



July 23, 2012

L-2012-280
10 CFR 50.90

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

Re: St. Lucie Plant Unit 2
Docket No. 50-389
Renewed Facility Operating License No. NPF-16

Extended Power Uprate License Amendment Request – Supplement to Proposed
Technical Specification Changes Related to Emergency Diesel Generator Surveillance
Requirements

References:

- (1) R. L. Anderson (FPL) to U.S. Nuclear Regulatory Commission (L-2011-021), "License Amendment Request for Extended Power Uprate," February 25, 2011, Accession No. ML110730116.

By letter L-2011-021 dated February 25, 2011 [Reference 1], Florida Power & Light Company (FPL) requested to amend Renewed Facility Operating License No. NPF-16 and revise the St. Lucie Unit 2 Technical Specifications (TS). The proposed amendment will increase the unit's licensed core thermal power level from 2700 megawatts thermal (MWt) to 3020 MWt and revise the Renewed Facility Operating License and TS to support operation at this increased core thermal power level. This represents an approximate increase of 11.85% and is therefore considered an Extended Power Uprate (EPU).

Although not a requirement to support the EPU LAR, FPL revised the TS Surveillance Requirements (SR) for the emergency diesel generator (EDG) steady state tolerance for voltage and frequency. As stated in the EPU LAR Attachment 1, Section 3.1 Item 21 related to the EDG voltage and frequency, the proposed changes addressed an existing plant condition. FPL is proposing to delete the voltage and frequency requirement from the TS SR for the EDG 24-hour endurance run. This change is consistent with NUREG-1432 Revision 4, Standard Technical Specifications – Combustion Engineering Plants.

A001
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Attachment 1 provides a description and justification for the proposed changes to TS Surveillance Requirement 4.8.1.1.2.e.7. Attachment 2 provides the marked-up and clean TS pages associated with the changes described in Attachment 1.

This submittal does not alter the significant hazards consideration or environmental assessment previously submitted by FPL letter L-2011-021 [Reference 1].

This submittal contains no new commitments and no revisions to existing commitments.

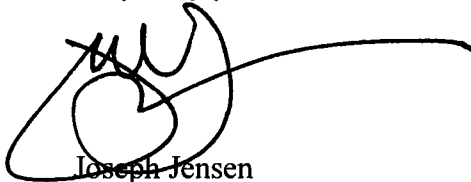
In accordance with 10 CFR 50.91(b)(1), a copy of this letter is being forwarded to the designated State of Florida official.

Should you have any questions regarding this submittal, please contact Mr. Jack Hoffman, St. Lucie Extended Power Uprate LAR Project Manager, at 772-467-7493.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Executed on JULY 23, 2012

Very truly yours,

A handwritten signature in black ink, appearing to be 'J. Jensen', with a long horizontal line extending to the right.

Joseph Jensen
Site Vice President
St. Lucie Plant

Attachments (2)

cc: Ms. Cynthia Becker, Florida Department of Health

Attachment 1
License Amendment Request (LAR)
Revision to Emergency Diesel Generator (EDG)
Surveillance Requirement 4.8.1.1.2.e.7
Related to the 24-Hour EDG Endurance Run

By letter L-2011-021, dated February 25, 2011 (Accession No. ML110730116), Florida Power & Light (FPL) requested to amend Renewed Facility Operating License (FOL) No. NPF-16 and revise the Technical Specifications (TS). The proposed amendment will increase the unit's licensed core thermal power level from 2700 megawatts thermal (MWt) to 3020 MWt and revise the Renewed FOL and TS to support operation at this increased thermal power level. This represents an approximate increase of 11.85% and is therefore considered an extended power uprate (EPU).

Although not a requirement to support the EPU LAR, FPL revised the TS Surveillance Requirements (SR) for the EDG steady state tolerance for frequency from 60 ± 1.2 Hz ($\pm 2\%$) to ($\pm 1\%$), and the voltage from 4160 ± 420 V ($\pm 10\%$) to ($\pm 5\%$). The need to revise the EDG frequency and voltage tolerance was identified and entered into the corrective action program as condition report 2007-23473, entitled "Impact on EDG Frequency Tolerance on Plant Equipment." This change was a corrective action necessary to close the condition report. In addition, NRC Inspection Report No. 05000335/2007006 and 05000389/2007006 for a component design bases inspection conducted in September 2007, documented that the EDG voltage and frequency tolerance issue had been self-identified and was previously entered into the site corrective action program. As such, the NRC finding was determined to be very low significance and treated as a non-cited violation.

