

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Salem Generating Station - Unit 2DOCKET NUMBER (2)
0 5 0 0 0 3 1 1 1 1 OF 0 4TITLE (4)
2B Diesel Generator Test 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)											
1	0	6	8	5	8	5	0	2	1	0	1	1	1	2	7	8	5	0	5	0	0	0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																					
POWER LEVEL (10)	1 1 0 1 0	20.402(b)	20.406(a)(1)(i)	20.406(a)(1)(ii)	20.406(a)(1)(iii)	20.406(a)(1)(iv)	20.406(a)(1)(v)	20.406(c)	50.36(c)(1)	50.36(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vi)	50.73(a)(2)(vii)(A)	50.73(a)(2)(vii)(B)	50.73(a)(2)(viii)	50.73(a)(2)(ix)	73.71(b)	73.71(a)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
																							T/S. Surveillance
																							4.8.1.1.4

LICENSEE CONTACT FOR THIS LER (12)
NAME: J. L. Rupp - Operations Licensing Engineer
TELEPHONE NUMBER: 6 0 9 3 3 9 - 4 3 0 9
AREA CODE: 6 0 9

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																			
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD										
X	E	K	X	P	T	B	0	9	3	Y									

SUPPLEMENTAL REPORT EXPECTED (14)
YES (If yes, complete EXPECTED SUBMISSION DATE) ☐ NO ☒
EXPECTED SUBMISSION DATE (15)
MONTH: DAY: YEAR:

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

On October 6, 1985, during routine surveillance testing of 2B Diesel Generator, the diesel generator output breaker tripped shortly after it was closed. Generator terminal voltage was high and could not be decreased. Testing revealed that the voltage regulator control power transformer output had failed low, causing the voltage regulator to increase generator excitation. This resulted in the high generator output voltage, which caused the generator to assume reactive loads, consequently tripping the output breaker on overcurrent. Some of the transformer windings apparently shorted; however, the "root" cause for its failure was not determined. This was classified as a valid test failure in accordance with Regulatory Guide 1.108, and marked the second diesel generator test failure in the last one-hundred valid tests. As a result, the testing interval was reduced to fourteen days in accordance with Regulatory Guide 1.108 requirements. The redundant diesel generators remained in an operable status at all times, and this report is being submitted for informational purposes only, in accordance with Technical Specification Surveillance Requirement 4.8.1.1.4. 2B Diesel Generator voltage regulator control power transformer was replaced, and the generator was satisfactorily tested and returned to an operable status.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

IDENTIFICATION OF OCCURRENCE:

2B Diesel Generator Test Failure

Event Date: 10/06/85

Report Date: 11/27/85

This report was initiated by Incident Report No. 85-242

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 - Rx Power 100 % - Unit Load 1150 MWe

This report describes a test failure involving 2B Diesel Generator [EK] occurring on October 6, 1985. This report is submitted for informational purposes in accordance with Technical Specification Surveillance Requirement 4.8.1.1.4, and contains the information required by Regulatory Guide 1.108, Revision 1, August 1977, Regulatory Position C.3.b.

Surveillance Requirement 4.8.1.1.4 states:

All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.5.1.

DESCRIPTION OF OCCURRENCE:

At 0015 hours, October 6, 1985, during routine surveillance testing of 2B Diesel Generator in accordance with Surveillance Procedure SP(0) 4.8.1.1.2, the diesel generator output breaker tripped shortly after it was closed. The terminal voltage, which normally runs approximately 4160 volts, was 5200 volts and could not be decreased using manual or automatic voltage controls. 2B Diesel Generator was secured, declared inoperable and Technical Specification Action Statement 3.8.1.1.b (Action a) was entered retroactive to the time of occurrence. In accordance with the action requirements, 2A and 2C Diesel Generators were tested and verified to be operational.

APPARENT CAUSE OF OCCURRENCE:

Investigation revealed that 2B Diesel Generator voltage regulator control power transformer (potential transformer T-54) primary side fuses were blown.

