 1524 hours

REPORT DATE: February 25, 1994

This report was initiated by Off-Normal Occurrence Report 94-010.

CONDITIONS PRIOR TO THE EVENT:

100% Power - MODE 1

DESCRIPTION OF EVENT:

An engineering review of pressure and flow data for the Charging/Safety Injection pumps identified a condition which was outside the design basis for the plant. Actual operating pressures for the "A" and "B" pumps exceeded the ASME design pressure of 2735 psig, as provided by the plant's Architect Engineer. During system operation, the plant staff has observed discharge pressures of 2740-2750 psig on the "A" pump and 2775-2800 psig on the "B" pump.

The evaluation also concluded that the pressures observed during normal operation of the system were within the limits of normal code allowables and that the system was still capable of performing its design function without reliance on allowances contained in Appendix F to Section III of the ASME Code.

On completion of the engineering review, the discrepancy between design documents and actual operational conditions was brought to the attention of management at the Virgil C. Summer Nuclear Station. The condition was considered to be outside the design basis of the plant but not impacting the operability of the equipment and therefore, reportable under the criteria of 10 CFR 50.72(b)(1)(11)(B) and 10 CFR 50.73(a)(2)(11).

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TEXT (if more space is required, use additional NRC Form 365A's) (17)

CAUSE OF EVENT:

This event resulted from personnel error in failing to reconcile differences between actual pressure conditions and design documents. Research has identified two (2) previous evaluations (November 1983 and December 1990) where the discrepancy in documents vs. plant operation were noted and plant design documents for this system were not revised. In both of the previous evaluations it was concluded that there was no operability concern for the Charging/Safety Injection system and that components were designed to withstand the observed normal and upset pressures.

ANALYSIS OF EVENT:

The engineering review of this event utilized source documents (piping line specifications, valve pressure class information, piping stress, FSAR, etc.) in the determination that while a non-conforming condition did exist there was no impact on the ability of the system to perform its function. This review determined that:

- The piping is acceptable for pressures up to 2900 psig at 300°F,
- The Charging/Safety Injection pumps have been evaluated by Westinghouse and found to be within ASME Code allowables up to a pressure of 2950 psig,
- Valve components are acceptable for the expected system pressures with the ability of motor operated valves to perform their design basis function and,
- Other components, such as seal injection filters and heat exchangers, were evaluated and found to be acceptable at the expected system pressures.

IMMEDIATE CORRECTIVE ACTION:

The following actions were taken following identification of the condition, which was outside the design basis:

- Operations established controls on normal system operation in Station Order 94-02 to limit the Charging/Safety Injection pumps to a discharge pressure of ≤ 2850 psig and a suction pressure from the Volume Control Tank (VCT) of ≤ 45 psig. This action was completed on January 31, 1994.
- Operations Administrative Procedure (OAP) 106.1, which contains the operating logs for the equipment, was revised on February 2, 1994, to monitor for normal system operation as noted above.
- Surveillance Test Procedure (STP) 205.003, "Charging/Safety Injection Pump and Valve Test," was revised on February 4, 1994, to limit test pressures to ≤ 2900 psig with a VCT pressure of ≤ 45 psig.

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TEXT (IF THIS EVENT IS RECORDED, USE ADDITIONAL NRC Form 886A 9/1/77)

A preliminary evaluation of design and normal operating pressures was made for other safety-related systems to ensure that a similar problem did not exist. This action was completed on February 25, 1994.

ADDITIONAL CORRECTIVE ACTIONS:

The following additional corrective actions will be taken:

- This LER will be reviewed by Engineering personnel involved in design control and system operation to emphasize the importance of updating design control documents to reflect the as-built condition of the plant. This action will be completed by April 15, 1994.
- Engineering will perform a design modification of the Charging/Safety Injection System components to reconcile design documents to reflect the current and expected system operation. This modification will be complete by December 31, 1994.
- Engineering has developed a System Review Guide which will be utilized to review design basis parameters of safety-related systems against current documentation and operation. This in-depth review will be completed by September 2, 1994. Any errors found during this review will be resolved in accordance with plant programs.

PRIOR OCCURRENCES:

None.