Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

This letter forwards proprietary information in accordance with 10 CFR 2.390. The balance of this letter may be considered non-proprietary upon removal of Attachment 3.

November 4, 2011

L-2011-466
10 CFR 50.90
10 CFR 2.390

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

Revision to Extended Power Uprate License Amendment Request Proposed Technical Specification 5.6, Design Features - Fuel Storage - Criticality

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.

(2) R. L. Anderson (FPL) to U.S. Nuclear Regulatory Commission (L-2011-409), "Revision to Extended Power Uprate License Amendment Request Proposed Technical Specification Regarding Fuel Loading Curve and Areal Density Criteria for Metamic Inserts," October 14, 2011.

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).

FPL is proposing to revise the information presented in Attachment 1 of the St. Lucie Unit 2 EPU License Amendment Request (LAR) [Reference 1], specifically Section 3.1, Renewed Facility Operating License and Technical Specification Changes, Item 26, TS 5.6, DESIGN FEATURES - FUEL STORAGE - CRITICALITY. The proposed TS changes include the following:

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NRR

1. revising TS Table 5.6-1 with respect to providing information that updates the fuel loading curve minimum burnup coefficients,

2. adding TS 5.6.1.a.6 to include Areal Density Criteria for Metamic Inserts, and

3. removing the TS option to develop new fuel storage configurations to meet criticality requirements from TS 5.6.1.a.4.

The information in Attachment 1 to this letter presents the revision to the proposed TS change submitted by FPL via Reference 1.

Attachment 2 contains the marked-up and clean pages to support the proposed TS revision.

The proposed changes to TS Table 5.6-1 are based upon updated information provided in Attachment 3, which is Holtec Report No. HI-2104753, Rev. 2, "St. Lucie Unit 2 Criticality Analysis for EPU and Non-EPU Fuel." Revision 1 of the this Holtec report was previously submitted to the NRC via Reference 1, as Appendix G to Attachment 5 of the EPU LAR. The proposed change related to Areal Density Criteria for Metamic Inserts is being adopted by St. Lucie Unit 2 in consideration of a similar TS change proposed for St. Lucie Unit 1 [Reference 2]. TS 5.6.1.a.4 is updated to ensure storage of enriched fuel assemblies complies only with the storage configurations allowed by TS 5.6.1.c.

Attachment 3 contains Holtec Proprietary Information and is considered proprietary in its entirety. Attachment 4 contains the Holtec Proprietary Information Affidavit. The Affidavit, signed by Holtec as the owner of the information, sets forth the basis for which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of § 2.390 of the Commission's regulations. Accordingly, it is respectfully requested that the information which is proprietary to Holtec be withheld from public disclosure in accordance with 10 CFR 2.390.

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. Christopher Wasik, St. Lucie Extended Power Uprate LAR Project Manager, at 772-467-7138.

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

Executed on 04 - November - 2011

Very truly yours,

Richard L. Anderson
Site Vice President
St. Lucie Plant

Attachments (4)

cc: Mr. William Passetti, Florida Department of Health

Attachment 1

St. Lucie Unit 2
Technical Specification Section 5.6
Design Features - Fuel Storage - Criticality
Revision To Proposed Change Submitted By FPL Letter L-2011-021
Regarding Extended Power Uprate License Amendment Request

By letter L-2011-021 dated February 25, 2011, 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). Included in the EPU License Amendment Request (LAR) were changes to TS 5.6 DESIGN FEATURES - FUEL STORAGE - CRITICALITY. FPL is modifying the proposed TS changes as described below:

Description of the Change

Subsequent to the submittal of the St. Lucie Unit 2 EPU LAR, FPL updated the fuel loading curves in order to preclude the need to extrapolate the values associated with the determination of the minimum required fuel assembly burnup. As a result, the changes proposed by FPL in EPU LAR Attachment 1, Section 3.1, Renewed Facility Operating License and Technical Specification Changes, Item 26, TS 5.6, DESIGN FEATURES - FUEL STORAGE - CRITICALITY require that the entries under the "Coefficients" column in Table 5.6-1 be revised to reflect the new fuel loading curves.