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APPARENT CAUSE OF OCCURRENCE: (cont'd)

The transformer physically appeared to be satisfactory; i.e., the casing was in excellent condition, showing no signs of heat, damage, etc. However, testing revealed that, with full voltage applied to the primary windings, the secondary windings measured only one to two (1-2) volts, indicating that some of the windings were shorted internally. The voltage regulator, sensing no output voltage, increased excitation, causing generator output voltage to increase. The generator terminal voltage increase resulted in the generator assuming reactive loads, consequently tripping the output breaker on overcurrent.

ANALYSIS OF OCCURRENCE:

2A and 2C Diesel Generators remained in an operable status at all times, and 2B Diesel Generator was returned to an operable status within the time specified by the action requirements. With one (1) diesel inoperable, the remaining two (2) diesels are capable of providing the required power for minimum safeguards equipment. This occurrence therefore involved no undue risk to the health or safety of the public.

This was classified as a valid test failure in accordance with Regulatory Guide 1.108, Regulatory Position C.2.e.(5), and marked the second diesel generator test failure in the last one-hundred (100) valid tests. As a result, the testing interval was reduced to fourteen (14) days in accordance with Regulatory Position C.2.d.(2). This report is being submitted, for informational purposes, in accordance with Technical Specification Surveillance Requirement 4.3.1.1.4.

CORRECTIVE ACTION:

2B Diesel Generator voltage regulator control power transformer and primary fuses were replaced. The generator was satisfactorily tested in accordance with Surveillance Procedure SP(0) 4.8.1.1.2 and declared operable. Technical Specification Action Statement 3.8.1.1.b (Action a) was terminated at 1630 hours, October 7, 1985.

Unit 2 LER 83-065/03L (dated December 30, 1983) documented a similar event involving 2B Diesel Generator. During that event, the voltage regulator control power transformer shorted to ground, also resulting in high generator output voltage and tripping of the output circuit breaker. As recommended by the vendor, that transformer (Model BE 10773-001, rated at 1.0 KVA) was replaced with the present model (BE 13487-001, rated at 1.68 KVA), due to the original model being obsolete. The present model transformer was seismically tested and qualified for use by an independent laboratory prior to installation.

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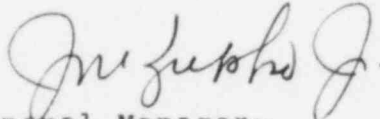
CORRECTIVE ACTION: (cont'd)

Subsequent to that original occurrence, inspection of the control power transformers associated with 2A and 2C Diesel Generators (which were in use for approximately 10 years) revealed minor degradation of the insulation. As a precautionary measure, the transformers for the remaining diesel generators in both Unit 1 and Unit 2 were replaced with the new model under Design Changes 1EC-1817 and 2EC-1803.

Although both events involved 2B Diesel Generator, they are not believed to be related. They are the only two occurrences ever experienced involving a failure of a diesel generator transformer, and are considered isolated in nature. Because of this, the deficiency report, which was generated for the failed transformer, was dispositioned to scrap the transformer. However, because the replacement transformer failed after less than two (2) years of service, it was subsequently decided to return it to the vendor for testing and determination of the actual failure mode. Unfortunately, when the transformer was recovered from the scrap bin, it was discovered that it had suffered casing damage. The damage is believed to be too extensive to allow valid testing results, and could even result in false conclusions as to the failure mode. Therefore, the transformer will not be returned to the vendor, as previously committed to in the original LER (dated November 5, 1985).

FAILURE DATA:

Potential Transformer
Basler Electric Company
Model No. BE 13487-001


General Manager-
Salem Operations

JLR:tns

SORC Mtg 85-151



Public Service Electric and Gas Company P.O. Box E Hancocks Bridge, New Jersey 08038

Salem Generating Station

November 27, 1985

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

Dear Sir:

SALEM GENERATING STATION
LICENSE NO. DPR-75
DOCKET NO. 50-311
UNIT NO. 2
LICENSEE EVENT REPORT 85-021-01
SUPPLEMENTAL REPORT

This update report is being submitted pursuant to the requirements of Technical Specification Surveillance Requirement 4.8.1.1.4.

Sincerely yours,

J. M. Zupko, Jr.
General Manager
Salem Operations

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