



**North  
Atlantic**

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The Northeast Utilities System

April 11, 2001  
Docket No. 50-443  
NYN-01031

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

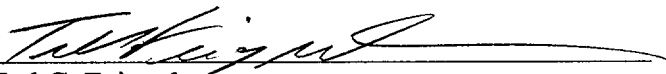
Seabrook Station  
Licensee Event Report (LER) 00-007-01  
Over Pressure Protection System Relief  
Valves Outside Technical Specification Limits

Enclosed, please find Supplemental Licensee Event Report (LER) 00-007-01 for an event that occurred at Seabrook Station on November 2, 2000. This event is being reported pursuant to 10 CFR 50.73(a)(2)(i).

Should you require further information regarding this matter, please contact Mr. James M. Peschel, Manager-Regulatory Programs at (603) 773-7194.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

  
Ted C. Feigenbaum  
Executive Vice President and  
Chief Nuclear Officer

cc: H. J. Miller, NRC Regional Administrator  
V. Nerses, NRC Project Manager, Project Directorate 1-2  
NRC Senior Resident Inspector

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**ENCLOSURE 1 TO NYN-01031**

## LICENSEE EVENT REPORT (LER)

(See reverse for required number of  
digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1) Seabrook Station						DOCKET NUMBER (2) 05000 443						PAGE (3) 1 of 3					
TITLE (4) Over Pressure Protection System Relief Valve Outside Technical Specification Limits																	
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)								
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME						DOCKET NUMBER		
11	02	00	00	007	- 01	04	11	01	FACILITY NAME						DOCKET NUMBER		
OPERATING MODE (9)		6		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)													
POWER LEVEL (10)		0		20.2201(b)		20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)						50.73(a)(2)(ix)(A)		
				20.2201(d)		20.2203(a)(4)			50.73(a)(2)(iii)						50.73(a)(2)(x)		
				20.2203(a)(1)		50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)						73.71(a)(4)		
				20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)						73.71(a)(5)		
				20.2203(a)(2)(ii)		50.36(c)(2)			50.73(a)(2)(v)(B)						OTHER		
				20.2203(a)(2)(iii)		50.46(a)(3)(ii)			50.73(a)(2)(v)(C)						Specify in Abstract below or in NRC Form 366A		
				20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)								
				20.2203(a)(2)(v)		X 50.73(a)(2)(i)(B)			50.73(a)(2)(vii)								
				20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)								
				20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)								
LICENSEE CONTACT FOR THIS LER (12)																	
NAME James M. Peschel										TELEPHONE NUMBER (Include Area Code) (603) 773-7194							
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																	
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX							
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR	
YES (If yes, complete EXPECTED SUBMISSION DATE).												X	NO	00	00	00	
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)																	
<p>On November 2, 2000 with the unit in Mode 6, defueled, the as-found set pressure for the "A" Train Residual Heat Removal (RHR) suction relief valve 1-RC-V-24, was found to be outside the tolerance allowed by Technical Specification (TS) 3.4.9.3. This condition was identified during testing conducted in accordance with TS 4.0.5 and Appendix I of the ASME Operation and Maintenance (O &amp; M) Code-1995. 1-RC-V-24 is one of two relief valves used to provide overpressure protection of the Reactor Coolant System (RCS) and the RHR System while in Modes 4, 5, and 6. In response to the requirements of the ASME O&amp;M Code for a valve test failure, the one remaining valve in the same test group, the "B" Train Residual Heat Removal suction relief valve 1-RC-V-89 was tested and actuated at 452.5 psig or 2.5 psig above its allowed TS value of 450 psig. There were no adverse safety consequences as a result of this event. Should 1-RC-V-24 lift prematurely, this is a condition that is addressed in North Atlantic's Abnormal Procedures. In the event 1-RC-V-89 was required to actuate, with the RHR System design pressure at 600 psig, there would be sufficient margin to ensure that RHR System integrity would be maintained. The cause of this condition for 1-RC-V-24 has been determined to be associated with the recent changes in the testing methodology. The cause of this condition for 1-RC-V-89 has been determined to be associated with 1-RC-V-89 being inadvertently jarred prior to as-found testing. 1-RC-V-24 and 1-RC-V-89 were replaced with pre-tested spare valves.</p>																	

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
Seabrook Station	05000 443	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		00	- 007 -	01	

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

## I. Description of Event

On November 2, 2000 at 0845, with the unit in Mode 6, defueled, the as-found set pressure for the "A" Train Residual Heat Removal (RHR) [BP] suction relief valve [RV] 1-RC-V-24, was found to be outside the tolerance of (+0/-3) percent as allowed by Technical Specification (TS) 3.4.9.3. Relief valve 1-RC-V-24 is one of two relief valves used to provide overpressure protection of the Reactor Coolant System (RCS) [AB] and the RHR System while in Modes 4, 5, and 6. This condition was identified during testing conducted in accordance with TS 4.0.5 and Appendix I of the ASME Operation and Maintenance (O & M) Code-1995.

