



**North
Atlantic**

North Atlantic Energy Service Corporation
P.O. Box 300
Seabrook, NH 03874
(603) 474-9521

The Northeast Utilities System
August 9, 2000

Docket No. 50-443

NYN-00069

CR 00-07927

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

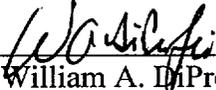
Seabrook Station
Licensee Event Report (LER) 00-005-00
Control Room Emergency
Makeup Air and Filtration System Inoperable

Enclosure 1 contains Licensee Event Report (LER) 00-005-00 for an event that occurred at Seabrook Station on July 10, 2000. This event is being reported pursuant to 10 CFR 50.73(a)(2)(i). Commitments associated with this letter are contained in Enclosure 2.

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.



William A. DiProfi
Station Director

cc: H. J. Miller, NRC Regional Administrator
R. M. Pulsifer, NRC Project Manager, Project Directorate 1-2
R. K. Lorson, NRC Senior Resident Inspector

JE22

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: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) <p style="text-align: center;">Seabrook Station</p>	DOCKET NUMBER (2) <p style="text-align: center;">05000443</p>	PAGE (3) <p style="text-align: center;">1 of 4</p>
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TITLE (4)

Control Room Emergency Makeup Air and Filtration System Inoperable

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 NAME	DOCKET NUMBER
07	10	00	00	005	00	08	09	00	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	100	20.2201(b)			20.2203(a)(2)(v)			<input checked="" type="checkbox"/> 50.73(a)(2)(i)		50.73(a)(2)(viii)
		20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)		50.73(a)(2)(x)
		20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)		73.71
		20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)		OTHER
		20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)				

LICENSEE CONTACT FOR THIS LER (12)

NAME <p style="text-align: center;">James M. Peschel, Manager - Regulatory Programs</p>	TELEPHONE NUMBER (Include Area Code) <p style="text-align: center;">(603) 773-7194</p>
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION			MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO								

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On July 10, 2000 at approximately 1148, with the reactor operating at 100 percent power (mode 1), Seabrook Station entered TS 3.0.3 due to having both trains of Control Room Emergency Makeup Air and Filtration System (CBA) inoperable. The "A" train Emergency Cleanup Filter Unit (CBA-F-38) was placed into the emergency filter recirculation mode for its 18 month TS filter flow testing. The "B" train Emergency Cleanup Filter Unit, (CBA-F-8038) was operating in the normal makeup mode and was the operable unit, per Technical Specification 3.7.6.1. At 1148, while CBA-F-38 was still isolated, the "Control Room Train B Emergency Makeup Filter Moisture High" alarm (A0098) was received. The alarm is an indication that the "B" train makeup air relative humidity has increased to 60% relative humidity. In response to the Visual Alarm System (VAS) procedure, the Control Room operators identified "B" train Emergency Cleanup Filter Unit heater, (CBA-H-372) as being in the tripped position. With CBA-H-372 tripped, the "B" train was declared inoperable and TS 3.0.3 was entered. At 1152, CBA-H-372 high temperature cutout switch was reset and the "B" train was returned to service and TS 3.0.3 was exited. This event is reportable pursuant to the requirements of 10CFR 50.73(a)(2)(i)(b). The most probable cause of this event has been determined to be CBA-H-372 heater high temperature cutout switch actuation due to personnel inadvertently bumping the switch housing during filter testing. Warning tape to identify switch sensitivity was placed on the switches and a design change to prevent recurrence is being pursued. This is the first event of this type reported by Seabrook Station.

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Seabrook Station

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

I. Description of Event

On July 10, 2000 at approximately 1148, with the reactor operating at 100 percent power (mode 1), Seabrook Station entered Technical Specification (TS) 3.0.3 due to having both trains of Control Room Emergency Makeup Air and Filtration System (CBA) [VI] inoperable.

