

LICENSEE EVENT REPORT

Update Report

Previous Report Date - 082683

CONTROL BLOCK

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

C T M N S 2 0 0 - 0 0 0 0 0 - 0 0 4 1 1 1 1 4

LICENSEE CODE

LICENSE NUMBER

LICENSE TYPE

CAT 58

CONT

0 1 L 0 5 0 0 0 3 3 6 0 8 1 1 8 3 1 2 0 1 8 3

REPORT
SOURCE

DOCKET NUMBER

EVENT DATE

REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES

Spent fuel visual inspections performed at the end of Cycle 5 have identified

15 Westinghouse manufactured fuel assemblies each with one broken hold-down

spring. In addition, noticeable hold-down spring to top nozzle post wear was

identified on a number of Westinghouse manufactured fuel assemblies.

SYSTEM CODE: R C 11
CAUSE CODE: B 12
CAUSE SUBCODE: A 13
COMPONENT CODE: F U E L X X 14
COMP SUBCODE: Z 15
VALVE SUBCODE: Z 16
EVENT YEAR: 8 3
SEQUENTIAL REPORT NO: 0 2 5
OCCURRENCE CODE: 0 1
REPORT TYPE: X
REVISION NO: 1
ACTION TAKEN: X 18
EFFECT ON PLANT: C 20
SHUTDOWN METHOD: Z 21
HOURS: 0 0 0 0
ATTACHMENT SUBMITTED: Y 23
NRC-4 FORM SUB: N 24
PRIME COMP SUPPLIER: X 25
COMPONENT MANUFACTURER: W 1 2 0 26

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS

The probable cause of the spring failure is system flow induced vibration,

near the core periphery, leading to fatigue failure. With the exception of

assembly F-73, all of the broken springs were located adjacent to the core

shroud in either Cycle 4 or Cycle 5. Starting in Cycle 6, all new fuel will

have a new spring design to reduce spring vibration and resist fatigue failure.

FACILITY STATUS: H 28
% POWER: 0 0 0 29
OTHER STATUS: NA 30
METHOD OF DISCOVERY: B 31
DISCOVERY DESCRIPTION: Routine Inspection 32

ACTIVITY CONTENT: Z 33
RELEASED OF RELEASE: Z 34
AMOUNT OF ACTIVITY: NA 35
LOCATION OF RELEASE: NA 36

PERSONNEL EXPOSURE: 0 0 0 37
TYPE: Z 38
DESCRIPTION: NA 39

PERSONNEL INJURIES: 0 0 0 40
DESCRIPTION: NA 41

LOSS OF OR DAMAGE TO FACILITY: Z 42
TYPE: Z 43
DESCRIPTION: NA 44

PUBLICITY: N 44
DESCRIPTION: NA 45

ISSUED: N 44
DESCRIPTION: NA 45

NAME OF PREPARER

Robert Borchert

PHONE (203) 447-1791 X-4418

8312130353 831201
PDR AD0CK 05000336
S PDR

NRC USE ONLY

ATTACHMENT TO LER 83-25/01X-1
NORTHEAST NUCLEAR ENERGY COMPANY
MILLSTONE NUCLEAR POWER STATION - UNIT 2
FACILITY OPERATING LICENSE NUMBER DPR-65
DOCKET NO. 50-336

The results of the spent fuel inspections performed at the end of Cycle 5 have identified 15 Westinghouse manufactured fuel assemblies each with one broken hold-down spring. The 15 fuel assemblies with broken springs consist of 8 batch "G" and 7 batch "F" fuel assemblies. All of the broken springs were located adjacent to the core shroud in either Cycle 4 or Cycle 5, with the exception of the broken spring in fuel assembly F-73.

The probable cause of the hold-down spring failure is system flow induced vibration, near the core shroud, leading to fatigue failure. With the exception of one break, all of the failures occurred at the beginning of the first active coil (either top or bottom). The broken spring in assembly F-59 failed in the middle as opposed to the beginning of the first active coil. It is postulated that this spring may have had a flaw at the break location.

Top nozzle post wear was observed in varying degrees in virtually all Westinghouse manufactured fuel assemblies. This was observed in both failed and unfailed spring locations, and in interior as well as peripheral core locations.

The probable cause of this wear is from system flow induced spring vibration. The maximum observed two cycle top nozzle post wear is less than one-quarter of the post thickness (270 mils.). Since the main structural member of the fuel assembly is the guide tube, which extends up through the top nozzle post, significant wear in excess of that already observed could be sustained without affecting the structural integrity of the assembly.

Beginning in Cycle 6, all new Westinghouse fuel assemblies will have a new hold-down spring design to reduce system flow induced spring vibration. The new springs will operate with significantly less steady state shear stress thus increasing the margin to fatigue failure, and will provide a smaller top nozzle post to spring gap thus reducing the amplitude of lateral deflection.

Further information was presented to the NRC in a meeting at the Bethesda Offices of the NRC Staff on October 12, 1983, and in the W. G. Council (Northeast Utilities) to J. R. Miller (NRC) letter dated November 4, 1983.

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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December 1, 1983
MP-5563

Dr. Thomas E. Murley, Reg. Admin. Region 1
U.S. Nuclear Reg. Comm. Regional Office
631 Park Avenue
King of Prussia, Pennsylvania 19406

Reference: Facility Operating License No. DPR-65
Docket No 50-336
Reportable Occurrence RO-50-336/83-25/01X-1

Dear Dr. Murley:

This letter forwards the Licensee Event Report 83-25/01X-1.
This update report provides information and corrective action for
the broken hold-down springs identified at the end of Cycle 5. An
additional three copies of the report are enclosed.

Yours truly,

NORTHEAST NUCLEAR ENERGY COMPANY

A handwritten signature in cursive script, appearing to read 'E. J. Mroczka'.

E. J. Mroczka
Station Superintendent
Millstone Nuclear Power Station

EJM/RB:ejl

Attachment: LER 50-336/83-25/01X-1

cc: Director, Office of Inspection and Enforcement Washington, D. C. (30)
Director, Office of Management Information and Program Control,
Washington, D.C. (3)
U.S. Nuclear Regulatory Commission, c/o Document Management Branch,
Washington, D.C. 20555

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