

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)										DOCKET NUMBER (2)										PAGE (3)																													
Haddam Neck										05000213										1 OF 04																													
TITLE (4)																																																	
Reactor Coolant System Overpressure Protection System																																																	
EVENT DATE (5)										LER NUMBER (6)										REPORT DATE (7)										OTHER FACILITIES INVOLVED (8)																			
MONTH				DAY		YEAR		YEAR		SEQUENTIAL NUMBER				REVISION NUMBER		MONTH		DAY		YEAR		FACILITY NAMES										DOCKET NUMBER(S)																	
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08				03		84		84		010				01		07		28		5												05000																	
OPERATING MODE (9)										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)																																							
4										20.402(b)										20.405(c)										50.73(a)(2)(iv)										73.71(b)									
POWER LEVEL (10)										20.405(a)(1)(i)										50.36(c)(1)										50.73(a)(2)(v)										73.71(c)									
0100										20.405(a)(1)(ii)										50.36(c)(2)										50.73(a)(2)(vii)										X OTHER (Specify in Abstract below and in Text, NRC Form 365A)									
										20.405(a)(1)(iii)										50.73(a)(2)(i)										50.73(a)(2)(viii)(A)										Special Report									
										20.405(a)(1)(iv)										50.73(a)(2)(ii)										50.73(a)(2)(viii)(B)																			
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LICENSEE CONTACT FOR THIS LER (12)																																																	
NAME																				TELEPHONE NUMBER																													
John Stanford, Engineer																				AREA CODE																													
																				2032671-2556																													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																	
CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC			CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC																						
X			A B			V			C 7 1 0			Y																																					
SUPPLEMENTAL REPORT EXPECTED (14)																																																	
YES (If yes, complete EXPECTED SUBMISSION DATE)																				X NO										EXPECTED SUBMISSION DATE (15)																			
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ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single-space typewritten lines) (16)																																																	
<p>One (or both) of the reactor coolant system low pressure over-pressure protection safety valves opened as the unit was in a cooldown in preparation for a refueling outage. When the safety valve(s) opened (380 psig lift setpoint), the reactor coolant system was at 315 psig and 325°F. The safety valves were placed in service one hour and forty-five minutes prior to the depressurization. Reactor coolant system pressure was very stable during this period (decreasing slightly). Control operators isolated the safety valves at 295 psig. The low pressure overpressure protection safety valves were returned to service seventeen minutes later by opening the motor operated isolation valves.</p> <p>Both of the safety valves were dismantled, inspected, reassembled, and tested. Damage to each valve was noted. Both of the wide range reactor coolant system pressure transmitters were replaced. Interviews of operator staff and review of applicable control room logs and stripcharts revealed no operator error. Since the safety valves were not tested prior to disassembly and the pressure transmitters were not tested (and were shipped offsite), the determination of the cause of the safety valve opening cannot be established.</p> <p>This event is reportable per Technical Specification 3.3E(3), Special Report.</p>																																																	
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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/85

FACILITY NAME (1)  Haddam Neck	DOCKET NUMBER (2)  0   5   0   0   0   2   1   3				LER NUMBER (6)			PAGE (3)		
					YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
					8   4	—   0   1   0	—   0   1	0   2	OF	0   4

TEXT (If more space is required, use additional NRC Form 366A's) (17)

Reason for LER Revision

The initial submittal of this LER was not totally accurate and did not provide adequate detail of the event. This revision accurately reflects the sequence of events which occurred on August 2 and August 3, 1984 at the Haddam Neck Plant. The initial version stated that the Low Pressure Overpressure Protection (LPOP) safety valves were placed in service when the reactor coolant system was below 340°F and that one (both) of the safety valves lifted as soon as the LPOP safety valves were placed in service.

Equipment Description

The reactor coolant system (EIIIS Code: AB) is protected from low temperature overpressure transients by a dedicated Low Pressure Overpressure Protection System (LPOP). For Technical Specification 3.3.E, this system must be in service when the reactor coolant system is below 340°F unless the system is vented by a 3-inch diameter hole. The system is composed of two trains, each of which is made of a mechanical safety valve and two motor operated isolation valves (in series) upstream of the safety valve. The safety valves are mechanical spring loaded manufactured by Crosby (Manufacturer Code: C710), model number JB-35TD-WRB. The nominal setpoint of these safety valves is 380 +/- 11 psig. A thermocouple monitors the temperature of the discharge line common to both of the safety valves. There is another thermocouple which monitors the discharge line common to the LPOP safety valves, the power operated relief valves and the code safety valves. Acoustical monitoring equipment is also located in the common discharge line. This equipment, along with the Pressurizer Relief Tank level, pressure and temperature indication allows the operators to quickly establish if one or both of the LPOP safety valves have lifted. All of these indications have main control board annunciators with the exception of the LPOP safety valve discharge thermocouple which provides indication only.

