NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palisades Plant	0 5 0 0 0 2 5 5	1 OF 0 5

TITLE (4) LICENSEE EVENT REPORT 95-004 - REDUNDANT DIESEL GENERATOR CIRCUITS NOT SEPARATED PER APPENDIX R

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (8)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	
									N/A	0 5 0 0 0
0 7	1 4	9 5	9 5	– 0 0 4	– 0 0	0 8	1 4	9 5	N/A	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)			
POWER LEVEL (10)	0 %	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		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 (Specify in Abstract
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	below and in Text,
		20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	NRC Form 366A)
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
William L. Roberts	6 1 6 7 6 4 - 8 9 1 3

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES *(If yes, complete EXPECTED SUBMISSION DATE)*	X NO				

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

On July 14, 1995 at 1:00 p.m. it was determined that emergency diesel generator (EDG) 1-2 power and control circuits do not meet 10 CFR 50, Appendix R, Section III.G requirements. The power and control circuits for the 1-2 EDG are routed in the air intake plenum for EDG 1-1. The EDG 1-1 intake air plenum does not have a qualified fire barrier separating it from the EDG 1-1 room. Hourly fire tours were initiated immediately in the diesel generator 1-1 room adjacent to the intake air plenum and will continue until a resolution is identified and implemented.

This condition was identified as part of the Palisades Plant Appendix R Enhancement Program. The Appendix R Enhancement Program was checking cable routing, reassigning fire areas and verifying that complete analysis exists for each fire area. Completion of the Appendix R Enhancement Program will assure that any additional areas of Appendix R cable routing non-compliance are identified.

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Event Description

On July 14, 1995, the plant was in cold shutdown for a refueling outage. As a result of on-going reviews being completed as part of the plant Appendix R enhancement program, it was determined that the emergency diesel generator (EDG) 1-2 power and control circuits to the safety related "D" bus (EA-12), were routed in the intake air plenum for EDG 1-1. The intake air plenum for EDG 1-1 does not have a qualified fire barrier separating it from the EDG 1-1 room per 10 CFR 50, Appendix R, Section III.G. The intake air plenum was not classified as a fire area and the fire barrier that separates the EDG 1-1 room from this plenum area is not fire rated. The intake air duct work and penetrations also are not fire rated. Therefore a single fire inside the EDG 1-1 fire area could potentially disable both diesel generators.

An hourly fire tour was initiated for the EDG 1-1 fire area, therefore compensating for the lack of a fire rated barrier to the air intake plenum room. A portion of the EDG 1-1 north wall is considered inoperable (with an hourly fire watch to compensate) until a resolution to the lack of proper circuit separation is identified and implemented.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(B) as a condition outside the design basis of the plant.

CAUSE OF THE EVENT

1. Appendix R program documentation was insufficient to demonstrate regulatory compliance on its own merit. The original Appendix R reviews also did not properly address this cable configuration.

2. Prior to the time the Appendix R enhancement program was established, there was lack of an adequate self assessment program as pointed out by the 1994 independent assessment. (This is no longer an issue.)

ANALYSIS OF THE EVENT

In June 1994 an independent assessment of the Palisades Appendix R Program was performed by Engineering Planning and Management, Inc. (EPM), a firm specializing in nuclear plant fire protection. The assessment was commissioned by plant management because of concerns over the state of compliance to the requirements of 10 CFR 50, Appendix R. The audit involved a comprehensive evaluation of the Palisades Appendix R Program.

The assessment was performed from the perspective of providing demonstrable compliance to regulatory requirements from the existing Appendix R documentation. On this basis, conclusions were made based on the existence of auditable documentation.

The overall conclusion of the assessment team was that the existing Appendix R documentation was insufficient in certain areas to demonstrate regulatory compliance on its own merit. Analyses were not well documented and in many cases were not being maintained current with changes to the plant. The team further concluded that the Appendix R Program was not being given the management priority required to effectively establish and maintain the program in today's regulatory environment. Numerous weaknesses identified during the assessment were recurring problems from previous NRC and consultant audits. In summary, the compliance status of some aspects of the Appendix R program were not readily verifiable based on a lack of available and auditable documentation.

As a result of the June 1994 assessment, existing plans in place to upgrade the program were greatly accelerated. Additional management attention was also placed on ensuring timely identification and resolution of Appendix R deficiencies.

