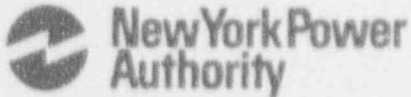


James A. FitzPatrick
Nuclear Power Plant
P.O. Box 41
Lycoming, New York 13093
315 342-3840



Radford J. Converse
Resident Manager

February 14, 1992

JAFP-92-0154

United States Nuclear Regulatory Commission
Document Control Desk
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Washington, D.C. 20555

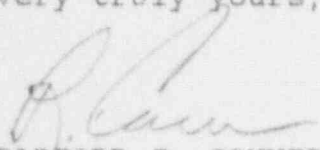
SUBJECT: DOCKET NO. 50-333
LICENSEE EVENT REPORT: 92-004-00 - Cable Tunnel Fire
Suppression Sprays Inoperable
Due to Inadequate Design and
Appendix R Review

Dear Sir:

This report is submitted in accordance with 10 CFR 50.73(a)(2)(ii) and (v). This report is also submitted as a special report required by Technical Specifications 3.12.B.2 and 6.9.B.2.

Questions concerning this report may be addressed to Mr. W. Verne Childs at (315) 349-6071.

Very truly yours,


RADFORD J. CONVERSE

RJC:WVC:lar

Enclosure

cc: USNRC, Region I
USNRC Resident Inspector
INPO Records Center

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **JAMES A. FITZPATRICK NUCLEAR POWER PLANT** DOCKET NUMBER (2) **0 5 0 0 0 3 3 3 1** PAGE (3) **1 OF 6 4**

TITLE (4) **Automatic Fire Suppression Systems in Safety-Related Cable Tunnels Declared Inoperable Due to Inadequate Design and Review for Appendix R Requirements**

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
01	15	92	92	004	00	02	14	92	
									DOCKET NUMBER (8)
									0 5 0 0 0
									0 5 0 0 0

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

20.400b(1)	<input type="checkbox"/>	20.400b(4)	<input type="checkbox"/>	90.73a(2)(iv)	<input type="checkbox"/>	73.71b(1)	<input type="checkbox"/>
20.400b(1)(i)	<input type="checkbox"/>	90.30a(1)	<input checked="" type="checkbox"/>	90.73a(2)(v)	<input type="checkbox"/>	73.71b(2)	<input type="checkbox"/>
20.400b(1)(ii)	<input type="checkbox"/>	90.30a(2)	<input type="checkbox"/>	90.73a(2)(vi)	<input type="checkbox"/>	OTHER (Specify in Abstract below and in Text, NRC Form 305A)	<input checked="" type="checkbox"/>
20.400b(1)(iii)	<input type="checkbox"/>	90.73a(2)(i)	<input type="checkbox"/>	90.73a(2)(vii)(A)	<input type="checkbox"/>	Special Report	
20.400b(1)(iv)	<input type="checkbox"/>	90.73a(2)(ii)	<input checked="" type="checkbox"/>	90.73a(2)(vii)(B)	<input type="checkbox"/>		
20.400b(1)(v)	<input type="checkbox"/>	90.73a(2)(iii)	<input type="checkbox"/>	90.73a(2)(ix)	<input type="checkbox"/>		

LICENSEE CONTACT FOR THIS LER (12)

NAME **W. VERNE CHILDS, SENIOR LICENSING ENGINEER** TELEPHONE NUMBER **3 1 5 3 4 9 - 6 0 7 1**

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14) YES (if you complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces. i.e., approximately 1700 single-space typewritten lines) (16)

IIIS Codes are in []

The plant was shutdown and in the cold condition for maintenance and refueling. On 1/15/92 fire suppression systems [KP] for the east and west cable tunnels, which contain power, control, and instrumentation cables required for safe shutdown, were administratively declared inoperable. The fire suppression systems were declared inoperable (but remain in service) because the design of the original installation was inadequate. A continuous fire watch was posted in each tunnel as required by Technical Specification 3.12.B.1.b and will remain posted until modification of the fire suppression systems are completed to provide adequate protection against the hazards of the area. LER-91-010, 91-021, 91-024, and 91-032 describe additional fire protection inadequacy events.

This report is also submitted to satisfy the special report requirements of Technical Specifications 3.12.B.2 and 6.9.B.2.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) JAMES A. FITZPATRICK NUCLEAR POWER PLANT	DOCKET NUMBER (2) 5000333	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 306A's) (17)

EIIS Codes are in []

Description

The plant was shutdown and in the cold condition for maintenance and refueling.

On January 15, 1992 at 1820 hours the fire suppression systems for the east and west (Safety Divisions 2 and 1 respectively) electric bay cable tunnels were administratively declared inoperable because the fire suppression systems [KP] do not provide adequate protection against the hazards of the area.

The electric bay tunnels contain portions of both safety-related and non-safety-related medium voltage (4160 VAC), low voltage (600 VAC, 120 VAC, and 125 VDC) [EA, EB, EC, ED, EI, EJ] cables as well as numerous control and instrumentation cables. These cables are routed through conduit and/or cable trays [FA] within the tunnels and are, in general, separated in such a manner that Safety Division 1 cables are in one tunnel and Safety Division 2 cables are in the other tunnel. The tunnels are separated by a 3-hour-rated fire barrier.