Event Description

On August 2, 1984, the plant was in a cooldown preparing for a refueling outage. Per normal operating procedure, the LPOP safety valves were placed in service at 22:50. This was done prior to cooling down below 340°F. The RCS pressure was reduced to less than 350 psig prior to placing the LPOP valves in service. At this time, two reactor coolant pumps were in service, the residual heat removal system was not yet in service. During the next hour and forty-five minutes, both RCS temperature and pressure remained essentially stable, both decreasing slightly at a steady rate. At 00:35 on August 3, 1984, the RCS pressure began to drop rapidly. At this time, the temperature was 325°F and the pressure was 315 psig. The operators quickly recognized that one/both of the LPOP safety valves had opened and isolated them with the motor operated isolation valves. The pressure stabilized at 295 psig. At 00:52, the motor operated isolation valves were opened and the LPOP system was returned to service. The reactor coolant system pressure at this time was approximately 295 psig.

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Reportability

This event is reportable per section 3.3.E(3) of the Haddam Neck Technical Specifications, (Special Report).

Failure Cause

The LPOP safety valve(s) lifted at 315 psig, 82.8% of set pressure. At the time when the valve(s) lifted, reactor coolant system pressure was constant and had been so for several hours. No heatup was in progress and no pump was started which could have had an impact on reactor coolant system pressure. After the reactor coolant system was completely depressurized, the LPOP safety valves were removed, dismantled, repaired, reassembled and tested. The lift and reset pressure for each valve was determined to be within 5 psig of the desired 380 psig set lift pressure. The valves were not tested prior to disassembly. Both of the reactor coolant system wide range pressure transmitters were replaced. These transmitters were not examined for accuracy after their removal.

An examination of the control room stripcharts revealed no increase in pressure or temperature prior to the depressurization caused by the opening of the relief valves. Operator interviews did not reveal any possible cause for the safety valves opening. It is possible that minor leakage (400°F water) through the valve(s) after they were in service heated the valve body (bodies) which caused thermal expansion and resulted in the valve(s) opening.

Assessment of Safety Consequences

The purpose of the low pressure overpressure protection system is to protect the reactor coolant system against low temperature overpressure transients. The operators isolated this system from the reactor coolant system after they determined that no such transient was in progress. It was isolated for a period of seventeen minutes. The operators chose to isolate the safety valves to prevent damage to the seals of the operating reactor coolant pumps.

A safety assessment of the operation of the reactor coolant system with the LPOP safety valves isolated was performed. The Technical Specification 3.3-E temperature limit of 340°F is based on a heatup and cooldown rate of 100°F per hour. If the maximum heatup and cooldown rate is restricted to 60°F per hour, the LPOP system need not be put into service until a temperature of 290°F is reached. Since the reactor coolant system temperature was at all times above 300°F while the LPOP system was isolated and no heatup or cooldown in excess of 10°F per hour occurred during this period, the potential for exceeding the pressure/temperature limitations of 10CFR50 Appendix G was not increased.

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Previous Occurrences

A review of the station's operating history reveals that once before the Low Pressure Overpressure Protection safety valve(s) lifted. On January 28, 1979, an LPOP safety valve lifted. A cooldown was in progress in preparation for a refueling outage. The operators did not isolate the safety valve. Reactor coolant system pressure dropped from 300 psig to 204 psig at which time the safety valve reseated.

Corrective action for this occurrence included having the safety valves tested, rebuilt and tested again at an independent laboratory. Since the as-found data was gathered using nitrogen as a test medium, the as-found data was of limited use.

No License Event Report was required since the operators did not isolate the LPOP safety valves.

Corrective Action

The corrective action taken to prevent the recurrence of this problem consists of the following:

1. The LPOP safety valves were dismantled, repaired, reassembled, and tested. Damage to each valve was noted.
2. Both of the wide range reactor coolant system pressure transmitters have been replaced. The transmitters had a history of calibration drift.
3. The permissive setpoints which allow opening the motor operated isolation valves have been checked and were adjusted as necessary.



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

RR #1, BOX 127E, EAST HAMPTON, CONN. 06424

July 22, 1985

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D. C. 20555

Reference: Facility Operating License No. DPR-61  
Docket No. 50-213  
Reportable Occurrence LER 50-213/84-010-01

Gentlemen:

This letter forwards the Licensee Event Report 84-010-01 which is being submitted because the original LER was not totally accurate and did not provide adequate detail of the event.

Very truly yours,

Richard H. Graves  
Station Superintendent

RHG:JS/dfv  
Attachment: LER 84-010-01

cc: Dr. T. E. Murley, Region I

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