VERMONT YANKEE
NUCLEAR POWER CORPORATION

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May 19, 1995
BVY # 95-56

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

REFERENCE: Operating License DPR-28
Docket No. 50-271
Reportable Occurrence No. LER 95-010

Dear Sirs:

As defined by 10 CFR 50.73, we are reporting the attached Reportable Occurrence as LER 95-010.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Robert J. Wanczyk
Plant Manager

cc: Regional Administrator
USNRC
Region I
475 Allendale Road
King of Prussia, PA 19406

IE22

NRC Form 366 U.S. NUCLEAR REGULATORY COMMISSION (5-92)

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)	DOCKET NUMBER (2)	PAGE (3)
VERMONT YANKEE NUCLEAR POWER STATION	05000271	01 OF 04

TITLE (4) Continuous Fire Watch Not Maintained Continuously For Degraded Fire Barrier Penetration Seals Due to Inadequate Administrative Controls.

EVENT DATE (5)			LER NUMBER (6)					REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR		SEQ #		REV #	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NO.(S) 05000
04	20	95	95	-	010	-	00	05	19	95	N/A	

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: CHECK ONE OR MORE (11)							
			20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
POWER LEVEL (10)	0		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER:
.....			20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
.....			20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
.....			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NO. (Include Area Code)
ROBERT J. WANCZYK, PLANT MANAGER	802-257-7711

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
N/A					....	N/A				
N/A					....	N/A				

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MO	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO	N/A			

ABSTRACT

On 4/20/95, with the plant shutdown for refueling, personnel performing an operating cycle source calibration of the Main Steam Line radiation detectors removed an outer enclosure box covering Vital Fire Barrier penetrations #72-T10934 through 72-T10937 to perform the calibration. The box is a component of a fire barrier penetration seal and removal of the box degraded the seals for these penetrations. The seals are required to be operable at all times by Technical Specification §3.13.E.1. A required continuous fire watch was not maintained at all times during the period the fire seal was degraded. Following discovery that the box was not in place and that a continuous fire watch was not established, the box was reinstalled within one hour to restore full operability.

The root cause for this event was determined to be a failure to implement adequate administrative controls, subsequent to an engineering evaluation, to ensure the required compensatory measures were established and maintained for the time required.

A similar event involving inoperable vital fire barriers and penetration seals due to the removal of an enclosure box or cover was submitted within the last five years as LER# 94-018. A similar event involving the failure to implement effective administrative controls to identify required follow-up compensatory measures subsequent to an engineering/design evaluation was reported within the last five years as LER #95-003.

DESCRIPTION OF EVENT

Background

Fire barrier #72 (FB-72) forms the West wall of Reactor Building (EIIS = NG) El. 252'-6 and separates the Reactor Building from the following three Turbine Building (EIIS = NM) areas: (1) the main North-South hallway; (2) the High Pressure Heater Bay; and, (3) the Heating, Ventilation and Air Conditioning (HVAC) equipment rooms on El. 272'-6. The barrier is constructed primarily of 3-hour rated reinforced concrete with barrier penetrations sealed to maintain the 3-hour fire rating in accordance with Vermont Yankee (VY) Technical Specification (TS) §3.13.E.1. TS §3.13.E.2 requires that a continuous fire watch be established within one hour for inoperable penetration seals.

Vital Fire Barrier penetrations #72-T10934 through 72-T10937 are located in the section of FB-72 that separates the Reactor Building Main Steam Tunnel from the Turbine Building HVAC rooms. These side-by-side penetrations contain embedded 6" (i.d.) metal guide/support tubes for the four Main Steam Line (MSL) radiation detector assemblies (EIIS = IL). The tubes are open-ended on the Main Steam Tunnel side and are capped with metal end caps on the HVAC room side. A metal box, with internal metal dividers, is bolted to the wall over the capped tube ends in the HVAC room to protect the detector external wiring.

The tubes are not fire sealed internally due to detector accessibility requirements for maintenance and calibration. The results of a fire protection engineering evaluation determined that an equivalent 3-hour fire seal configuration is established with all components installed, i.e, the four detector assemblies, the end caps and the common metal enclosure box. Gaps between the end caps and the tubes are sealed with noncombustible caulk to satisfy secondary containment integrity requirements. The caulk is not a component of the equivalent fire seal configuration. Conversely, the enclosure box is not a component of the secondary containment seal.

The MSL radiation detectors are calibrated during each refueling outage by Radiation Protection (RP) personnel in accordance with plant procedure OP 4505 (Source Calibration Of Main Steam Line Radiation Monitors). Instrumentation & Control (I&C) personnel support source calibration through physical removal and subsequent reinstallation of the enclosure box, the end caps and the detector assemblies, and by providing the required fire watch.