The change was incorporated by revising SRs 4.8.1.1.2.e.4.b, 4.8.1.1.2.e.5, 4.8.1.1.2.e.6.b, and 4.8.1.1.2.e.7. The revision to SR 4.8.1.1.2.e.7 (24-hour EDG Endurance Run) included the reduced tolerances for EDG voltage and frequency. When the EDG is paralleled to the grid, it is set in droop mode to allow it to follow the grid voltage and frequency. FPL is proposing to delete the voltage and frequency tolerance requirements from this SR as described below. The proposed change is consistent with NUREG-1432 Revision 4, Standard Technical Specifications - Combustion Engineering Plants.

Description of the Change

TS SR 4.8.1.1.2.e.7 is being revised to delete the requirement to maintain voltage and frequency within the specified tolerance. When the EDG is paralleled to the grid, it is set in droop mode to allow it to follow the grid voltage and frequency. The proposed change is consistent with NUREG-1432 Revision 4, SR 3.8.1.14. The EPU LAR proposed change to SR 4.8.1.1.2.e.7 is revised as indicated below:

- 4.8.1.1.2.e.7.a) which states "Within 10 seconds, generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz" is deleted.
- 4.8.1.1.2.e.7.b) which states "Steady-state generator voltage and frequency shall be 4160 ± 210 volts and 60 ± 0.6 Hz and shall be maintained throughout this test" is deleted.

- 4.8.1.1.2.e.7.c) which states "During the first 2 hours of this test, the diesel generator shall be loaded within a load band of 3800 to 3985 kW[#], and" is renumbered as 4.8.1.1.2.e.7.a. and replaced with "a. For ≥ 2 hours loaded ≥ 3800 kW and ≤ 3985 kW #."
- 4.8.1.1.2.e.7.d) which states "During the remaining 22 hours of this test, the diesel generator shall be loaded within a load band of 3450 to 3685 kW[#]" is renumbered as 4.8.1.1.2.e.7.b. and replaced with "b. For the remaining hours of the test, loaded ≥ 3450 kW and ≤ 3685 kW #."

The marked-up and clean TS pages for the change are provided in Attachment 2.

Basis for the Change

TS Surveillance 4.8.1.1.2.e.7 (24 hour load run with fast start) tests EDG capacity for the 24 hour load run. It also tests transient response before adding loads for the 24 hour load run, and the achievement of steady-state voltage and frequency regulation during the duration of the test. However, as the EDG obtains its required high kW load, during the 24 hour surveillance, via parallel operation with offsite power, it is not practical to limit the upper voltage and frequency limits of the EDG. When the EDG is paralleled to the grid, it is set in droop mode to allow it to follow the grid voltage and frequency. During a 24 hour period, it is normal for grid voltage and frequency to vary, as conditions change, and it is possible to have excursions above 105% of nominal bus voltage, which would unnecessarily invalidate the TS 24 hour surveillance. The purpose of the 24 hour load surveillance is to demonstrate that the EDG can provide elevated kW load (not to exceed its overload ratings) for 2 hours, and a kW load value just below its maximum continuous kW load rating for the remaining duration of the test. The 24 hour load surveillance was not intended to test voltage or frequency regulation of the EDG, as it cannot control the offsite power voltage or frequency. This purpose is clearly shown in the NRC NUREG-1432 Rev. 4 Standard Technical Specifications – Combustion Engineering Plants (SR 3.8.1.14), as there are no voltage regulation requirements in the 24 hour load run. Per NUREG-1432, only the kW loads are monitored. Therefore, the NUREG-1432 clarifications are being adopted. This is acceptable as the EDG voltage regulation is already tested in isochronous mode (not paralleled to offsite power) in several other existing and proposed TS surveillances i.e., 4.8.1.1.2.e.4.b, 4.8.1.1.2.e.5 and 4.8.1.1.2.e.6.b.