TS Table 5.6-1 Minimum Burnup Coefficients – NEW TABLE 5.6-1 is replaced by the revised NEW TABLE 5.6-1 information provided in Attachment 2.

In addition to the above, FPL proposes to supplement EPU LAR Attachment 1, Section 3.1, Renewed Facility Operating License and Technical Specification Changes, TS 5.6, DESIGN FEATURES - FUEL STORAGE - CRITICALITY in consideration of a recent TS change proposed for St. Lucie Unit 1 relative to the inclusion of a ^{10}B areal density criteria for Metamic inserts [Reference 1].

TS 5.6 DESIGN FEATURES - FUEL STORAGE – CRITICALITY is being revised to add TS 5.6.1.a.6 to read:

6. The Metamic neutron absorber inserts shall have a ^{10}B areal density greater than or equal to 0.015 grams $^{10}B/cm^2$.

FPL also proposes to revise EPU LAR Attachment 1, Section 3.1, Renewed Facility Operating License and Technical Specification Changes, TS 5.6, DESIGN FEATURES - FUEL STORAGE – CRITICALITY, TS 5.6.1.a.4 to ensure storage of enriched fuel assemblies complies only with the storage configurations allowed by TS 5.6.1.c.

Note that the marked-up TS pages in Attachment 2 are markups of the pages submitted in the EPU LAR. The remaining changes proposed for TS 5.6, as presented in EPU LAR Attachment 1, remain valid.

Basis for the Change - Fuel Loading Curve

The basis for the change is founded upon FPL updating the fuel loading curves to preclude the need to extrapolate the values associated with determining the minimum required fuel assembly burnup. Attachment 3 provides Revision 2 to Holtec Report No. HI-2104753 "St. Lucie Unit 2 Criticality Analysis for EPU and Non-EPU Fuel" and is the technical basis for updated fuel loading curves. This analysis was previously submitted to the NRC under cover of Reference 2, as Appendix G to Attachment 5 of the EPU LAR. The results of this revised analysis are consistent with the results presented in the EPU LAR.

No Significant Hazards Consideration - Fuel Loading Curve

This change precludes the need to extrapolate data from the fuel loading curves in order to determine the minimum required fuel assembly burnup. The changes to TS Table 5.6-1 are administrative and provide revised inputs which are used to perform minimum required burnup calculations for fuel assemblies. As such, the conclusions of EPU LAR Attachment 1, Section 5.2, No Significant Hazards Consideration, Item N., Design Features - Fuel Storage, remain valid. Accordingly, the proposed change 1) does not involve a significant increase in the probability or consequences of an accident previously evaluated, 2) does not create the possibility of a new or different kind of accident from any previously evaluated, and 3) does not result in a significant reduction in a margin of safety.

Environmental Evaluation - Fuel Loading Curve

This change is administrative in that it provides data which is included in TS Table 5.6-1 which in turn is used to perform minimum required burnup calculations for fuel assemblies. 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.

Basis for the Change - Areal Density of Metamic Inserts

This change is based upon industry trends to include information in the TS pertaining to Areal Density Criteria for Metamic Inserts. This change is consistent with the spent fuel pool criticality analysis provided in Attachment 3, Holtec Report No. HI-2104753, "St. Lucie Unit 2 Criticality Analysis for EPU and Non-EPU Fuel," Revision 2.

No Significant Hazards Consideration - Areal Density of Metamic Inserts

This change supplements the proposed EPU LAR Attachment 1, Section 3.1, Renewed Facility Operating License and Technical Specification Changes, TS 5.6, DESIGN FEATURES - FUEL STORAGE – CRITICALITY, with information relative to Areal Density Criteria for Metamic Inserts. The change to TS 5.6 is administrative and provides a statement that the Metamic neutron absorber inserts shall have a ^{10}B areal density greater than or equal to 0.015 grams $^{10}B/cm^2$. As such, the conclusions of EPU LAR Attachment 1, Section 5.2, No Significant Hazards Consideration, Item N., Design Features - Fuel Storage, remain valid. Accordingly, the proposed change 1) does not involve a significant increase in the probability or consequences of an accident previously evaluated, 2) does not create the possibility of a new or different kind of accident from any previously evaluated, and 3) does not result in a significant reduction in a margin of safety.