The "A" train CBA Emergency Cleanup Filter Unit (CBA-F-38) was placed into the emergency filter recirculation mode at 1001 that day for its 18 month TS filter flow testing. The "B" train CBA Emergency Cleanup Filter Unit, (CBA-F-8038) was operating in the normal makeup mode and was the operable unit, per Technical Specification 3.7.6.1. At 1045, CBA-F-38 was removed from the emergency filter recirculation mode and placed back into the normal makeup air mode. At 1101, CBA-F-38 was isolated for removal of test equipment. At 1148, while CBA-F-38 was still isolated, the "Control Room Train B Emergency Makeup Filter Moisture High" alarm (A0098) was received in the Control Room. The alarm is an indication that the "B" train normal makeup air relative humidity has increased to 60% Relative Humidity (RH). The system design in the emergency makeup mode requires an operable heater to maintain the makeup air's relative humidity below 70%. In response to the Visual Alarm System (VAS) procedure, Control Room Operators identified the "B" train Emergency Cleanup Filter Unit heater (CBA-H-372) high temperature cutout switch was in the tripped position. With heater CBA-H-372 tripped, the "B" train was declared inoperable and TS 3.0.3 was entered. At 1152, CBA-H-372 high temperature cutout switch was reset and the "B" train was returned to service and TS 3.0.3 was exited.

This event is reportable pursuant to the requirements of 10CFR 50.73(a)(2)(i)(b). Based upon the trend of relative humidity of the Control Room's makeup air, it is estimated that CBA-H-372 tripped earlier that day at approximately 1107. As a result, both trains of CBA Emergency Cleanup Filtration were inoperable until the "B" train high temperature cutout switch was reset (1152), i.e., for a total of approximately 45 minutes.

II. Cause of Event

The most probable cause of this event has been determined to be CBA-H-372 heater high temperature cutout switch actuation due to personnel inadvertently bumping the switch housing during filter testing. The CBA-H-372 has three separate switches associated with its operation. The first switch or "K" switch is for heater control. The switch is designed to cycle on at 115°F and off at 130°F. The second switch or "B" switch is a high temperature alarm switch that alarms at 130°F in the Control Room. The third switch or "M" switch is a high temperature cutout switch that is set at 150°F and requires a manual action to reset it. Upon receiving the "Control Room Train B Emergency Makeup Filter Moisture High" alarm, the "M" switch was found in the tripped position. However, no filter unit high temperature alarms were received in the Control Room during this event indicating that this was an invalid actuation. Subsequent testing of the three switches confirmed that all three switches functioned in the proper sequence. As a result, it is postulated that the "M" switch housing was inadvertently bumped since there were several plant personnel in the vicinity of the "M" switch during the train "A" filter testing activities. Subsequent testing has confirmed that the "M" high temperature cutout switch can be actuated when its housing is bumped. The "M" switch is located in an area that makes it susceptible to being bumped.

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III. Analysis of Event

This event resulted in both trains of the Control Room Emergency Makeup Air and Filtration System becoming inoperable for a period of approximately 45 minutes. Train "A" was inoperable because it was isolated to facilitate the removal of test equipment and train "B" was inoperable when the heater in the filter unit was incapable of automatically energizing. The function of the Control Room Emergency Makeup Air and Filtration System is to remove particulate and gaseous activity from the Control Room atmosphere following a core damage event with subsequent release. The system ensures the Control Room will remain habitable for operations personnel for 30 days. The operability of the system in conjunction to the Control Room design provisions is based on the use of High Efficiency Particulate (HEPA) filters and charcoal adsorbers to limit the radiation exposure to personnel occupying the Control Room to 5 rem or less whole body, or its equivalent. Heaters for the incoming makeup air ensure a relative humidity of 70% or less is maintained to ensure adsorber efficiency.

There were no adverse consequences as a result of this event. The inoperable heater would not have prevented the "B" train Control Room Emergency Makeup Air and Filtration Unit from automatically aligning itself into the filter recirculation mode of operation in response to an air intake high radiation signal or an "S" signal. As stated above, the heater only maintains the efficiency of the charcoal adsorbers during periods of high humidity. However, at no time during the event did the relative humidity of the Control Room makeup air exceed approximately 61%. Hence, at no time was the efficiency of the charcoal adsorbers compromised.