Most of the cable trays were provided with "special window sprinklers" on dry pipe systems that are automatically actuated by heat detectors. Sprinkler heads are located at 20-foot intervals and provide fire breaks to prevent the spread of fire along the length of the tray. Vertical and horizontal trays or cable runs that connect one tray stack with an adjacent stack are not protected. Trays which are designated for armored cable (that is, cable without a combustible outer jacket) do not have sprinkler heads located to spray the tray contents.

During an ongoing reevaluation of 10 CFR 50, Appendix R, requirements, several deficiencies related to the cable tunnel fire suppression systems were discovered.

1. The design of the sprinkler system is inadequate because, as noted above, some cable trays are not provided with protection. In addition, the sprinkler head orientation does not result in full coverage of the cable trays where it is installed.
2. In June and July 1991 several additional fire protection deficiencies were noted and are discussed in LER-91-010. One of these deficiencies concerned a Safety Division 1 conduit and cable crossing the Safety Division 2 (east) cable tunnel. As noted in LER-91-010, the conduit of concern was protected by installation of a one-hour-rated fire wrap. In view of the deficiencies concerning the cable tunnel fire suppression system,

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 2	0 0 4	0 0	0 3	OF 0 4

TEXT (If no space is required, use additional NRC Form 305A's) (17)

the protection of that Division 1 conduit and a number of other similar conduit runs is now considered inadequate because the fire suppression system installed in the cable tunnels is not sufficient for the hazards of the area.

While the fire suppression systems have been administratively declared inoperable, the systems remain in service to provide automatic response to postulated fires. In addition, each tunnel has four (4) fire hose stations which were installed in response to NRC Branch Technical Position (BTP) 9.5-1, Appendix A, requirements, for manual firefighting activities.

Cause

The event was caused by inadequate design of the original installation fire suppression systems in the cable tunnels. In addition, modifications which installed cables with combustible outer jacketing were installed in trays designated for armored cable as early as 1977. Further, the evaluation of 10 CFR 50, Appendix R, requirements was inadequate. As a result, the inadequate protection of the Division 1 conduits and cables crossing the Division 2 tunnel was not discovered until January 1992.

Analysis

The east and west electric bay tunnels are the principal plant structures through which the safety-related 4160 VAC and 600 VAC power distribution cables are routed to connect Emergency Diesel Generator (EDG) [EK] switchgear, safety-related load centers, and motor control centers. In addition, power and control cables for motor driven emergency core cooling system pumps (Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO], Low Pressure Core Spray [BM], Residual Heat Removal Service Water (RHRSW) [BI], and Emergency Service Water (ESW) [BI]) are routed through the tunnels. These systems are designed to mitigate the consequences of accidents described in the Final Safety Analysis Report (FSAR) and provide the means for safe shutdown to meet the requirements of 10 CFR 50, Appendix R. In the case of the Division 1 conduit and cable which crosses the Division 2 (east) tunnel, the conduit and cable is associated with safety-related pump room A exhaust fan 73FN-3A which is an essential support system required to assure operability of the Division 1 RHRSW and ESW pumps. Operability of these components is required for fire scenarios which depend on Division 1 equipment for 10 CFR 50, Appendix R, safe shutdown requirements.

As a result, the event is a reportable event under 10 CFR 50.73(a)(2)(ii)(B), a condition outside the design basis of the plant. The event is also reportable under 10 CFR 50.73(a)(2)(v)(A), (B), and (D), a condition that alone could prevent the fulfillment of the

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) JAMES A. FITZPATRICK NUCLEAR POWER PLANT	DOCKET NUMBER (2) 0 5 0 0 0 3 3 3	LER NUMBER (4)			PAGE (3)	
		YEAR 9 2	SEQUENTIAL NUMBER 0 0 4	REVISION NUMBER 0		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

safety functions of systems needed to maintain the reactor in a safe shutdown condition, remove residual heat, and mitigate the consequences of an accident.

Corrective Action

1. A continuous fire watch was posted in each tunnel within one hour as required by Technical Specification 3.12.B.1.b. Completed at 1820 hours on January 15, 1992.
2. The continuous fire watch will remain posted until the fire suppression systems are modified to provide protection against the hazards of the area. This action will resolve any question concerning adequate protection of the Division 1 conduits and cables which cross the Division 2 tunnel. The planned completion date is December 31, 1992.

Additional Information

Failed Components: None

Previous Similar Events: LER-91-010, 91-021, 91-024, and 91-032 describe additional examples of inadequate evaluation of fire protection requirements against the requirements of Branch Technical Position (BTP) 9.5-1, Appendix A, and/or 10 CFR 50, Appendix R.

Additional corrective action may result from discussion of these deficiencies with NRC personnel at a meeting scheduled to be held in March 1992. If significant changes to the corrective actions result, this LER will be updated.

Special Report Requirements

This LER is also submitted to satisfy the special report requirements contained in Technical Specification 3.12.B.2 and 6.9.B.2. These Technical Specification sections require a written report (when certain inoperable fire protection water spray and/or sprinkler systems cannot be restored to an operable status within 14 days) which outlines the action taken, cause of inoperability, and the plans and schedule for restoration to an operable status.