



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

RR#1 • BOX 127E • EAST HAMPTON, CT 06424-9341

October 23, 1989  
Re: 10CFR50.73(a)(2)(i)(B)

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 50-213/89-017-00

Gentlemen:

This letter forwards the Licensee Event Report 89-017-00, required to be submitted, pursuant to the requirements of Connecticut Yankee Technical Specifications.

Very truly yours,

Donald B. Miller, Jr.  
Station Superintendent

DBM:REB/mlg

Attachment: LER 50-213/89-017-00

cc: Mr. William T. Russell  
Regional Administrator, Region I  
475 Alienable Road  
King of Prussia, PA 19406

J. T. Shedlosky  
Sr. Resident Inspector  
Haddam Neck

IE 22  
11

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **Haddam Neck** DOCKET NUMBER (2) **0 5 0 0 0 5 1 3** PAGE (3) **1 OF 0 3**

TITLE (4)  
**Steam Generator Eddy Current Testing Results Classified as Category C-3**

EVENT DATE (5)			SER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER (8)		
0 9	2 5	8 9	9 8	9 0	1 7	0 0	1 0	2 3	8 9		0 5 0 0 0	
											0 5 0 0 0	

OPERATING MODE (9) **6** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

POWER LEVEL (10) <b>01010</b>	20.402(b)	20.406(e)	50.73(a)(2)(iv)	73.71(b)
	20.406(a)(1)(ii)	50.73(a)(1)	50.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(iii)	50.73(a)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)
	20.406(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
	20.406(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME **J. L. DeLawrence, Asst. Engineering Supervisor** TELEPHONE NUMBER **2 0 3 2 6 7 - 2 5 5 6**

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15) MONTH **0 4** DAY **0 2** YEAR **9 0**

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

ABSTRACT

Scheduled Steam Generator Eddy Current Testing (ECT) has been conducted during the current refueling outage in accordance with ASME Section XI and Technical Specification 4.10.1, "Inservice Inspection of Steam Generator Tubes". On September 25, 1989, at approximately 1330 hours, with the plant in Mode 6, it was determined that resolved ECT data placed Steam Generator #2 into the C-3 Category. As planned, 100% of Steam Generator #2 tubes (3493 tubes) will be inspected. Subsequently, on October 4, 1989 resolved ECT results for No. 4 Steam Generator placed it in Category C-3, thus requiring expansion of the ECT program to 100 percent of the tubes in all four steam generators as originally planned. The cause of the tube degradation has not been determined. Additional information on all four steam generators will be provided in a supplemental report after all inspections and evaluations are completed. All tubes with degradation greater than or equal to the Technical Specification limits will be plugged. This event is reportable per 10CFR50.73(a)(2)(i)(B) since it involves a condition prohibited by the plant's Technical Specifications.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Haddam Neck	DOCKET NUMBER (2)  0 5 0 0 0 2 1 3 8 9	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		0 1 7	0 0	0 0	0 2	OF	0 3

TEXT IF more space is required, use additional NRC Form 305A's (17)

BACKGROUND

Eddy Current Testing (ECT) of steam generator (SG) (E11S Code: AB) tubes is performed every refueling outage in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and Technical Specification 4.01.1 "Inservice Inspection of Steam Generator Tubes". As outlined in the Technical Specifications, a steam generator falls into Category C-3 (the worst category) when more than 10 percent of the total tubes to be inspected are degraded or more than 1 percent of the inspected tubes are defective. A 100 percent tube inspection of the SG is then mandatory.

If a SG falls into category C-3, the other three steam generators must be inspected. If any one of the three remaining steam generators fall into Category C-3, a 100 percent tube inspection of all four steam generators becomes mandatory.

EVENT DESCRIPTION

On September 19, 1989 with the plant shut down in Mode 6 for a scheduled refueling outage, Eddy Current Testing (ECT) began in SG No. 2. A 100 percent tube inspection (3493 tubes) of the steam generator was planned. On September 25, 1989 at approximately 1330 hours, resolved ECT data identified 987 degraded tubes, which represent 28.5% of the total tubes, thus placing SG No. 2 into a C-3 category in accordance with Technical Specification 4.10.1.

On October 4, 1989 SG No. 4 resolved ECT results placed it into the C-3 category. The second C-3 category required that the steam generator ECT inspection programs be expanded to 100 percent of the tubes in all four steam generators as originally planned.

CAUSE OF THE EVENT

The root cause of the tube degradation has not been determined. Information will be provided in a supplemental report.

SAFETY ASSESSMENT

This event is reportable under 10CFR50.73(a)(2)(i)(B) since it involves a condition prohibited by the plant's Technical Specifications.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	03	OF 03
		01	17	00		

NOTE: If more space is required, use additional NRC Form 205a's (17)

It is difficult to assess the probability of failure of any of the degraded tubes during that portion of cycle 15 operation when they exceeded their acceptance criteria. In the worst case, it can be postulated that a steam generator tube could have failed while operating at rated power during the past operating cycle. The nature of the tube degradation is such that the failure of one tube would not cause additional failures. Although such a failure is undesirable, it is an analyzed event. The FSAR Chapter 15 analysis has demonstrated that this event could be mitigated such that 10CFR100 limits would not be exceeded.

Plugs were installed to meet the requirements of Technical Specification 4.10.1.

The plugging criteria conservatively assure adequate tube structural integrity and limit the leakage to acceptable levels in accordance with Technical Specification requirements.

Current LOCA and non-LOCA analyses indicate that plugging up to 500 tubes per steam generator will not significantly affect RCS heat transfer characteristics. RCS flow is expected to be acceptable based on the 4.5 percent additional margin included in the Reload Safety Analysis.

Based on the limited potential impact on RCS flow, this event is judged to have limited safety significance.

CORRECTIVE ACTION

ECT is performed each refueling outage to address the condition of the SG tubes and analyze data to determine specific causes of degradation. The results of the analyses may be utilized to optimize chemistry or other plant parameters that affect tube degradation. Special tests such as use of rotating pancake coil probes and/or profilometry are performed to assist in identifying different types of degradation. All tubes with degradation greater than or equal to the Technical Specification limits are removed from service (plugged).

ADDITIONAL INFORMATION

The Steam Generators are Westinghouse Model 27 with Inconel 600 SB-166 tubes.

SIMILAR EVENTS

- LER 87-012-01
- LER 86-003-00