Environmental Evaluation-Fuel Loading Curve - Areal Density of Metamic Inserts

This change is administrative in that it provides supplemental information which is included in TS 5.6 that establishes a ^{10}B areal density greater than or equal to 0.015 grams $^{10}B/cm^2$. 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.

Basis for the Change - Removal of the TS Option to Develop New Configurations to Meet Criticality Requirements

This TS change deletes portions of TS 5.6.1.a.4 of the proposed St. Lucie Unit 2, EPU LAR Attachment 1, Section 3.1, Renewed Facility Operating License and Technical Specification Changes, TS 5.6, DESIGN FEATURES - FUEL STORAGE – CRITICALITY to ensure storage of enriched fuel assemblies complies only with the storage configurations allowed by TS 5.6.1.c.

No Significant Hazards Consideration - Removal of the TS Option to Develop New Configurations to Meet Criticality Requirements

This change revises TS 5.6.1.a.4 of the proposed EPU LAR Attachment 1, Section 3.1, Renewed Facility Operating License and Technical Specification Changes, TS 5.6, DESIGN FEATURES - FUEL STORAGE – CRITICALITY. The change to TS 5.6 is administrative. The proposed TS revision clarifies allowable fuel storage configurations. As such, the conclusions of EPU LAR Attachment 1, Section 5.2, No Significant Hazards Consideration, Item N., Design Features - Fuel Storage, remain valid. Accordingly, the proposed change 1) does not involve a significant increase in the probability or consequences of an accident previously evaluated, 2) does not create the possibility of a new or different kind of accident from any previously evaluated, and 3) does not result in a significant reduction in a margin of safety.

Environmental Evaluation-Fuel Loading Curve - Removal of the TS Option to Develop New Configurations to Meet Criticality Requirements

This change is administrative in that it revises TS 5.6.1.a.4 of the proposed St. Lucie Unit 2, EPU LAR, Attachment 1, Section 3.1, Renewed Facility Operating License and Technical Specification Changes, TS 5.6, DESIGN FEATURES - FUEL STORAGE – CRITICALITY to clarify allowable fuel storage configurations. 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.

References

1. R. L. Anderson (FPL) to U.S. Nuclear Regulatory Commission (L-2011-409), "Revision to Extended Power Uprate License Amendment Request Proposed Technical Specification Regarding Fuel Loading Curve and Areal Density Criteria for Metamic Inserts," October 14, 2011.

2. 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.

ATTACHMENT 2

St. Lucie Unit 2
Technical Specification Section 5.6
Design Features-Fuel Storage-Criticality
Revision To Proposed Change Submitted By FPL Letter L-2011-021
Regarding Extended Power Uprate License Amendment Request

Marked-up and Clean
Technical Specification Pages

This coversheet plus 7 pages

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1 a. The spent fuel storage racks are designed and shall be maintained with:

1. A k_{eff} equivalent to less than 1.0 when flooded with unborated water, including a conservative allowance for biases and uncertainties as described in Section 9.1 of the Updated Final Safety Analysis Report.

500

2. A k_{eff} equivalent to less than or equal to 0.95 when flooded with water containing ~~520~~ ppm boron, including a conservative allowance for biases and uncertainties as described in Section 9.1 of the Updated Final Safety Analysis Report.

8.965

3. A nominal ~~8.96~~ inch center-to-center distance between fuel assemblies placed in the spent fuel pool storage racks and a nominal 8.80 inch center-to-center distance between fuel assemblies placed in the cask pit storage rack.

