

LICENSEE EVENT REPORT

CONTROL BLOCK: [][][][][][][] [1]

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

[0][1] [M][A][Y][K][R][1] [2] [0][0]-[0][0][0][0][0][0]-[0][0] [3] [4][1][1][1][1] [4] [][][] [5]

LICENSEE CODE

LICENSE NUMBER

LICENSE TYPE

CAT 58

CON'T

[0][1] REPORT SOURCE [L] [6] [0][5][0][0][0][0][2][9] [7] [0][9][1][3][7][8] [3] [1][0][1][3][7][8] [9]

REPORT SOURCE

DOCKET NUMBER

EVENT DATE

REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES [10]

[0][2] See attached narrative.

[0][3]

[0][4]

[0][5]

[0][6]

[0][7]

[0][8]

[0][9] [Z][Z] [11] [X] [12] [Z] [13] [Z][Z][Z][Z][Z][Z] [14] [Z] [15] [Z] [16]

SYSTEM CODE

CAUSE CODE

CAUSE SUBCODE

COMPONENT CODE

COMP. SUBCODE

VALVE SUBCODE

[17] LER/RO REPORT NUMBER

EVENT YEAR [7][8]

[]

SEQUENTIAL REPORT NO. [0][2][3]

[]

OCCURRENCE CODE [0][3]

REPORT TYPE [L]

[]

REVISION NO. [0]

ACTION TAKEN [X] [18]

FUTURE ACTION [Z] [19]

EFFECT ON PLANT [Z] [20]

SHUTDOWN METHOD [Z] [21]

HOURS [0][0][0][0] [22]

ATTACHMENT SUBMITTED [Y] [23]

NPRD-4 FORM SUB. [N] [24]

PRIME COMP. SUPPLIER [Z] [25]

COMPONENT MANUFACTURER [Z][9][9][9] [26]

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS [27]

[1][0] See attached narrative.

[1][1]

[1][2]

[1][3]

[1][4]

[1][5] [X] [28] [0][0][0] [29] Plant Startup [Z] [31] Routine Sample

FACILITY STATUS

% POWER

OTHER STATUS [30]

METHOD OF DISCOVERY

DISCOVERY DESCRIPTION [32]

[1][6] [Z] [33] [Z] [34] N/A N/A LOCATION OF RELEASE [36]

ACTIVITY CONTENT RELEASED OF RELEASE

AMOUNT OF ACTIVITY [35]

LOCATION OF RELEASE [36]

[1][7] [0][0][0] [37] [Z] [38] N/A

PERSONNEL EXPOSURES NUMBER

DESCRIPTION [39]

[1][8] [0][0][0] [40] N/A

PERSONNEL INJURIES NUMBER

DESCRIPTION [41]

[1][9] [Z] [42] N/A

LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION [43]

[2][0] [Z] [44] N/A

PUBLICITY ISSUED DESCRIPTION [45]

NRC USE ONLY

78201800095 NAME OF PREPARER

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LER 78-23/03L-0
Yankee Atomic Electric Company
Yankee - Rowe
050-029

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES

During an approximate five hour unscheduled shutdown, the dose equivalent Iodine-131 concentration of the primary coolant system exceeded 1.0 mCi/gram Dose Equivalent I-131.

The reactor was operating at approximately 98% power 48 hours prior to the shutdown. Normal cleanup flow through the primary coolant purification demineralizer was about 25 gpm. There were no degassing operations prior to, or subsequent to the shutdown.

The dose equivalent iodine concentration exceeded 1.0 μ Ci/gram for one continuous interval of nine hours. The maximum concentration measured was 1.2 μ Ci/gram D.E. I-131 approximately 7 hours after shutdown. The attached table summarizes the primary coolant specific activities during the period.

During the event, all plant systems functioned normally. There was no reduction in the integrity of the systems which contained the fission products. Thus, there were no adverse effects on the public health and safety.

This LER is essentially identical to that described in LER 78-03/03L-0 and LER 78-19/03L-0.

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS

The root cause of the problem is assumed to be a cladding defect in a single fuel rod from a second cycle Exxon Nuclear Company fuel assembly.

This possible defect was suspected and evaluated during the 1977 Core XII refueling outage. It is suspected that the cause of the defect is the failure of the welded end cap of one fuel rod. The possibility of a cladding defect, and the consequences during subsequent power operation were evaluated by Yankee and by Exxon Nuclear Company. Their report, XN-NF-77-33, predicted fission product concentration in the primary coolant as a result of a single gross cladding defect. Their predictions agreed with those of Yankee's, and, in general, with the measured fission product concentrations in the primary coolant during the first twelve months of operation.

LER-78-23/03L-0

So called spikes are a well known phenomenon associated with rapid changes in reactor thermal power. In order to minimize reoccurrence of the problem during Core XIII, reactor power will be adjusted gradually.

It is believed that the suspected defective fuel rod is contained in a second cycle assembly and will be removed during the Core XIII, XIV refueling, scheduled for October 1978.

This event was reviewed by the Plant Operational Review Committee at Meeting No. 78-46 on October 2, 1978, with no additional comments or recommendations.

LN 78-23/03L-0

| DATE/TIME/CONDITIONS | | | I-131 μCi/gram | I-133 μCi/gram | D.E. I-131 μCi/gram | Xe-133 μCi/gram |
|----------------------|------|-------------|-------------------|-------------------|------------------------|--------------------|
| 9/12/78 | 0800 | 98% RTP | 0.05 | 0.06 | 0.07 | 0.1 |
| 9/13/78 | 0800 | 98% RTP | 0.05 | 0.06 | 0.07 | 0.1 |
| 9/13/78 | 1135 | Plant Scram | | | | |
| 9/13/78 | 1300 | 0% RTP | 0.4 | 0.5 | 0.6 | 1.1 |
| 9/13/78 | 1415 | 0% RTP | 0.9 | 0.9 | 1.15 | 1.1 |
| 9/13/78 | 1620 | Startup | | | | |
| 9/13/78 | 1900 | 20% RTP | 0.9 | 0.8 | 1.2 | 1.1 |
| 9/13/78 | 2230 | 55% RTP | 0.7 | 0.6 | 0.9 | 1.0 |
| 9/14/78 | 0800 | 78% RTP | 0.5 | 0.3 | 0.6 | 1.8 |

FUEL BURN UP

First Cycle Fuel . 11,675 MWD/MTU

Second Cycle Fuel 26,555 MWD/MTU