

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS) ..

ACCESSION NBR: 8501310550 DUC DATE: 85/01/22 NOTARIZED: NO DOCKET #
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
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 ARIAS, J. Florida Power & Light Co.
 WILLIAMS, J.W. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 84-040-00:0w 841222, during load rejection tests, short duration spike of 5,000 volts occurred on emergency diesel generator. Speed transients experienced acceptable. Generator Tech Specs will be revised by 850401.w/850122 ltr.

DISTRIBUTION CODE: TE22L COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: Incident Rept (50 Dkt)-LER/RO/AO/Etc.

NOTES:

UL: 07/19/72

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NRR/DE/AUMGE 08	1 1	NRR/DE/CE6 16	1 1
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EXTERNAL: EG&G	1 1	H ST LOBBY WARD	1 1
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TOM:

Here is FPL's response
 to ROLL

[Signature]

TOTAL NUMBER OF COPIES REQUIRED: LTR 30 ENCL 30



January 22, 1985
L-85-40

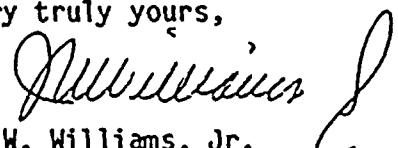
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

Re: Reportable Event 84-40
Turkey Point Unit 3
Date of Event: December 22, 1984
Emergency Diesel Generator - Surveillance Performance

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR to provide notification of the subject event.

Very truly yours,


J. W. Williams, Jr.
Group Vice President
Nuclear Energy

JWW/SAV/js

Attachment

cc: J. P. O'Reilly, Region II, USNRC
Harold F. Reis, Esquire
File 933.1
PNS-LI-85-042-1

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 2 5 0										PAGE (3) 1 OF 03																													
TITLE (4) Emergency Diesel Generator Surveillance Performance																																																	
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)										
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1 2			2 2			8 4				8 4			0 4 0			0 0			0 1			2 2			8 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 10 0										20.402(b)										20.406(c)										50.73(a)(2)(iv)										73.71(b)									
										20.406(a)(1)(i)										50.36(c)(1)										50.73(a)(2)(v)										73.71(c)									
										20.406(a)(1)(ii)										50.36(c)(2)										50.73(a)(2)(vi)										<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)									
										20.406(a)(1)(iii)										50.73(a)(2)(i)										50.73(a)(2)(vii)(A)																			
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LICENSEE CONTACT FOR THIS LER (12)																																																	
NAME J. Arias, Jr., Regulation and Compliance Supervisor																				TELEPHONE NUMBER 3 0 5 2 4 5 1 - 2 9 1 1 0																													
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)																				EXPECTED SUBMISSION DATE (15)										MONTH DAY YEAR																			
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)																				<input checked="" type="checkbox"/> NO																													

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

Voluntary Report

This report is being submitted as a means of documenting problems encountered and evaluations performed as a result of EDG testing in accordance with OP 4304.3. This report does not fall under the 10CFR50.73 reportability criteria but it is submitted as the result of agreements between NRC Region II and Turkey Point Plant Manager. The results of evaluations, as described in the text portion of this report support the fact that the health and safety of the public were not affected.

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PDR ADOCK 05000250
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Turkey Point Unit 3	0 5 0 0 0 2 5 0	8 4	— 0 4 0 —	0 0	0 2	OF	0 3

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

Voluntary Report

On December 22, 1984, with Unit 3 in a repair shutdown and Unit 4 at 100% power, the "A" Emergency Diesel Generator (EDG) was started for the eight hour full load and load rejection tests in accordance with Operating Procedure 4304.3. The results of this testing revealed that a short duration spike of approximately 5000 volts (maximum of 5170 volts) occurred during the initial second of the rejection.

Following the initial test performed, the recorder calibration was checked. This recorder was installed in order to obtain more accurate readings during the load rejection test. When difficulty was encountered in obtaining transducer calibration data, the test voltage and frequency transducers were recalibrated. The test was then rerun using a Temporary Operating Procedure (TOP). The results of the second test confirmed the results from the first test. Further evaluations by the Electrical Maintenance and Technical Departments concluded that:

- 1) The voltage regulator was already adjusted for optimum performance, therefore, the regulator settings were returned to their original values and a final test was performed.
- 2) From the test data and the voltage regulator Technical Manual, the voltage regulator was not capable of maintaining the generator transient voltage within the Technical Specification limits.
- 3) Based on the above, evaluations were initiated in the areas of: a) Technical aspects, b) Technical Specification compliance and interpretation, and c) design/performance aspects.
- 4) Similar testing was performed on the "B" EDG on January 4, 1985, and the results reflect identical conditions as those encountered on "A" EDG.

The results of the evaluations are as follow:

- 1) No hazardous condition was posed to plant equipment as a result of the voltage spike.
- 2) The vendor concurred that, based on test results, the regulator was performing as designed.
- 3) The PNSC reviewed the above referenced test data and concurred that the EDG full load rejection acceptance criteria should be based on steady state values instead of transient values.
- 4) Engineering evaluation concluded that the voltage and speed transients experienced during the full load rejection tests are acceptable, all equipment operated as designed and that no equipment degradation occurred. In addition, it was determined that Regulatory Guides 1.9 and 1.108 were not included in the design basis of the EDGs since they were manufactured prior to issuance of the Regulatory Guides. A copy of this evaluation is enclosed as an attachment to this report.