INSERT 8

~~4. The cask pit storage rack shall contain neutron absorbing material (Boral) between stored fuel assemblies when installed in the spent fuel pool.~~

~~b. Fuel placed in Region I of the spent fuel storage racks shall be stored in a configuration that will assure compliance with 5.6.1 a.1 and 5.6.1 a.2, above, with the following considerations:~~

~~1. Fresh fuel shall have a nominal average U-235 enrichment of less than or equal to 4.5 weight percent.~~

~~2. The reactivity effect of CEAs placed in fuel assemblies may be considered.~~

~~3. The reactivity equivalencing effects of burnable absorbers may be considered.~~

~~4. The reactivity effects of fuel assembly burnup and decay time may be considered as specified in Figures 5.6-1c through 5.6-1e.~~

~~c. Fuel placed in Region II of the spent fuel storage racks shall be placed in a configuration that will assure compliance with 5.6.1 a.1 and 5.6.1 a.2, above, with the following considerations:~~

~~1. Fuel placed in the Region II spent fuel pool storage racks shall meet the burnup and decay time requirements specified in Figure 5.6-1a or 5.6-1b. Fuel placed in the Region II cask pit storage rack shall meet the burnup requirements specified in Figure 5.6-1f.~~

~~2. The reactivity effect of CEAs placed in fuel assemblies may be considered.~~

~~3. The reactivity equivalencing effects of burnable absorbers may be considered.~~

INSERT 8

4. For storage of enriched fuel assemblies, requirements of Specification 5.6.1.a.1 and 5.6.1.a.2 shall be met by positioning fuel in the spent fuel pool storage racks consistent with the requirements of Specification 5.6.1.c ~~or in configurations that have been shown to comply with Specifications 5.6.1.a.1 and 5.6.1.a.2 using the methodology as described in Section 9.1 of the Updated Final Safety Analysis Report~~.

INSERT 5.6.1.a.6 →

5. Fissile material, not contained in a fuel assembly lattice, shall be stored in accordance with the requirements of Specifications 5.6.1.a.1 and 5.6.1.a.2.

b. The cask pit storage rack shall contain neutron absorbing material (Boral) between stored fuel assemblies when installed in the spent fuel pool.

c. Loading of spent fuel pool storage racks shall be controlled as described below.

1. The maximum initial planar average U-235 enrichment of any fuel assembly inserted in a spent fuel pool storage rack shall be less than or equal to 4.6 weight percent.
2. Fuel placed in Region 1 of the spent fuel pool storage racks shall comply with the storage pattern definitions of Figure 5.6-1 and the minimum burnup requirements as defined in Table 5.6-1. (See Specification 5.6.1.c.7 for exceptions)
3. Fuel placed in Region 2 of the spent fuel pool storage racks shall comply with the storage pattern definitions or allowed special arrangement definitions of Figure 5.6-2 and the minimum burnup requirements as defined in Table 5.6-1. (See Specification 5.6.1.c.7 for exceptions)
4. The 2x2 array of fuel assemblies that span the interface between Region 1 and Region 2 of the spent fuel pool storage racks shall comply with the storage pattern definitions of Figure 5.6-3 and the minimum burnup requirements as defined in Table 5.6-1. The allowed special arrangements in Region 2 as shown in Figure 5.6-2 shall not be placed adjacent to Region 1. (See Specification 5.6.1.c.7 for exceptions)
5. Fuel placed in the cask pit storage rack shall comply with the storage pattern definitions of Figure 5.6-4 and the minimum burnup requirements as defined in Table 5.6-1. (See Specification 5.6.1.c.7 for exceptions)
6. The same directional orientation for Metamic inserts is required for contiguous groups of 2x2 arrays where Metamic inserts are required.
7. Fresh or spent fuel in any allowed configuration may be replaced with non-fuel hardware, and fresh fuel in any allowed configuration may be replaced with a fuel rod storage basket containing fuel rod(s). Also, storage of Metamic inserts or control rods, without any fissile material, is acceptable in locations designated as completely water-filled cells.