Event Description

On 4/20/95, with the plant shutdown for refueling (Mode Switch in Shutdown), RP personnel performed the operating cycle source calibration of the MSL radiation detectors. In preparation for the calibration activity, RP obtained an approved Fire Protection Control Permit (VYAPF 0042.04) as required by OP 4505. However, the permit specified that a continuous fire watch was required when a detector was removed, instead of requiring the fire watch when the outer enclosure box was removed from the wall. I&C removed the box approximately 1 to 2 hours prior to commencement of the source calibration. The continuous fire watch was established prior to removal of the first end cap. Thus, the fire seal configuration was degraded without a continuous fire watch present during the first 1 to 2 hours of seal inoperability.

At the conclusion of the calibration activity, the required secondary containment caulk was not applied as planned. With all other components in place, except for the metal enclosure box, the activity was suspended pending application of the caulk on a later shift. The continuous fire watch was terminated at approximately 0300 hours on 4/20/95 as the specified VYAPF 0042.04 permit requirements were satisfied. At approximately 0900 hours on 4/20/95, the succeeding duty Shift Engineer (SE) contacted the plant Fire Protection Coordinator (FPC) concerning the requirements for these penetrations. The FPC determined that the seal configuration was degraded without the box in place and was, therefore, inoperable. The enclosure box was reinstalled within one hour and operability was restored. Approximately 6 hours elapsed from the time the last end cap was reinstalled until the enclosure box was reinstalled, during which time the required fire watch was not established.

CAUSE OF EVENT

RP performs the detector source calibration work under (RP) procedure OP 4505. Although I&C supports the calibration activity, the applicable I&C procedure (OP 4315, Main Steam Line Radiation Monitor Scram-Isolation Functional/Calibration Test) includes no discussion of, or requirements for, removal of the components that constitute the fire barrier penetration equivalent fire seal configuration. Such discussion and requirements are provided in the RP procedure (OP 4505) only, which the supporting I&C personnel did not review prior to the work. Pre-job planning discussions focused on radiological and secondary containment issues but did not address the fire barrier penetration seal aspects of the work.

OP 4505 identifies that removal of the monitor "housing" defeats a Vital Fire Barrier, and requires an approved VYAPF 0042.04 permit prior to the start of the calibration activity. A label on the box exterior identifies the requirement for a "fire permit" to remove the box. The wall is prominently posted as a vital fire barrier adjacent to the box. However, the SE did not review OP 4505 when processing the fire permit and the box label did not identify the box as a penetration fire seal component.

The engineering evaluation of the equivalent fire seal configuration was completed in October 1993, subsequent to the Autumn 1993 refueling outage. The OP 4505 discussion and requirements were incorporated in a biennial procedure revision subsequent to the 1993 refueling outage source calibration activity, and resulted from observation of the box label and barrier postings. However, neither RP, I&C nor the SE were cognizant of the engineering evaluation and/or the associated details of the equivalent fire seal configuration. Inclusion of the correct requirements in OP 4505 was coincidental and not the result of a deliberate, planned follow-up to the evaluation through the implementation of effective administrative controls.

Therefore, the root cause of this event is the failure to identify and effectively establish compensatory controls following the completion of the engineering evaluation.

ANALYSIS OF EVENT

No automatic detection or suppression is installed on either side of this barrier section. There is a negligible quantity of fixed combustibles in the Main Steam Tunnel and light/ordinary fixed combustible loading in the HVAC room. No ignition source work was in progress in either area while the equivalent seal configuration was degraded. Both locations are classified as Fire Control Areas which require approved fire permits for performance of ignition source work or the introduction of significant quantities of transient combustible materials.

The secondary containment requirements were satisfied with all detector assemblies and end caps fully installed during the lapses in fire watch coverage, and FB-72 was otherwise intact and operable; thus, a reduced but tangible level of fire resistance existed. VY maintains a five person/shift fire brigade capable of prompt response to either side of the barrier in the event of a fire. Finally, the plant was shutdown during this event with no fuel movement in progress.

Therefore, this event did not pose a threat to the plant or to public health and safety.

CORRECTIVE ACTIONS

Short Term

1. The enclosure box was reinstalled within less than one hour following determination that the equivalent fire seal configuration was degraded.

2. The equivalent fire seal configuration engineering evaluation was provided to the Shift Engineers and to I&C Department to ensure cognizance of the configuration details and requirements.

3. An enhanced label was attached to the enclosure box exterior which identifies the box as a fire penetration seal component.

4. Appropriate labelling was affixed to the box discussed in LER# 94-018 to prevent the potential for similar degradation of a fire barrier due to the opening or removal of an enclosure box.

Long Term

5. Procedure OP 4315 will be revised to incorporate appropriate information and requirements for removal of the box for detector source calibration. This action is expected to be completed by August, 1995.

6. Existing design control processes will be reviewed/evaluated, and appropriate changes made, to ensure their adequacy in identifying and establishing appropriate adminstrative or compensatory controls related to engineering/design evaluations. This action will be included in the scope of the evaluation identified as long term corrective action #1 in LER# 95-003 and is expected to be completed by December, 1995.

ADDITIONAL INFORMATION

A similar event related to the degradation of a vital fire barrier through removal of an enclosure box cover was reported within the last five years as LER# 94-018. A similar event related to the inadequate review of an engineering evaluation to identify and implement effective administrative or compensatory controls was reported in the last five years as LER #95-003.