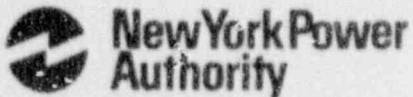


James A. FitzPatrick  
Nuclear Power Plant  
P.O. Box 41  
Blycoming, New York 13093  
315 342-3840



Harry P. Salmon, Jr.  
Resident Manager

September 22, 1992  
JAFF-92-0666

United States Nuclear Regulatory Commission  
Document Control Desk  
Mail Station P1-137  
Washington, D.C. 20555

SUBJECT: DOCKET NO. 50-333  
LICENSEE EVENT REPORT: 92-035-00 - ESF ACTUATION AND  
LOSS OF EFFLUENT MONITORING  
DUE TO TRANSFORMER FAILURE

Dear Sir:

This report is submitted in accordance with 10 CFR 50.73(a)(2)(i) and (iv).

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

Very truly yours,

HARRY P. SALMON JR.

HPS:WVC:tld

Enclosure

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

4210010015 920922  
PDR ADOCK 05070333  
S PDR

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## LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) James A. FitzPatrick Nuclear Power Plant										DOCKET NUMBER (2) 0 5 0 0 0 3 3 3				PAGE (3) 1 of 0 7												
TITLE (4) ESF Actuation and Loss of Effluent Monitoring Due to Transformer Failure																										
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 NAMES				DOCKET NUMBER(S)													
0	9	2	4	9	2	9	2	—	0	3	5	—	0	0	0	9	2	2	9	2					0 5 0 0 0	
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)																							
POWER LEVEL (10)			20.402(b)				20.405(a)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)											
0 0 0			20.405(a)(1)(i)				50.36(a)(1)				50.73(a)(2)(v)				73.71(a)											
			20.405(a)(1)(ii)				50.36(a)(2)				50.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)											
			20.405(a)(1)(iii)				<input checked="" type="checkbox"/> 50.73(a)(2)(i)				50.73(a)(2)(vii)(A)															
			20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(vii)(B)															
			20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)															
LICENSEE CONTACT FOR THIS LER (12)																										
NAME W. Verne Childs, Senior Licensing Engineer										TELEPHONE NUMBER																
										AREA CODE 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													
X	E	C	X	F	M	R	G	0	8	0	Y															
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR										
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE: )												NO					1	3	0	9	3					

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

EIIIS Codes are in [ ]

The plant was shutdown for maintenance and refuel with all irradiated fuel in the spent fuel pool. On August 25, 1992, at 1327 hours safety related 600VAC Load Center L-15 [ED] was being returned to service after having been deenergized for approximately 10 days for electrical maintenance work. When the circuit breaker supplying power to the load center step-down transformer was closed, it immediately tripped due to high phase current and grounding. Load Center L-15 Transformer T-13 had failed. The electrical transient caused loss of the uninterruptible power supply (UPS) [EE], resulting in loss of several ventilation effluent radiation monitoring systems [IL] and automatic isolation signals to some primary containment [NH] isolation valves. Loss of UPS also deenergized the station alarms and the public address system. Power was restored to UPS and the ventilation effluent radiation monitoring systems were returned to service within four hours. A spare transformer was installed and power was restored to the load center on the following day. This LER will be updated following completion of a formal Root Cause Analysis.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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James A. FitzPatrick Nuclear  
Power Plant

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

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DESCRIPTION

The plant was shutdown for maintenance and refuel with all irradiated fuel in the spent fuel pool.

On August 15, 1992 non-safety related 4160 volt (4KV) bus 10300 [EA] and safety related 4KV bus 10500 [EB] were deenergized for planned maintenance. Non-safety related 600 VAC [EC] Load Centers L-13, 23, 33 and 43 had been aligned to power the load centers from bus 10400. Safety related 600 VAC [ED] Load Centers L-15 and 25 were deenergized along with buses 10300 and 10500 because, by design, no alternate power source is provided from the other safety division (bus 10600). See Figure 1.