The ongoing Appendix R enhancement program is systematically performing a complete circuit analysis, performing circuit walkdowns and reassigning fire zones to validate and re-baseline earlier Appendix R work. It was this Appendix R enhancement program that identified this condition and other less significant issues. Until the Appendix R enhancement program is completed, Palisades Plant may identify additional deficiencies.

Past Operability

The hourly fire tour in the EDG 1-1 room was established as part of the initiation of the corrective action document. An overview drawing of the fire area in question is shown as Attachment B. For the period prior to July 14, 1995, the barrier as a whole cannot be considered operable for the following reasons:

* Although the air plenum ducts were inspected until sometime in 1994, the non-fire rated recirculation damper (D-25) was not inspected as part of the fire barrier or penetration seal surveillance program. Therefore, no documentation exists on past operability of this damper as a fire barrier.

* Prior to 1993 damper D-25 was used as a recirculation damper and was inspected for operation yearly. In 1993 it was determined that the damper was not needed and was disabled closed. In the past (Pre-1993) a fire could have caused the damper to spuriously open, or it may have been open when the fire occurred and could have failed open, thus allowing hot gases to enter the air plenum and damage the redundant diesel power and control circuits. The potential spurious opening or failed open conditions are outside the design basis for the damper as a recirculation device. Therefore, the damper as a ventilation system component was operable, but as a component in a fire barrier was inoperable.

* While numerous hourly fire tours have been established for the diesel generator 1-1 and 1-2 rooms throughout the past years, there has not been a continuous hourly fire tour documented in historical records.

Consequently, prior to July 14, 1995, when the hourly fire tour was established in the EDG 1-1 room, the plant operated with an inoperable fire barrier (non-rated fire wall) separating the EDG 1-1 room (Room 116) from the EDG 1-1 air plenum room (Room 148) where the redundant EDG 1-2 power and control circuits are located. This condition is outside the plant design basis required by 10 CFR 50, Appendix R, Section III.G.

SAFETY SIGNIFICANCE

Substantial protection is provided by the existing wall and ventilation penetrations between the 1-1 EDG room and air plenum even though they were not rated or inspected as a 3-hour fire barrier. The air plenum reinforced concrete wall is approximately 12 inches thick and a portion of the air plenum floor that provides separation from the EDG 1-1 room is approximately 9-1/2 inches thick. These portions of the barrier are acceptable as a 3-hour fire rated barrier as they exceed the 5-1/2 inch thickness required for 3-hour rating (per NFPA Fire Protection Handbook, 17th Edition, Figure 6-5G). The unrated ventilation air intake ductwork and recirculation damper in this wall are substantial steel enclosures that prevent direct impingement of smoke and hot gases on the circuits in the plenum. The two air intake ducts are opened at each end; one end in the EDG 1-1 room and the other end in the air plenum room. A plant walkdown determined that the horizontal distance between the openings at each end of the duct is equal to or greater than 20 feet thus providing a degree of separation between the two rooms. The air recirculation damper is currently failed closed such that it provides a passive fire stop configuration to limit the spread of smoke and hot gases. The EDG 1-1 room has a full area wet pipe sprinkler system which will greatly limit the intensity of a postulated fire. Water flow alarms which annunciate in the Control Room will provide notification of any fire thus initiating alarm response procedures which result in a fully trained fire brigade response. In addition, operations and security personnel inspect these areas on a frequent basis as a normal course of business. The fire loading in EDG 1-1 room, excluding the lube oil and fuel oil located in substantial metal enclosures, is light. The fire loading in the EDG 1-1 air plenum room is negligible as no exposed combustibles were identified in a plant walkdown. All of these factors help ensure that a realistic fire in the EDG 1-1 room would not likely propagate into the air plenum room and affect redundant safe shutdown circuits. We therefore conclude that the safety significance of this design deficiency is low.

CORRECTIVE ACTION

Corrective Actions Taken and Results Achieved

An hourly fire tour was established in the EDG 1-1 room to compensate for the lack of fire rated barriers to the air intake plenum room.

A review of the Licensing Event Reports for Appendix R was completed and did not indicate a new trend or common failure mechanism.