CRITICALITY (continued)

maximum planar average

4.6

5.6.1 d. The new fuel storage racks are designed for dry storage of unirradiated fuel assemblies having a U-235 enrichment less than or equal to ~~4.5~~ weight percent, while maintaining a k_{eff} of less than or equal to 0.98 under the most reactive condition.

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 56 feet.

CAPACITY

1491

5.6.3 The spent fuel pool storage racks are designed and shall be maintained with a storage capacity limited to no more than ~~1360~~ fuel assemblies, and the cask pit storage rack is designed and shall be maintained with a storage capacity limited to no more than 225 fuel assemblies. The total Unit 2 spent fuel pool and cask pit storage capacity is limited to no more than ~~1585~~ fuel assemblies.

1716

5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

INSERT 5.6.1.a.6

6. The Metamic neutron absorber inserts shall have a ^{10}B areal density greater than or equal to 0.015 grams $^{10}B/cm^2$.

a

NEW TABLE 5.6-1

TABLE 5.6-1
Minimum Burnup Coefficients

Fuel Type	Cooling Time (Years)	Coefficients		
		A	B	C
1	0	-33.4237	25.6742	-1.6478
2	0	-25.3198	14.3200	-0.4042
3	0	-23.4150	16.2050	-0.5500
4	0	-33.6414	25.0670	-1.5551
	2.5	-32.3764	23.9988	-1.5075
	5	-30.9234	22.9382	-1.4372
	10	-28.4951	21.1511	-1.3029
	15	-27.2024	20.2802	-1.2479
	20	-25.2009	18.6218	-1.0364
5	0	-24.8402	23.5991	-1.2082
	2.5	-23.0170	21.6493	-1.0298
	5	-21.9293	20.6257	-0.9730
	10	-20.0813	19.0808	-0.9022
	15	-19.5503	18.5429	-0.9129
	20	-18.7485	17.7308	-0.8390
6	0	-32.4900	25.3077	-1.5518
	2.5	-31.1598	23.9185	-1.4435
	5	-29.2169	22.5424	-1.3274
	10	-26.8886	20.6662	-1.1425
	15	-25.5703	19.7629	-1.1129
	20	-24.5754	18.9056	-1.0147
7	0	-24.6989	24.1660	-1.2578
	2.5	-23.0399	22.3047	-1.0965
	5	-21.3290	20.7413	-0.9613
	10	-20.0836	19.4780	-0.8949
	15	-19.2480	18.5880	-0.8685
	20	-18.6424	18.1241	-0.8950
8	0	-47.5000	12.5000	0.0000

NOTES:

1. To qualify in a fuel type, the calculated burnup of a fuel assembly must exceed the "minimum burnup" determined for the "cooling time" and "maximum initial planar enrichment" of the fuel assembly. The "minimum burnup" for any fuel type is determined from the following polynomial function:

   $BU = A + B*E + C*E^2$, where:

   BU = Minimum Burnup (GWD/MTU)

   E = Maximum Initial Planar Average Enrichment (weight percent U-235)

   A, B, C = Coefficients for each fuel type

2. Interpolation between values of cooling time is not permitted.

The data presented below replaces the data in NEW TABLE 5.6-1, there are no changes to the balance of the table.

Fuel Type	Cooling Time (Years)	Coefficients		
		A	B	C
1	0	-33.4237	25.6742	-1.6478
2	0	-25.3198	14.3200	-0.4042
3	0	-23.4150	16.2050	-0.5500
4	0	-33.2205	24.8136	-1.5199
	2.5	-31.4959	23.4776	-1.4358
	5	-30.4454	22.7456	-1.4147
	10	-28.4361	21.2259	-1.2946
	15	-27.2971	20.3746	-1.2333
	20	-26.1673	19.4753	-1.1403
5	0	-24.8402	23.5991	-1.2082
	2.5	-22.9981	21.6295	-1.0249
	5	-21.8161	20.5067	-0.9440
	10	-20.0864	19.0127	-0.8545
	15	-19.4795	18.3741	-0.8318
	20	-18.8225	17.7194	-0.7985
6	0	-33.1568	26.0086	-1.7227
	2.5	-30.6688	23.6229	-1.4025
	5	-29.2169	22.5424	-1.3274
	10	-27.2539	21.0241	-1.2054
	15	-25.7327	19.8655	-1.1091
	20	-25.2717	19.5222	-1.1163
7	0	-24.6989	24.1660	-1.2578
	2.5	-23.0399	22.3047	-1.0965
	5	-21.2473	20.6553	-0.9403
	10	-20.1775	19.5506	-0.9015
	15	-19.4037	18.6626	-0.8490
	20	-18.3326	17.7040	-0.7526
8	0	-43.4750	11.6250	0.0000