North Atlantic believes that operators would have been capable of expeditiously reenergizing the heater should it have been necessary in response to a design basis accident and subsequent release. High humidity in the "B" train Control Room Emergency Makeup Air and Filtration Unit results in an alarm in the Control Room. The Visual Alarm System (VAS) procedure for the subject alarm point (A0098) requires operators to first check the position of the heater's circuit breaker, and second to check whether the high temperature cutout switch is required to be reset. These activities are conducted in the Control Building Air Handling mechanical equipment room, which is directly behind the Control Room. During this event, operators reset the heater's high temperature cutout switch thereby restoring operability of one train of the Control Room Emergency Makeup Air and Filtration System within four minutes of receiving the alarm in the Control Room.

During this event the "A" train Control Room Emergency Makeup Air and Filtration Unit was isolated to facilitate removal of test equipment associated with TS surveillance testing. In this configuration the "A" train Control Room Emergency Makeup Air and Filtration Unit was capable of being restored to operable status within minutes if required to fulfill its safety function. Based on this, had operators not been able to quickly diagnose the tripped high temperature cutout switch of the "B" train Control Room Emergency Makeup Air and Filtration Unit, they would have been able to expeditiously restore operability of the "A" train Control Room Emergency Makeup Air and Filtration Unit.

Even assuming delayed operator action to either reset the "B" train heater high temperature cutout switch or realign the "A" train of Control Room Emergency Makeup Air and Filtration System, North Atlantic believes that there would have been no adverse consequences of this event in response to a design basis accident and subsequent release. The Control Room Emergency Makeup Air and Filtration System automatically aligns to the filter recirculation mode of operation upon receipt of an air intake high radiation signal or an "S" signal. In this mode of operation, Control Room air is recirculated and filtered. Fifty five percent of the makeup air from outside is allowed to mix with forty five percent of the recirculated, dryer air of the

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mechanical equipment room, located in the Control Building. As a result, the system is less sensitive to outside makeup air relative humidity when in the emergency mode of operation. An Engineering evaluation was performed that indicates, for the environmental conditions on the day of the event, the mixing combination of the outside air and the inside air was sufficient to ensure that makeup air to the Control Room would have remained less than approximately 60% relative humidity for at least 24 hours from the initiation of the event. Since this is less than 70% relative humidity, this demonstrates that the subject heater was not required to be functional to ensure operability of the Control Room Emergency Makeup Air and Filtration System at that time. This evaluation was limited to the first 24 hours of a hypothetical design basis event as following that, it is reasonable to assume that the heater would have been reenergized for the reasons described above.

Based on the above, there were no adverse safety consequences as a result of this event. Additionally, this event did not result in a safety system functional failure of equipment needed to mitigate the consequences of an accident as reasonable operator action would have been sufficient to maintain the functionality of the Control Room Emergency Makeup Air and Filtration System.

IV. Corrective Action

1. The "B" train heater high temperature cutout switch was reset which reenergized heater CBA-H-372. The "A" train Control Room Emergency Makeup Air and Filtration Unit (CBA-F-38) was returned to service.
2. Caution tape was placed on the high temperature cutout switches warning of the sensitivity of the switches to bumping.
3. A design change will be implemented to prevent actuation of the "A" & "B" train Control Room Emergency Makeup Air and Filtration Units high temperature cutout switches due to inadvertent bumping.

V. Additional Information

None

Similar Events

This is the first event of this type at Seabrook Station involving inoperability of the Control Room Emergency Makeup Air and Filtration Systems as a result of personnel inadvertently bumping the heater high temperature cutout switch. However, in 1993, Technical Specification 3.0.3 was entered due to both Control Room Emergency Makeup Air and Filtration Systems being inoperable. The "A" train Control Room Emergency Makeup Air and Filtration system was inoperable due to one of the two 1.8 kW heater elements being burned out. Prior to completing repairs on the "A" train heater, the "B" train Control Room Air Conditioning Unit tripped on low oil pressure. At the time, Seabrook Station Technical Specification 3.7.6 A/B combined the Emergency Makeup Air and Filtration System and the Control Room Air Conditioning System as one Technical Specification. In 1998, Technical Specification Amendment 56 was issued to separate the two sub systems into two separate specifications. The 1993 event is documented in License Event Report, LER 93-021, dated December 17, 1993 and is unrelated to this event.

Manufacturer Data

None