Corrective Actions to Avoid Recurrence

A. Provide a resolution for the lack of proper Appendix R circuit separation between the EDG 1-2 power and control circuits routed in the air intake plenum to EDG 1-1 room.

   A rigorous evaluation of the as-built configuration is underway. This evaluation will determine the adequacy of the existing fire barrier (EDG 1-1 air plenum) to protect the EDG 1-2 circuits. It will also identify other potential solutions to this non-compliant condition.

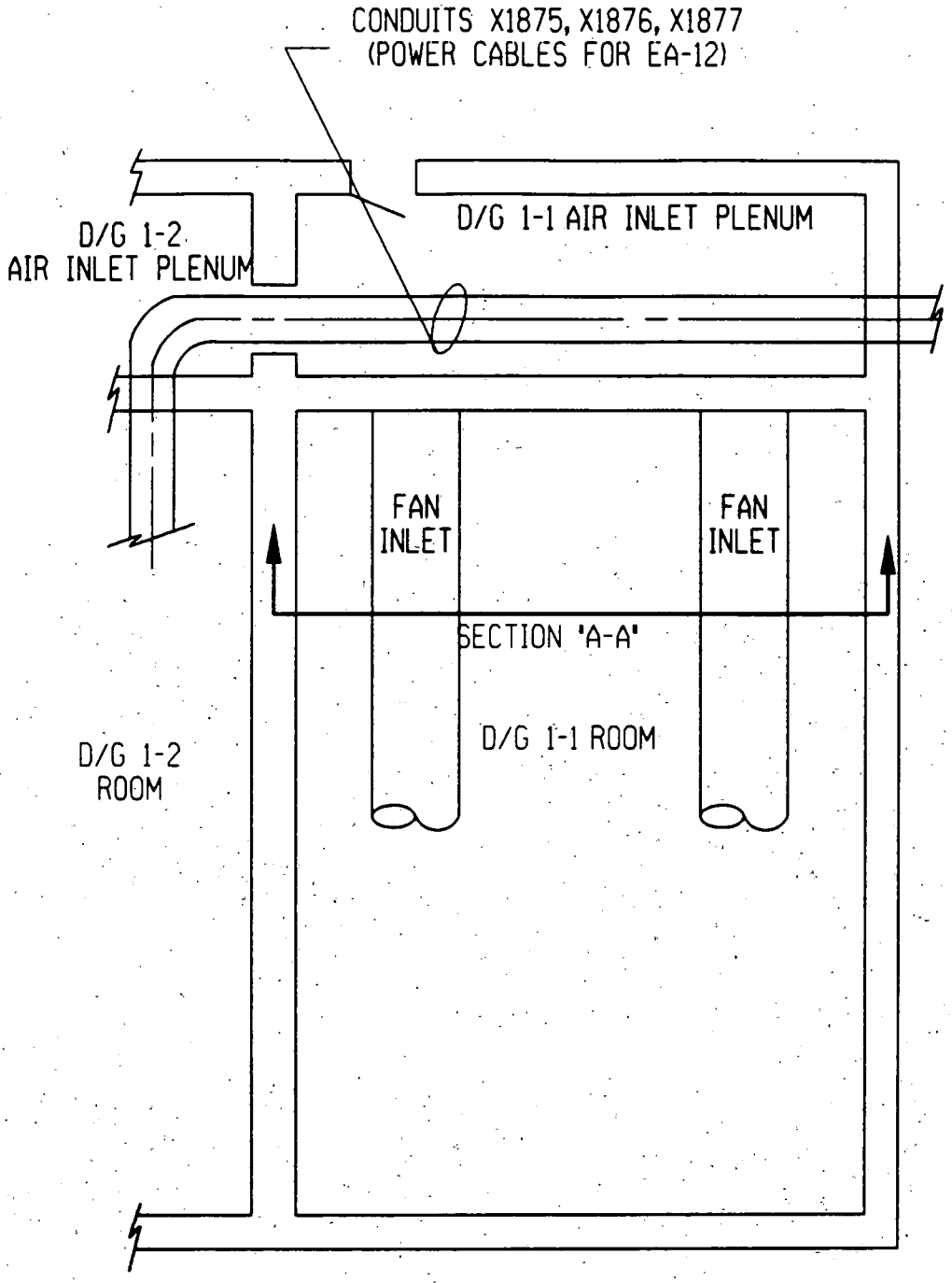
B. Maintain an hourly fire tour for diesel generator room 116 until a permanent resolution is provided for Appendix R circuit separation between the EDG 1-2 power and control circuits routed in the air intake plenum to EDG 1-1 room.