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1 a. The spent fuel storage racks are designed and shall be maintained with:

1. A k_{eff} equivalent to less than 1.0 when flooded with unborated water, including a conservative allowance for biases and uncertainties as described in Section 9.1 of the Updated Final Safety Analysis Report.

2. A k_{eff} equivalent to less than or equal to 0.95 when flooded with water containing 500 ppm boron, including a conservative allowance for biases and uncertainties as described in Section 9.1 of the Updated Final Safety Analysis Report.

3. A nominal 8.965 inch center-to-center distance between fuel assemblies placed in the spent fuel pool storage racks and a nominal 8.80 inch center-to-center distance between fuel assemblies placed in the cask pit storage rack.

4. For storage of enriched fuel assemblies, requirements of Specification 5.6.1.a.1 and 5.6.1.a.2 shall be met by positioning fuel in the spent fuel pool storage racks consistent with the requirements of Specification 5.6.1.c.

5. Fissile material, not combined in a fuel assembly lattice, shall be stored in accordance with the requirements of Specifications 5.6.1.a.1 and 5.6.1.a.2.

6. The Metamic neutron absorber inserts shall have a ^{10}B areal density greater than or equal to 0.015 grams $^{10}B/cm^2$.

b. The cask pit storage rack shall contain neutron absorbing material (Boral) between stored fuel assemblies when installed in the spent fuel pool.

c. Loading of spent fuel pool storage racks shall be controlled as described below.

1. The maximum initial planar average U-235 enrichment of any fuel assembly inserted in a spent fuel pool storage rack shall be less than or equal to 4.6 weight percent.

2. Fuel placed in Region 1 of the spent fuel pool storage racks shall comply with the storage pattern definitions of Figure 5.6-1 and the minimum burnup requirements as defined in Table 5.6-1. (See Specification 5.6.1.c.7 for exceptions)

3. Fuel placed in Region 2 of the spent fuel pool storage racks shall comply with the storage pattern definitions or allowed special arrangements definitions of Figure 5.6-2 and the minimum burnup requirements as defined in Table 5.6-1. (See Specification 5.6.1.c.7 for exceptions)

TABLE 5.6-1
Minimum Burnup Coefficients

Fuel Type	Cooling Time (Years)	Coefficients		
		A	B	C
1	0	-33.4237	25.6742	-1.6478
2	0	-25.3198	14.3200	-0.4042
3	0	-23.4150	16.2050	-0.5500
4	0	-33.2205	24.8136	-1.5199
	2.5	-31.4959	23.4776	-1.4358
	5	-30.4454	22.7456	-1.4147
	10	-28.4361	21.2259	-1.2946
	15	-27.2971	20.3746	-1.2333
	20	-26.1673	19.4753	-1.1403
5	0	-24.8402	23.5991	-1.2082
	2.5	-22.9981	21.6295	-1.0249
	5	-21.8161	20.5067	-0.9440
	10	-20.0864	19.0127	-0.8545
	15	-19.4795	18.3741	-0.8318
	20	-18.8225	17.7194	-0.7985
6	0	-33.1568	26.0086	-1.7227
	2.5	-30.6688	23.6229	-1.4025
	5	-29.2169	22.5424	-1.3274
	10	-27.2539	21.0241	-1.2054
	15	-25.7327	19.8655	-1.1091
	20	-25.2717	19.5222	-1.1163
7	0	-24.6989	24.1660	-1.2578
	2.5	-23.0399	22.3047	-1.0965
	5	-21.2473	20.6553	-0.9403
	10	-20.1775	19.5506	-0.9015
	15	-19.4037	18.6626	-0.8490
	20	-18.3326	17.7040	-0.7526
8	0	-43.4750	11.6250	0.0000