No Significant Hazards Consideration

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

The EDGs are used to mitigate the consequences of an accident and are not accident initiators. Voltage and frequency tolerances are maintained when the EDGs are not connected to the grid for the 24-hour endurance surveillance. Eliminating the tolerance for voltage and frequency when performing the endurance surveillance does not change the ability of the EDGs to mitigate the consequences of an accident. Accordingly, the EDGs do not increase the possibility of an accident previously evaluated.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

No new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result eliminating the voltage and frequency tolerances during the 24 hour endurance surveillance. No new safety-related equipment is being added or replaced as a result of the proposed change.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

The analyses continue to satisfy the acceptance criteria with respect to the EDG design. The design basis limits for the accident and transient analyses will continue to meet their design criteria.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the proposed changes 1) do not involve a significant increase in the probability or consequences of an accident previously evaluated, 2) do not create the possibility of a new or different kind of accident from any previously evaluated, and 3) do not result in a significant reduction in a margin of safety.

Environmental Evaluation

FPL has determined that operation with the proposed EPU license amendment would not result in any significant change in the types or significant increase in the amounts of effluent that may be released offsite nor does it involve a significant increase in individual or cumulative occupational radiation exposure. The environmental considerations evaluation contained in the EPU LAR remain valid. Accordingly, the proposed license amendment is eligible for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 50.22(b), no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed license amendment.

ATTACHMENT 2

**EXTENDED POWER UPRATE LICENSE AMENDMENT REQUEST
SUPPLEMENTAL INFORMATION TO
PROPOSED TECHNICAL SPECIFICATION CHANGES
SUBMITTED BY FPL LETTER L-2011-021**

Technical Specifications Marked Up and Clean Pages

**Florida Power & Light
St. Lucie Unit 2**

This coversheet plus 3 pages.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a safety injection actuation signal.
7. Verifying the diesel generator operates for at least 24 hours.**** During the first 2 hours of this test, the diesel generator shall be loaded within a load band of 3800 to 3985 kW[#] and during the remaining 22 hours of this test, the diesel generator shall be loaded within a load band of 3450 to 3685 kW[#]. The generator voltage and frequency shall be 4160 \pm 420 volts and 60 \pm 1.2 Hz within 10 seconds after the start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test.
8. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 3935 kW.
9. Verifying the diesel generator's capability to:
- a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power.
 - b) Transfer its load to the offsite power source, and
 - c) Be restored to its standby status.
10. Verifying that with the diesel generator operating in a test mode (connected to its bus), a simulated safety injection signal overrides the test mode by (1) returning the diesel generator to standby operation and (2) automatically energizes the emergency loads with offsite power.
11. Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the engine-mounted tanks of each diesel via the installed cross connection lines.

INSERT 7

This band is meant as guidance to avoid routine overloading of the engine. Variations in load in excess of this band due to changing bus loads shall not invalidate this test.

**** This test may be conducted in accordance with the manufacturer's recommendations concerning engine prelube period.

INSERT 7

- ~~7. Verifying that the diesel operates for at least 24 hours****.~~
- ~~a) Within 10 seconds, generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz.~~
 - ~~b) Steady state generator voltage and frequency shall be 4160 ± 210 volts and 60 ± 0.6 Hz and shall be maintained throughout the test.~~
 - ~~c) During the first 2 hours of this test, the diesel generator shall be loaded within a load band of 3800 to 3985 kW[#], and~~
 - ~~d) During the remaining 22 hours of this test, the diesel generator shall be loaded within a load band of 3450 to 3685 kW[#].~~

7. Verifying that the diesel operates for at least 24 hours****.
- a. For ≥ 2 hours loaded ≥ 3800 kW and ≤ 3985 kW #.
 - b. For the remaining hours of the test, loaded ≥ 3450 kW and ≤ 3685 kW #.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a safety injection actuation signal.
- 7. Verifying the diesel generator operates for at least 24 hours****
 - a. For ≥ 2 hours loaded ≥ 3800 kW and ≤ 3985 kW #.
 - b. For the remaining hours of the test, loaded ≥ 3450 kW and ≤ 3685 kW #.
- 8. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 3935 kW.
- 9. Verifying the diesel generator's capability to:
 - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power.
 - b) Transfer its load to the offsite power source, and
 - c) Be restored to its standby status.
- 10. Verifying that with the diesel generator operating in a test mode (connected to its bus), a simulated safety injection signal overrides the test mode by (1) returning the diesel generator to standby operation and (2) automatically energizes the emergency loads with offsite power.
- 11. Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the engine-mounted tanks of each diesel via the installed cross connection lines.

This band is meant as guidance to avoid routine overloading of the engine. Variations in load in excess of this band due to changing bus loads shall not invalidate this test.

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