In August of 2000, North Atlantic submitted the Second Ten-Year Interval Inservice Inspection (ISI) Program Plan. The Plan was developed to meet the requirements of ASME O&M Code (1995 Edition, 1996 Addenda). New relief valve testing requirements were developed as a result of the newly endorsed ASME Code in that it requires testing to be performed with the test media and ambient conditions at normal operating temperature for which they are designed. North Atlantic's First Ten-Year ISI Program Plan endorsed 1983 Edition (including the Summer of 1983 Addenda) of Section XI of ASME Boiler and Pressure Vessel Code which allowed testing under ambient conditions. Specifically, the new test conditions required a process fluid of 350 degrees Fahrenheit and an ambient air temperature of 120 degrees Fahrenheit to simulate expected accident conditions consistent with those that 1-RC-V-24 would normally experience. The setpoint listed in TS 3.4.9.3 is 450 psig (+0/-3 percent), equating to 436.5 psig. 1-RC-V-24 actuated at 415 psig or 21.5 psig below the TS limit.

In response to the requirements of the ASME O&M Code for a valve test failure, the one remaining valve in the same test group, the "B" Train Residual Heat Removal (RHR) [BP] suction relief valve [RV] 1-RC-V-89 was tested. 1-RC-V-89 actuated at 452.5 psig or less than 0.5 percent above its allowed TS value of 450 psig and was replaced with a tested spare. Previous TS surveillance's of 1-RC-V-24 and 1-RC-V-89 have been within acceptable TS limits. This is the first recorded TS failure for 1-RC-V-24 or 1-RC-V-89.

Based on the accepted industry practice, as approved by the 1983 Edition (including the Summer of 1983 Addenda) of Section XI of ASME Boiler and Pressure Vessel Code, of setting relief valves at ambient temperature, it is likely that this condition has existed for a period of time that was greater than the TS Allowed Outage Time of 8 hours. As a result, this condition is reportable pursuant to 10 CFR 50.73(a)(2)(i) as a condition prohibited by TS.

## II. Cause of Event

The cause of this condition is that 1-RC-V-24 was set in accordance with an old code approved methodology and it is now tested in accordance with a new code approved methodology. The relief valve testing requirements of 1983 Edition (including the Summer of 1983 Addenda) of Section XI of ASME Boiler and Pressure Vessel Code did not include testing at expected accident conditions. Under the new testing methodology, which was adopted in August of 2000, 1-RC-V-24 and 1-RC-V-89 were tested in an environment that would simulate actual plant conditions. The ability to test relief valves in a condition that is closer to actual expected accident conditions is consistent with the requirements of ASME O&M Code (1995 Edition, 1996 Addenda). The premature lifting of 1-RC-V-24 at 415 psig is attributed to the change in testing methodology. The cause of this condition for 1-RC-V-89 has been attributed to the valve being inadvertently jarred prior to as-found testing. When 1-RC-V-89 was inadvertently jarred, the valve disc was disturbed causing the valve to exhibit excessive seat leakage during its first as-found test.

## LICENSEE EVENT REPORT (LER)

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		00	- 007 -	01	

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

### III. Analysis of Event

While this condition has regulatory significance as a condition prohibited by TS, it is not safety significant. While in Modes 4, 5 and 6 relief valves 1-RC-V-24 and 1-RC-V-89 provide protection of the RCS and RHR Systems from inadvertent overpressurization when the RHR inlet isolation valves are open. In the event 1-RC-V-24 lifted prematurely during actual plant cooldown operations, 1-RC-V-24 would discharge back to the Primary Relief Tank (PRT). A decreasing RCS pressure and Pressurizer level along with an increase in the PRT level would alert the Operators of a premature relief valve failure and the RHR suction valves could be closed. This condition is addressed in North Atlantic's abnormal procedures. In addition to the RHR System overpressure protection discussed above, 1-RC-V-24 is one of the components used to provide low temperature overpressurization protection. Had 1-RC-V-24 actuated at 415 psig in lieu of its lowest TS limit of 436.5 psig, 1-RC-V-24 would have performed its intended safety function. In addition, had 1-RC-V-89 been required to actuate, with the RHR System design pressure at 600 psig, there would be sufficient margin to ensure that RHR System integrity would be maintained.

As a result of the new relief valve testing methodology being employed for testing TS 4.0.5 relief valves, additional setpoint deviations have been identified during testing. To date, no additional reportable conditions have been identified.

### IV. Corrective Action

1-RC-V-24 and 1-RC-V-89 were each replaced with a pre-tested spare valve.

### V. Additional Information

To meet the requirements of ASME O&M Code (1995 Edition, 1996 Addenda), North Atlantic developed a test stand that has the ability to test relief valves using the test media and ambient conditions at normal operating temperatures. Early results have shown that relief valves tested under actual operating conditions have actuated at a lower than expected setpoint when the temperature, especially when the ambient air temperature is increased. North Atlantic anticipates partnering with EPRI to provide test results for validating a model for the full range of Class 2 and Class 3 relief valve designs in use in the industry. In addition, the data obtained will provide very significant insights into the effects of fluid and ambient temperatures on relief valve setpoints.

#### Similar Events

This is the first event of this type. North Atlantic has reported other events involving relief valves that were outside their TS acceptance criteria. However, this is the first time setpoint deviation was observed as a result of using the new testing methodology that replicates actual plant conditions for testing.

#### Manufacturer Data

1-RC-V-24 and 1-RC-V-89 were manufactured by Crosby Valve and Gage Company [C710]. 1-RC-V-24 and 1-RC-V-89 are a 3" by 4", Model JB-35-TD-WR with a capacity of 900 GPM.