NOTES:

1. To qualify in a fuel type, the calculated burnup of a fuel assembly must exceed the "minimum burnup" determined for the "cooling time" and "maximum initial planar enrichment" of the fuel assembly. The "minimum burnup" for any fuel type is determined from the following polynomial function:

   $BU = A + B*E + C*E^2$, where:

   BU = Minimum Burnup (GWD/MTU)

   E = Maximum Initial Planar Average Enrichment (weight percent U-235)

   A, B, C = Coefficients for each fuel type

2. Interpolation between values of cooling time is not permitted.

ATTACHMENT 4

St. Lucie Unit 2
Technical Specification Section 5.6
Design Features - Fuel Storage - Criticality
Revision To Proposed Change Submitted By FPL Letter L-2011-021
Regarding Extended Power Uprate License Amendment Request

Holtec
Affidavit Pursuant To 10 CFR 2.390

This coversheet plus 5 pages

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Holtec International Document ID 1867-AFFI-04

AFFIDAVIT PURSUANT TO 10 CFR 2.390

I, Thomas V. Fitzpatrick, being duly sworn, depose and state as follows:

(1) I have reviewed the information described in paragraph (2) which is sought to be withheld, and am authorized to apply for its withholding.

(2) The information sought to be withheld is information provided with Holtec letter 1867008, specifically Holtec Report HI-2104753 which contains Holtec Proprietary information and is appropriately marked as such.

(3) In making this application for withholding of proprietary information of which it is the owner, Holtec International relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4) and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10CFR Part 9.17(a)(4), 2.390(a)(4), and 2.390(b)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

(4) Some examples of categories of information which fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by Holtec's competitors without license from Holtec International constitutes a competitive economic advantage over other companies;

b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

c. Information which reveals cost or price information, production, capacities, budget levels, or commercial strategies of Holtec International, its customers, or its suppliers;

d. Information which reveals aspects of past, present, or future Holtec International customer-funded development plans and programs of potential commercial value to Holtec International;

e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraph 4.b, above.

(5) The information sought to be withheld is being submitted to the NRC in confidence. The information (including that compiled from many sources) is of a sort customarily held in confidence by Holtec International, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by Holtec International. No public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or

proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within Holtec International is limited on a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his designee), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside Holtec International are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

(8) The information classified as proprietary was developed and compiled by Holtec International at a significant cost to Holtec International. This information is classified as proprietary because it contains detailed descriptions of analytical approaches and methodologies not available elsewhere. This information would provide other parties, including competitors, with information from Holtec International's technical database and the results of evaluations performed by Holtec International. A substantial effort has been expended by Holtec International to develop this information. Release of this information would improve a competitor's position because it would enable Holtec's competitor to copy our technology and offer it for sale in competition with our company, causing us financial injury.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to Holtec International's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of Holtec International's comprehensive spent fuel storage technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology, and includes development of the expertise to determine and apply the appropriate evaluation process.

The research, development, engineering, and analytical costs comprise a substantial investment of time and money by Holtec International.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

Holtec International's competitive advantage will be lost if its competitors are able to use the results of the Holtec International experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to Holtec International would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive Holtec International of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

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STATE OF NEW JERSEY)
) ss:
COUNTY OF BURLINGTON)

Mr. Thomas V. Fitzpatrick, being duly sworn, deposes and says:

That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of her knowledge, information, and belief.

Executed at Marlton, New Jersey, this 2nd day of November, 2011.

Thomas V. Fitzpatrick
Holtec International

Subscribed and sworn before me this 2nd day of November, 2011.

Maria C. Massi

MARIA C. MASSI
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires April 25, 2015