Corrective Actions:

- 1) FPL has committed to revising the EDG Technical Specifications by April 1, 1985. This is in response to Generic Letter 84-15. It is our intention to evaluate the EDG testing and acceptance criteria and any necessary changes will be included as part of this proposed amendment.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Turkey Point Unit 3	0 5 0 0 0 2 5 0	8 4	— 0 4 0 —	0 0	0 3	OF	0 3

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

Evaluation of Emergency Diesel Generator Load Rejection**Tests of December 22 and 23, 1984****Purpose:**

This evaluation has been conducted to determine if the transients obtained during the subject test exceeded any equipment design limits.

Scope:

The scope of this evaluation consists of analyzing the equipment which experienced the voltage transient to determine if any equipment design limits were exceeded, analyzing the increase in speed experienced to determine if it is within acceptable limits and analyzing the voltage regulator performance to determine if it is degraded from original design. Additionally, the applicability of Regulatory Guide 1.9 and 1.108 with respect to the design of the emergency diesel generators will be determined.

Discussion:

The maximum voltage transient experienced during the full load (2500 KW) rejection tests was in excess of 5000 volts (maximum of 5170 volts) for approximately one second. The following analysis shows that the voltage transient is within the voltage ratings of the affected equipment.

Per the manufacturer's data, the diesel generator breaker, potential and current transformers are designed to pass an applied A.C. potential test for one minute at 19 kV and to withstand an impulse of 60 kV. The diesel generator cables were designed and tested in accordance with IPCEA S-10-81 which states that this size cable shall withstand without failure a 13 kV A.C. voltage for five minutes. Per the manufacturer's instruction manual, the diesel generator stator was designed to pass a high potential test of 4.8 kV phase to ground (8.3 kV phase to phase) for one minute. As can be seen above, the applied potential tests for the affected equipment envelope the voltage transient experienced and, therefore, no equipment degradation is expected.

The engine speed transient also experienced during the full load rejection test was determined to be inherent to the system design, and to be within acceptable limits. Regulatory Guide 1.9 states that "the transient following the complete loss of load should not cause the speed of the unit to attain the overspeed trip setpoint". Based on this and the fact that the manufacturer's recommended trip setpoint was not reached, we conclude that the overspeed experienced is normal and resulted in no equipment degradation.

The voltage transient was also determined to be inherent to the system design. By comparison of the original factory load rejection test results with the subject test results, we have determined that the voltage regulator performance is not degraded.

Conclusion:

We conclude that the voltage and speed transients experienced during the full load rejection tests are acceptable, all equipment operated as designed and that no equipment degradation occurred as a result of these transients. In addition, we have determined that Regulatory Guide 1.9 and 1.108 were not included in the design basis of the emergency diesel generators since they were manufactured prior to issuance of the Regulatory Guides.

4.8

EMERGENCY POWER SYSTEM PERIODIC TESTS

Applicability: Applies to periodic testing and surveillance requirements for the emergency power system.

Objective: To verify that the emergency power system will respond promptly and properly.

Specification: The following tests and surveillance shall be performed as stated:

1. Diesel Generator

Each diesel generator shall be demonstrated OPERABLE:

- a. On a staggered test basis (nonconcurrently) at the frequency specified by Table 4.8-1 by:
 1. Verifying fuel level in the day tank and in the engine-mounted fuel tank.
 2. Verifying fuel level in the fuel storage tank.
 3. Verifying that a fuel transfer pump can be started and transfers fuel from the Diesel Oil Storage Tank to the Day Tank.
 4. Verifying that the diesel generator starts from ambient conditions and accelerated to provide 60 ± 1.2 Hz frequency and 4160 ± 624 volts in ≤ 15 seconds.
 5. Verifying that the generator is synchronized, loaded to ≥ 2500 kw within 10 minutes and operates for ≥ 60 minutes.
 6. Verifying that the diesel generator cooling system functions within design limits during the 1-hour full load test required by Specification 4.8.1.a.5.
- b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within acceptable limits when checked for viscosity, water, and sediment.
- c. At least once per 18 months by:
 1. Subjecting the diesel to an inspection in conjunction with its manufacturer's recommendations for this class of standby service.
 2. Verifying the diesel generator's capability to:

- (a) Reject a load of 200 kw without exceeding 4160 ± 624 volts and 60 ± 1.2 Hz.
 - (b) Reject complete load without exceeding 4160 ± 624 volts, and without exceeding overspeed limits.
3. Verifying that diesel generator trips which are operable during the test mode of diesel operation are inoperable when the diesel is not in the test mode of operation.
4. Alternately initiating one of the following two diesel startup tests:
- (a) Simulate a safety injection signal, and allow the diesel generator to achieve nominal rated voltage and speed. Then simulate a loss of offsite power, and allow the diesel generator to load and stabilize.
 - (b) Simulate a loss of offsite power, and allow the diesel generator to load and stabilize. Then simulate a safety injection signal, and allow the diesel generator to sequence safety loads and stabilize.
5. Monitoring the tests specified in 4.8.1.c.4 to:
- (a) Verify proper deenergization and load shedding from the 4160 volt busses.
 - (b) Verify that the diesel generator starts from ambient conditions and accelerates to provide 60 ± 1.2 Hz frequency and 4160 ± 624 volts in ≤ 15 seconds.
6. Verifying that the diesel generator operates for at least 8 hours by performing the following tests:
- (a) Load the diesel generator to ≥ 2750 kw during the first 2 hours of the 8 hour test.
 - (b) Load the diesel generator to ≥ 2500 kw during the last 6 hours of the 8 hour test.
 - (c) Verify that voltage, frequency, and cooling system functions are within design limits during the 8 hour full-load test.
7. Demonstrating the ability to sequentially:

