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 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co.
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 RECIP. NAME: THOMPSON, H.L. RECIPIENT AFFILIATION: Division of Licensing

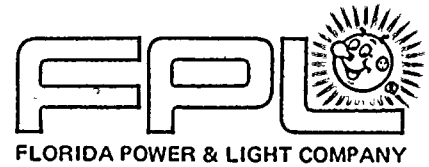
SUBJECT: Application to amend License DPR-67, changing Tech Spec Section 3/4.8.1 to reduce frequency of diesel generator cold fast start surveillance tests, per Genric Ltr 84-15, to prevent premature engine degradation. Fee paid.

DISTRIBUTION CODE: A056D COPIES RECEIVED: LTR 3 ENCL 40 SIZE: 9+12
 TITLE: OR Submittal: Fast Cold Starts of Diesel Generators GL-83-41 (GL-84-15)

NOTES: OL: 04/06/83 05000389

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August 27, 1985
L-85-333

Office of Nuclear Reactor Regulation
Attention: Mr. Hugh L. Thompson, Jr., Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Thompson:

Re: St. Lucie Unit No. 2
Docket No. 50-389
Proposed License Amendment
Diesel Generator Technical Specifications

In accordance with 10 CFR 50.90, Florida Power & Light Company submits herewith three signed originals and forty copies of a request to amend Appendix A of Facility Operating License DPR-67.

This amendment request involves changes to the Diesel Generator Technical Specifications in response to NRC Generic Letter 84-15, NRC's recommendations regarding the North Anna Unit 2 Technical Specifications issued as Amendment No. 48 to Facility Operating License NPF-7, and additional discussions with NRC on Diesel Generator surveillance requirements and reliability.

The proposed changes are shown on the accompanying Technical Specification pages. A discussion of each change is included in the attached safety evaluation/no significant hazards considerations determination.

The proposed amendment has been reviewed by the St. Lucie Plant Facility Review Group and the Florida Power & Light Company Nuclear Review Board.

In accordance with 10 CFR 50.91(b)(1), a copy of the proposed amendment is being forwarded to the state designee for the State of Florida.

In accordance with 10 CFR 170.21, a check is attached as remittance for the license amendment application fee.

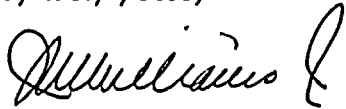
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Office of Nuclear Reactor Regulation
Mr. Hugh L. Thompson, Jr.

Should you have any questions regarding this submittal, please feel free to contact us.

Very truly yours,



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

JWW/RJS/cab

Attachments

cc: Lyle E. Jerrett, Ph.D, Director
Radiological Health Services
Department of Health & Rehabilitative Services
1323 Winewood Boulevard
Tallahassee, Florida 32301

NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION

BACKGROUND

On July 2, 1984, NRC issued Generic Letter 84-15 (Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability). This Generic Letter presents NRC's conclusion that the frequency of diesel generator cold fast start surveillance tests from ambient conditions should be reduced to prevent premature diesel engine degradation, and encourages licensees to submit changes to their Technical Specifications to accomplish a reduction in the number of cold fast start surveillance tests from ambient conditions.

Generic Letter 84-15 also presented NRC's conclusion that excessive testing results in degradation of diesel engines, and NRC encouraged licensees to propose Technical Specifications to delete the requirements for testing diesel generators while emergency core cooling equipment is inoperable.

Typical Technical Specifications, as well as an elaboration of the example performance Technical Specifications proposed to maintain reliability levels, were included with the Generic Letter.

On April 25, 1985, NRC issued Amendment No. 48 to Facility Operating License No. NPF-7 for North Anna Unit 2. The amendment revised the emergency diesel generator Technical Specifications by reducing the required testing. The changes reduced the parameters for each test, reduced the number of tests, and applied to both routine surveillance and special tests. North Anna Unit 2 had requested the amendment based on diesel generator failures that had occurred and had been attributed to the excessive testing requirements, and based on recommendations identified in Generic Letter 84-15.

The St. Lucie Unit No. 2 Diesel Generator Technical Specifications are essentially identical to what the North Anna Unit 2 Technical Specifications were like before Amendment No. 48. Therefore, in order to prevent excessive testing and possible diesel generator failure, and in view of NRC's Generic Letter 84-15 recommendations, Florida Power and Light Company is proposing the following changes to the St. Lucie Unit 2 Technical Specifications. Additional changes have been included for clarification and to take into account instrument error and to reflect the proper loading of the diesel generators.

TECHNICAL SPECIFICATION CHANGES

3.8.1.1 ACTION: a.

This Action Statement has been separated into two statements (forcing the re-numbering of the Action Statements). The first Action Statement (Action: a.) addresses the loss of an offsite circuit and reduces the diesel generator test frequency. The second Action Statement (Action: b.) addresses the loss of a diesel generator and reduces the diesel generator test frequency.

These changes are consistent with Generic Letter 84-15 recommendations and similar to what NRC approved for North Anna Unit 2.

3.8.1.1 ACTION: b.

This Action Statement was added as discussed above.

3.8.1.1 ACTION: c. (previously ACTION: b.)

This Action Statement was changed to reduce the diesel generator test frequency.

These changes are consistent with Generic Letter 84-15 recommendations and similar to what NRC approved for North Anna Unit 2.

3.8.1.1 ACTION: d. (previously ACTION: c.)

These changes reflect the re-numbering of the Action Statements and are editorial.

3.8.1.1 ACTION: e. (previously ACTION: d.)

This Action Statement was changed to reduce the diesel generator test frequency.

These changes are consistent with Generic Letter 84-15 recommendations and similar to what NRC approved for North Anna Unit 2.

3.8.1.1 ACTION: f. (previously ACTION: e.)

This Action Statement was changed to reduce the diesel generator test frequency.

These changes are consistent with Generic Letter 84-15 recommendations and similar to what NRC approved for North Anna Unit 2.

3.8.1.1 ACTION: g. (previously ACTION: f.)

This Action Statement was changed to reduce the diesel generator test frequency.

These changes are consistent with Generic Letter 84-15 recommendations.

4.8.1.1.2a.4

This specification was changed to delete the fast cold start requirement on the Table 4.8-1 test frequency, therefore, reducing the frequency of diesel generator fast cold starts.

These changes are consistent with Generic Letter 84-15 recommendations and similar to what NRC approved for North Anna Unit 2.

4.8.1.1.2a.5

This specification was changed to allow gradually loading the diesel generator.

These changes are similar to what NRC approved for North Anna Unit 2.

Also, the 3685 kW load is reduced to 3485 kW to allow for instrument error of 200 kW. The 3485 kW value is greater than the worst case FSAR value of 3260 kW (see attached instrument error evaluation).

4.8.1.1.2d.

The present specification was moved to 4.8.1.1.2e.12. A new specification was added to reduce the diesel generator test frequency for fast cold starts and loading.

These changes are similar to what NRC approved for North Anna Unit 2.

The 3685 kW value was change to 3485 kW as discussed above.

4.8.1.1.2e.7

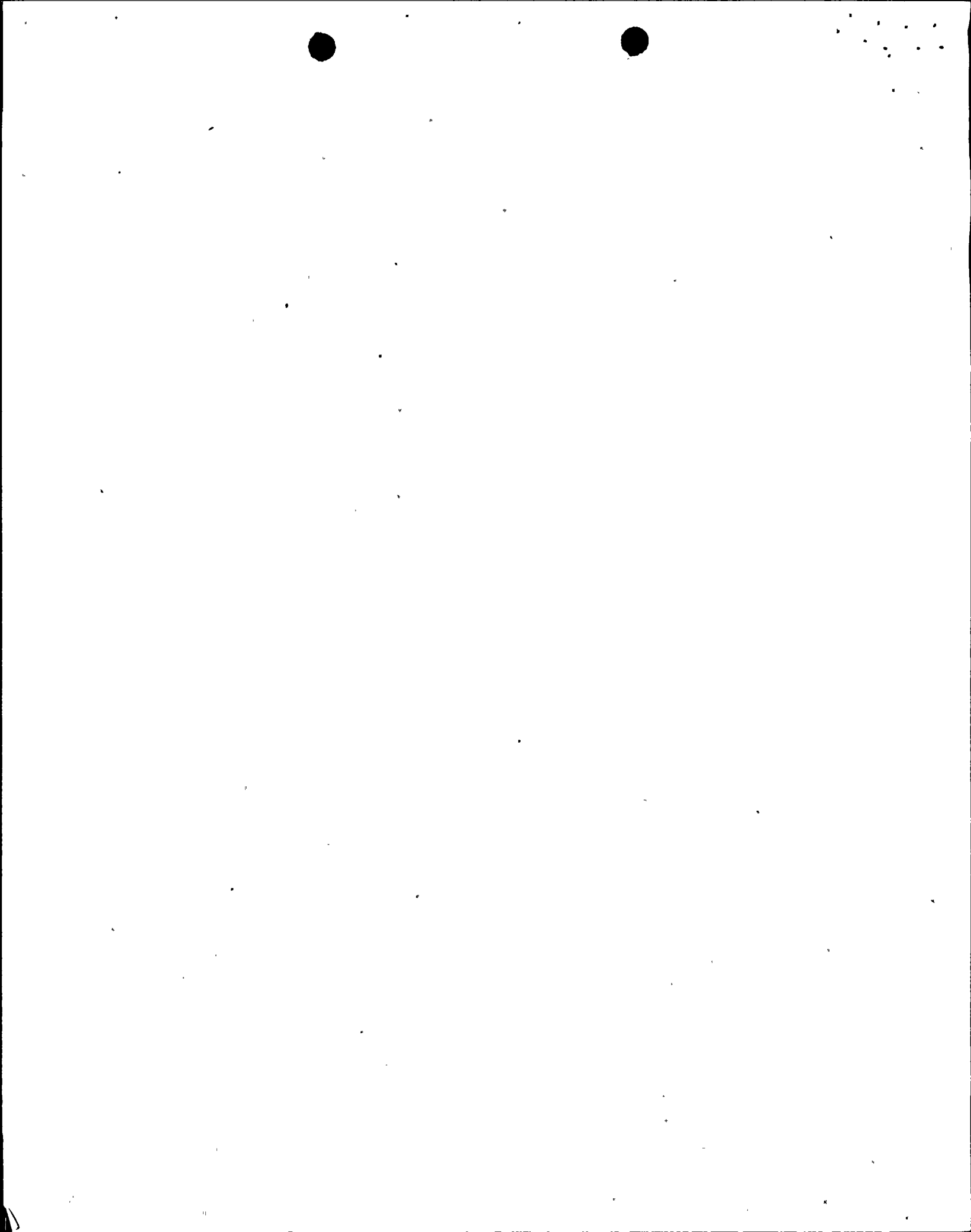
This specification change lowers the 3985 kW value to 3785 kW and the 3685 kW value to 3485 kW. This accounts for 200 kW instrument error and prevents overloading the diesel generators (see attached instrument error evaluation).

These changes are similar to what NRC approved for North Anna Unit 2.

4.8.1.1.2e.8

This specification change is to correct the 2000-hour rating value. The correct 2000-hour rating per the vendor technical manual is 3935 kW, and not 3985 as currently shown in the Technical Specifications.

This change is editorial only.



4.8.1.1.2e.12.

This specification was added and is the current specification 4.8.1.1.2d. except that the 12 month surveillance interval is changed to an 18 month interval.

The electropneumatic timing relays which required the 12 month surveillance interval have been replaced with Agastat DSC solid state devices which are more accurate and reliable and need only be verified on an 18 month interval per Standard Technical Specifications.

TABLE 4.8-1

This table is changed to reflect more recent diesel generator testing schedules based upon test failure experience.

These changes are similar to what NRC approved for North Anna Unit 2.

4.8.1.2

This change is editorial in that Specification 4.8.1.1.3 is to be deleted.

BASES 3/4.8

These changes include Generic Letter 84-15 and Amendment No. 48 to Facility Operating License NPF-7 for North Anna Unit 2 as additional Bases for diesel generator testing.

CONCLUSIONS:

As indicated above, the changes are either editorial/administrative changes, changes similar to changes already approved by NRC, or changes based on NRC recommendations included in Generic Letter 84-15.

Examples (i), (vii) and (iii) to the extent that NRC has previously found such changes acceptable, of the staff procedure for determination of no significant hazards considerations apply to this amendment request.

For these reasons it has been determined that these changes involve no significant hazards considerations.

INSTRUMENT ERROR EVALUATION

INTRODUCTION:

At present, diesel generator instrument error is not accounted for in surveillance requirement 4.8.1.1.2 of the St. Lucie Unit #2 technical specifications. The current technical specification monthly surveillance requires that the diesel generator be loaded to greater than or equal to the continuous (8760 HR) load rating of 3685KW.

The proposed Technical Specification changes would place the surveillance requirement at 3485KW with an upper limit of 3685KW. The lower limit of 3285KW would adequately address the table load requirements for essential loads per FSAR Table 8.3-2.

EVALUATION:

The same method applied toward North Anna Unit #2 by Virginia Power and Light Company was used to calculate the percent error.

The circuit under consideration consists of a KW transducer that is activated through power received from the Potential Transformers (PT) and the Current Transformers (CT). The KW transducer interprets the power input and then provides the signals needed to control the load recorder.

The Potential Transformers (PT) and Current Transformers (CT) that supply the transformed line values to the KW transducer each individually introduce a transformer coupling error of .1.5% into the instrument loop. This error is attributed to the discrepancy that exists between the nameplate windings ratio and the true actual windings ratio. The true windings ratio error for each transformer will thus become 1.015.

The resultant transducer input is the product of both true transformer error ratios which equates to $1.015 \times 1.015 = 1.03$ or 3.0% error.

The percent error by test on the transducer element is 1.0%. An error of 0.5% on the Westinghouse 75RE recorder was obtained through the vendor's catalog.

The total instrument error for the CT, PT, KW transducer and KW recorder is determined as follows:

$$\text{Percent instrument error} = ((3.0)^2 + (1.0)^2 + (0.5)^2)^{1/2} = 3.20\%$$

In addition, error due to operator scale misreading (parallax) results in a reading error of .45%. (The operator is assumed to be able to read the 100KW graduations on the scale to within ± 25 KW over the entire 5500KW span.)

The total loop error is the sum of the instrument error plus parallax error:

$$\text{Total loop error} = (3.20 + .45) = 3.65\%$$

Application of the total loop error to the 5500KW meter span results in a ± 200 KW

inaccuracy. Based on the 200KW inaccuracy, an adjustment to the technical specification load requirement (continuous load) for the monthly surveillance is in order.

Technical Specification Limit = $(3685-200) = 3485\text{KW}$

However, the proposed adjustment must satisfy the worst case load scenario as depicted in FSAR Table 8.3-2. In the event of a main steam line break with a loss-of-offsite power, 3260.5KW are needed to supply all essential loads started automatically by an actuation signal.

Selecting 3485KW as a specification limit and subtracting 200KW to account for the error margin results in a generator load value of 3285KW which is above the 3260.5KW needed to service all vital equipment. Conversely, adding 200KW to the proposed figure yields an upper limit of 3685KW.

CONCLUSION:

Technical Specification surveillance requirement 4.8.1.1.2 should be changed to reflect instrument error on the diesel generator load requirements. Incorporation of the proposed greater than or equal to 3485KW load requirement will improve diesel engine reliability and will preclude possible overload conditions.

SAFETY EVALUATION

The proposed changes to the Technical Specifications do not involve an unreviewed safety question because:

1. a. The probability of the occurrence of an accident previously evaluated in the FSAR has not been affected since the diesel generators are not considered in determining the probabilities of accidents.
- b. The consequences of an accident previously evaluated in the FSAR have not been adversely affected. Reducing the test frequency and modifying the starting requirements to be consistent with the diesel manufacturer's recommendations are intended to enhance diesel reliability by minimizing severe test conditions which can lead to premature failures.
- c. The probability of a malfunction of equipment important to safety previously evaluated in the FSAR has been reduced since the severe test requirements have been reduced which will result in increased diesel engine reliability.
- d. The consequences of a malfunction of equipment important to safety have not changed since the new surveillance requirements will not affect the operation or operability of the diesels or any other safety related equipment.
2. a. The possibility of an accident of a different type than analysed in the FSAR has not been created since the change affects frequency starting and load practices during testing only and has no impact on actual accident analysis.
- b. The possibility of a malfunction of equipment important to safety of a different type than any analyzed in the FSAR has not been created for the reason given in 1.c.
3. a. The margin of safety as defined in the basis for any Technical Specification is not reduced by the proposed changes. The changes in the testing requirements do not affect the capacity of the diesels to perform their function. The purpose of the change is to increase diesel engine reliability.