C. The ongoing Appendix R enhancement program is systematically performing a complete circuit analysis, performing circuit walkdowns and reassigning fire zones to validate and re-baseline earlier Appendix R work. Completion of the Appendix R Enhancement Program will assure that any additional areas of Appendix R cable routing non-compliance are identified. The Appendix R Enhancement Program is being implemented by the Palisades Performance Enhancement Program, NECO Department Master Action Plan (Item 3.3.5).

ADDITIONAL INFORMATION

LER 92-028 identified that the EDG's room cooling fan power cable configurations did not meet the Appendix R cable separation criteria.

ATTACHMENT B



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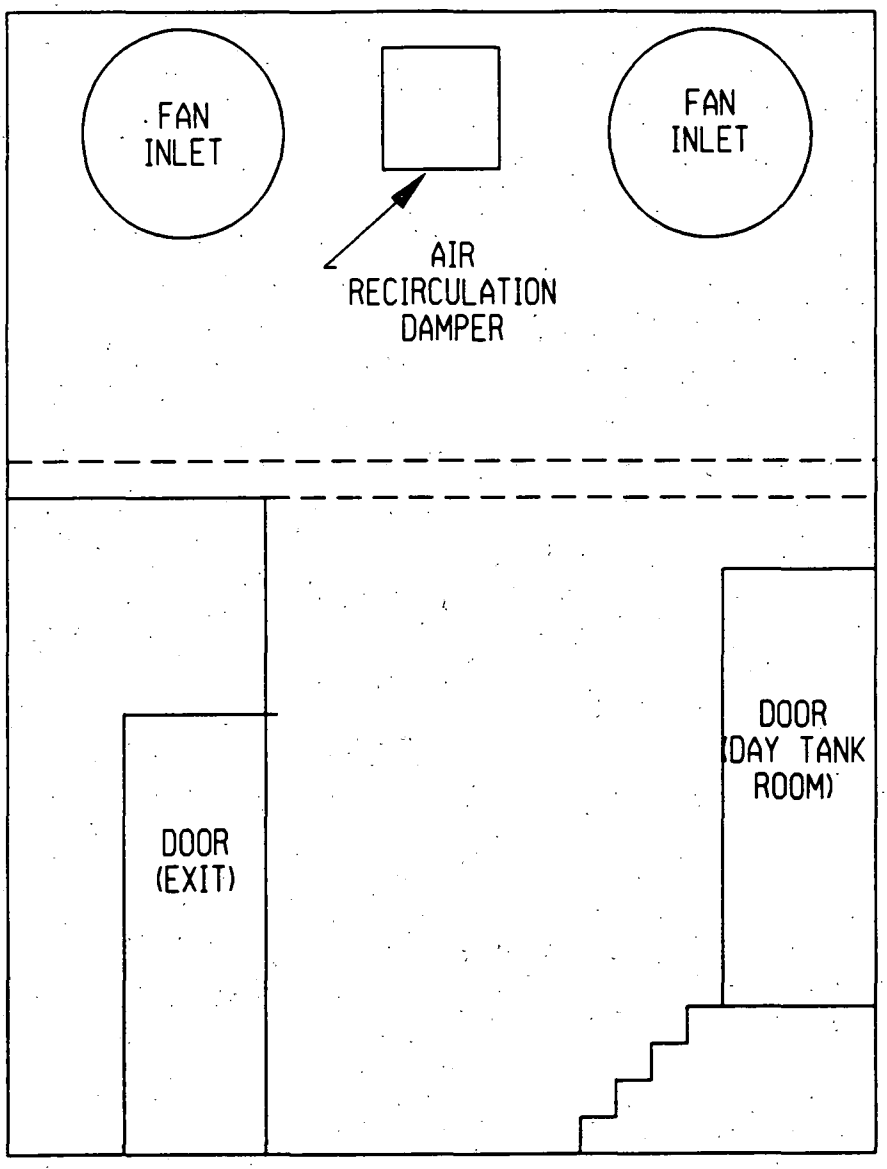

D/G 1-1 ROOM
SECTION "A-A"