



**North
Atlantic**

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The Northeast Utilities System

October 15, 1998

Docket No. 50-443

NYN-98115

AR#98018082

ACR 98-2564

AR#98017234

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

Seabrook Station
Licensee Event Report (LER) 98-009-00
Incomplete Digital Channel Operational Tests

Enclosed, please find Licensee Event Report (LER) 98-009-00 for an event that occurred at Seabrook Station on September 15, 1998. 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. Terry L. Harpster, Director of Licensing Services at (603) 773-7765.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

Ted C. Feigenbaum
Executive Vice President and
Chief Nuclear Officer

100119

cc: H. J. Miller, NRC Regional Administrator
W. T. Harrison, NRC Project Manager, Project Directorate 1-3
R. K. Lorson, NRC Senior Resident Inspector

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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 3</p>
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TITLE (4)

INCOMPLETE DIGITAL CHANNEL OPERATIONAL TESTS

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
09	15	98	98	009	00	10	15	98	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 1

POWER LEVEL (10) 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)

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)	<input type="checkbox"/> 50.73(a)(2)(ii)	50.73(a)(2)(x)
20.2203(a)(2)(i)	20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	73.71
20.2203(a)(2)(ii)	20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	OTHER
20.2203(a)(2)(iii)	50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME <p style="text-align:center">James M. Peschel, Regulatory Compliance Manager</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)	<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 15, 1998, North Atlantic Energy Service Company (North Atlantic) identified incomplete Digital Channel Operational Tests (DCOTs) for the control room and containment on-line purge (COP) radiation monitors. TS 4.0.3 was entered and testing provisions were applied to the control room air intake radiation isolation until the surveillance was completed and the radiation monitors were declared operable. Containment on-line purge valves were maintained closed per the Technical Specifications (TS) until completion of testing on September 16, 1998.

The original design for the COP and control room radiation monitors used single detectors and each monitor comprised an individual channel. This configuration resulted in several inadvertent isolations due to radiation monitor failures. In 1991 and 1992, a design change was implemented to add a second detector and revise the initiation logic to a two out of two for the COP and control room isolations. The DCOT surveillance procedures developed after installation of the design change were not comprehensive and the radiation monitor output relays for ventilation isolations for COP and the control room intake air were not tested on the frequency required by the TS.

The COP DCOT surveillance procedures have been revised to check the output isolation relays. The control room air intake surveillance procedures will be revised to include testing of the output isolation relays.

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		98	--	009	--	

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

I. Description of Event

On September 15, 1998, North Atlantic Energy Service Company (North Atlantic) identified incomplete Digital Channel Operational Tests (DCOTs) for the control room [VI] and Containment On-Line Purge (COP) [JE] radiation monitors. This event was identified while performing a review of actuation circuits and associated channel calibrations procedures as a corrective action for LER 98-007-00. The review identified that these quarterly DCOTs were not comprehensive since the output relays for ventilation isolations from COP and control room isolation air intake radiation monitors were not tested on a quarterly basis as required by Technical Specification (TS) Table 4.3-2 Functional Unit 3.c.4, and Table 4.3-3 Functional Unit 5.a.

On September 15, at 1024, the containment purge supply and exhaust valves were closed in accordance with Action 16 of TS Table 3.3-3 Functional Unit 3.c.4. and Action 23 of Table 3.3-6 Functional Unit 2.a. TS 4.0.3 was also entered and the provisions for surveillance testing were applied to the control room isolation for air intake radiation level. By 1351 on September 15, the control room isolation air intake radiation monitors were declared operable following satisfactory surveillance testing. At 1152 on September 16, the COP system was declared operable following satisfactory surveillance testing.

II. Cause of Event

This event was caused by the development of incomplete surveillance procedures following a plant design change.

III. Analysis of Event

The Seabrook Station TS definition of DCOT states "a digital channel operational test shall consist of exercising the digital computer hardware using data base manipulation and/or injecting simulated process data to verify operability of alarm and/or trip functions." The original plant design for the COP and control room radiation monitors used single detectors and each comprised an individual channel. This design resulted in several inadvertent COP and control room isolations due to radiation monitor failures. In 1991 and 1992, to avoid future spurious isolations a design change was implemented to add a second detector and revise the initiation logic to a two out of two for the COP and control room isolations. Prior to the design change, the surveillances had tested the output relays since the logic did not permit testing the radiation monitors without causing system isolations. After the design change, each monitor's (RM-80) individual digital channels could be discretely tested and restored to service without causing a ventilation isolation. The firmware and functions were tested up to and including the alarm functions on a quarterly basis, however the output isolation relays were not tested. This resulted in an adequate component test, and an inadequate DCOT. The output isolation relays were tested during each refueling interval for the control room air intake monitors during the performance of surveillance procedures. The isolation function of the COP valves was tested each refueling interval by the performance of surveillance procedures.

No failures of the these radiation monitor output control relays have been identified at Seabrook Station, therefore there was minimal safety implication associated with this event. In addition, the COP ventilation valves were included in the Inservice Testing Program and manually stroked on a quarterly basis which verified the isolation capability.

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

IV. Corrective Action

1. The COP DCOT surveillance procedures have been revised to check the output isolation relays. The COP channel calibration procedures will be revised to check the output isolation relays.
2. The control room air intake surveillance procedures will be revised to include testing of the output isolation relays.
3. The Instrumentation and Control Department will be briefed on this event.

V. Additional Information

The review of actuation circuits and associated channel calibration procedures associated with corrective action item 2 of LER 98-007-00 was completed on September 22, 1998. No additional DCOT deficiencies were identified.

Similar Events

North Atlantic reported a related event to the NRC in LER-98-007-00, "Inadequate Power-Operated Relief Valve Channel Calibration." During the implementation of corrective action 2 from LER 98-007-00, the DCOT deficiency was identified. LER-98-007-00 previously identified three LERs similar in their reporting of the lack of comprehensive instrumentation circuitry testing/overlap testing for completing TS surveillances:

- LER-96-002-00, "Inadequate Steam Generator Wide Range Water Level Channel Calibrations"
- LER-96-006-00, "Missed Surveillance Requirement"
- LER-97-004-00, "Remote Shutdown Systems Circuits Not Tested Completely"

Manufacturer Data

Not applicable