The 120 VAC uninterruptible power supply (UPS) [EE] system motor-motor generator was also out of service for maintenance. The normal alternative power source for the UPS instrumentation bus is from a motor control center that is provided with power from bus 10500 via Load Center L-25. Since Load Center L-25 was to be deenergized temporary alternate power was provided from a motor control center powered from Load Center L-33 (which in turn was powered from bus 10400) during the planned maintenance work. See Figure 1.

On August 25, 1992, the maintenance work on 4KV buses 10300, 10500 and Load Centers L-15 and L-25 had been completed and operators were restoring power in accordance with approved procedures. After restoring power to bus 10300 and 10500, operators closed circuit breaker 10560 to energize transformers T-13 and T-15 at 1327 hours. Circuit breaker 10560 immediately tripped. The alternate feeder circuit breaker to UPS also tripped resulting in loss of UPS.

Loss of UPS resulted in the loss of several radiation monitoring systems [IL] and actuation of automatic isolation signals [JE] to primary containment [NH] isolation valves in the reactor water cleanup system [CE] and primary containment vent and purge system. In addition, loss of UPS deenergized the plant public address and station alarm system.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)  James A. FitzPatrick Nuclear Power Plant	DOCKET NUMBER (2)  0 5 0 0 0 3 3 3 9 2	LER NUMBER (6) <table border="1"><thead><tr><th>YEAR</th><th>SEQUENTIAL NUMBER</th><th>REVISION NUMBER</th></tr></thead><tbody><tr><td>0 3 5</td><td>0 0</td><td>0 3</td></tr></tbody></table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	0 3 5	0 0	0 3	PAGE (3)  0 7 OF 0 7
YEAR	SEQUENTIAL NUMBER	REVISION NUMBER							
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TEXT (If more space is required, use additional NRC Form 365A's) (17)

Radiation Monitoring Systems, which were lost and required were:  
1) Plant Off Gas [WF] Stack Monitors, 2) Turbine Building [NM] Ventilation System [VU] Exhaust Monitors, and 3) Radwaste Building [NE] Ventilation System [VH] Exhaust Monitors. Continuous monitoring of these effluent pathways is required by Radiological Effluent Technical Specifications 3.1.a. The reactor water cleanup suction isolation valve received an automatic isolation signal due to a false high system temperature signal as a result of loss of UPS power to the temperature monitor. Primary containment suppression chamber (Torus) vent and purge isolation valve 27MDV-118 automatically closed due to a spurious containment high range radiation monitor signal. The radiation monitor signal was false and was apparently the result of the electrical system transient.

At approximately 1332 hours, the control room [NA] was notified of the presence of smoke at Load Center L-15 (which includes 4KV/600VAC step down transformer T-13) and the Fire Brigade was dispatched. The normal sounding of the fire alarm and announcement was not possible because of the power loss to the plant alarm and public address system.

At 1341 hours the Control Room was notified of light smoke in the vicinity of Load Center L-15, that no flames were visible, and that protective relaying "flags" indicated circuit breaker 10560 had tripped due to overcurrent on all three phases and ground faults. Disconnect 11561 was opened to isolate transformer T-13 and a fire reflash watch was stationed. Electrical maintenance personnel investigated, and at 1427 hours reported transformer T-13 had apparently experienced a fault when it was energized at 1327 hours after having been deenergized for a 10-day period.

Electrical maintenance personnel investigated the cause of the alternate feeder circuit breaker trip which resulted in loss of UPS. The circuit breaker was tested with satisfactory results. Restoration of the UPS bus was completed at 1600 hours and Radwaste Building ventilation, Turbine Building ventilation and Stack Radiation monitoring was restored by 1609 hours.

A spare 750 Kilo-Volt-Ampere (KVA) transformer was installed in place of the failed 1000KVA transformer T-13 and power was restored to Load Center L-15 on August 28, 1992 at approximately 1140 hours.



LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Case

The event was caused by failure of transformer T-13 when it was energized following a maintenance outage of approximately 10 days. The apparent cause of the transformer failure was insulation failure.

On September 16, 1992, disassembly of the transformer began at the manufacturers facility to allow a formal Root Cause Analysis of the failure and to initiate repairs. The root cause analysis is expected to be complete on approximately October 1, 1992. This LER will be updated to provide the results of the analysis.

Analysis

The event was not safety significant. The plant had been shutdown since November 28, 1991. Plant systems had been previously aligned, and work activity restricted, to permit 4KV buses 10300 and 10500 to be removed from service for maintenance. No movement of irradiated fuel, core alteration or similar activity was permitted during the time period that buses 10300 and 10500 were deenergized.

A failure of transformer T-13 (or other safety-related Load Center) during power operation of the plant would result in the inoperability of multiple systems which would require a forced manual plant shutdown to meet Technical Specification requirements. For example, Load Center L-15 provides power to motor control centers which in turn are the power source for numerous motor operated valves in one train (one safety division) of, 1) Standby Gas Treatment [BH], 2) Standby Liquid Control [BR], Core Spray [BM], and Containment Cooling mode of Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) [BO]. The Safety Analysis discussed in the Final Safety Analysis Report (FSAR) includes an evaluation of the postulated failure of one complete safety-related 4KV bus as an active component failure in addition to an initiating event. Failure of one safety related Load Center Transformer would be a less severe event.

Loss of UPS resulted in the loss of Plant Stack, Turbine building and Radwaste Building ventilation effluent monitoring which are required by Technical Specifications to be operable on a continuous basis during releases. Since the ventilation systems were in normal operation the loss of monitoring resulted in a violation of Technical Specification Requirements and requires a report under 10CFR50.73(a)(2)(i)(B). The loss of UPS also resulted in engineered safety feature actuation and thus also requires a report under 10CFR50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Corrective Action

1. Turbine Building and Radwaste Building ventilation systems were shutdown or isolated to terminate release of radioactive materials via the unmonitored release pathways.
2. Power was restored to UPS after test of the power source circuit breaker. This action allowed restoration of effluent monitoring of the Off Gas Stack, Turbine Building ventilation and Radwaste Building ventilation release pathways as well as the public address and station alarm systems.
3. The failed 1000KVA transformer T-13 was temporarily replaced with a 750 KVA spare transformer. This action allowed power to be restored to Load Center L-15. Completed on August 28, 1992.
4. Guidelines for inspection/maintenance of rotating equipment and dry type transformers in an extended shutdown condition have been established. Completed on September 15, 1992.
5. The failed transformer is being evaluated to determine the cause of failure. Completion of the Root Cause Analysis is expected on approximately October 1, 1992.
6. Evaluations are being conducted on the repair or replacement of the transformer. The evaluations will be completed prior to plant start-up.
7. The results of the transformer failure Root Cause Analysis may result in the need for additional corrective action. Information concerning additional corrective action (if any) will be provided in the update of this report, which is planned for January 30, 1993.

Additional Information

Failed Components: Transformer 71T-13

Rating: 1000KVA, continuous duty, 150 C rise, self cooled (natural convection air cooled) Class AA, 3 phase, 60 Hertz

Manufacturer: General Electric

Manufacturer NPRDS Code: G080

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 366A's): (17)

Previous Similar Events: LER-92-034 reported an engineered safety feature actuation as a result of the failure of a similar transformer.

LER Update Plans:

This LER will be updated following the completion of the Transformer Root Cause Analysis. Depending on the results of the Root Cause Analysis, and the results of the evaluations of the suitability of the spare transformer for service for planned start-up and power operation additional corrective action may be necessary.

LICENSEE EVENT REPORT (LER)  
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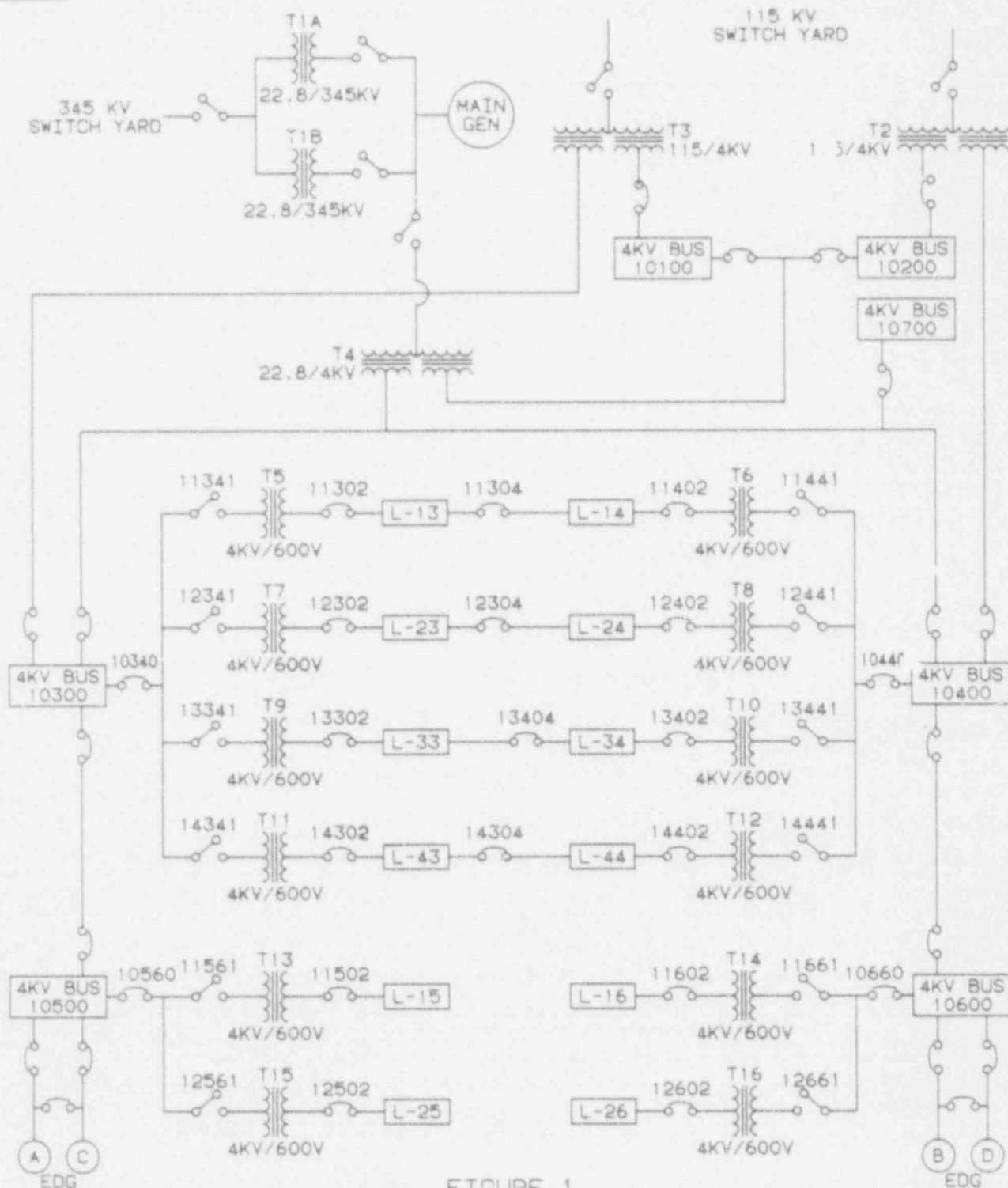
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

FIGURE 1

FIGURE 1  
SIMPLIFIED POWER DISTRIBUTION SKETCH