UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 71

TO FACILITY OPERATING LICENSE NO. DPR-67

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT, UNIT NO. 1

DOCKET NO. 50-335

INTRODUCTION

Florida Power & Light Company (FP&L), by letter from J. W. Williams, Jr. (FP&L) to H. L. Thompson (NRC) dated July 19, 1985, has requested two revisions to St. Lucie Plant, Unit No. 1 Technical Specification 3/4.1.3, "Movable Control Assemblies." The first revision would permit full power operation for a specified period of time following an inadvertent single dropped control element assembly (CEA). This specified amount of time depends on the initial pre-drop value of the integrated radial peaking factor (F_R), which is measured at the plant during normal power distribution surveillances. The present Technical Specifications require a prompt and significant reduction in thermal power prior to attempting realignment of the dropped CEA. The second revision is merely a reformulation of existing Action Statement C into two separate action statements, C and H, to more clearly associate any required operator action with the applicable analysis assumptions requiring that action.

SAFETY EVALUATION

In order to allow continued full power operation for a specified period of time in the event of a single dropped CEA, the licensee performed analyses to determine the increase in assembly peak F_R values following a dropped CEA event. The CEA drop initially causes a decrease in reactor power with a resulting decrease in average reactor coolant temperature.

The reactor protection system inhibits automatic CEA withdrawal during the event. However, because of the negative value of the moderator temperature coefficient at end of cycle, this temperature decrease may cause the reactor power level to return to its initial power level. The presence of the dropped CEA would then result in a distorted core power distribution and increased power peaking factors.

For St. Lucie 1, margin was designed into the departure from nucleate boiling (DNB) limiting condition of operation (LCO) by selecting a 10% greater input value (1.87) of F_R, including uncertainties, than the maximum allowed Technical Specification limit of 1.70. Even using the input value of 1.87 in the thermal margin analysis, the resulting DNBR values were greater than the DNB specified acceptable fuel design limits (SAFDL). Therefore, the margin between the permissible normal operation limit of 1.70 and the 1.87 thermal margin input value can be utilized as available overpower margin for the single CEA drop analysis.

The results of the dropped CEA analyses show that the increase in assembly peak F_R values following a dropped CEA event is a function of the reactivity worth of the dropped CEA and the assembly's distance from the dropped CEA. Because of this, an assembly other than the one with the initial core maximum F_R can have a larger percent increase than the core maximum F_R assembly. The licensee has shown that the maximum F_R increase anywhere in the core immediately following a CEA drop would be less than 10% for cycles 5 or 6, thereby meeting the available overpower margin. One hour following a CEA drop, the maximum increase in F_R anywhere in the core could be as high as 11.7%. This means that an initial F_R of no greater than 1.67 would be required in order to meet the 1.87 thermal margin input value mentioned above.

The licensee has proposed to incorporate the attached Figure 3.1-1a into the St. Lucie 1 Technical Specifications showing the allowable time to realign a dropped CEA as a function of the initial value of F_R. The figure permits only 15 minutes of full power operation when the pre-drop value of F_R equals 1.70 even though the analyses show that at least 1 hour would be permissible. As the pre-drop value of F_R decreases to 1.67, operation at full power for up to 1 hour is allowed. Based on the CEA drop analyses mentioned previously, the staff finds this acceptable.

The second proposed change reformulates the present action statement in Technical Specification 3/4.1.3 into two separate action statements; one with applicability when CEAs are above the long term insertion limit (LTIL) and a separate one when CEAs are inserted beyond the LTIL. Since this reformulation will aid the reactor operators to better understand the underlying technical basis of each specification and action statement and will also tend to standardize the specifications between St. Lucie 1 and 2, the staff finds it acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously published a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly,

the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR §51.22(c)(9). Pursuant to 10 CFR §51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: January 15, 1986

Principal Contributors:

L. Kopp
D. Sells

December 12, 1985

Docket No. 50-335

DISTRIBUTION:

Docket File	LFMB
NRC PDR	LTremper
L PDR	OPA
PBD#8 Rdg	ACRS-10
FMiraglia	WRegan
PMKreutzer-3	WJones
DSells	TBarnhart-4
JPartlow	EJordan
LJHarmon	OELD
SECY	PS Files +4

Mr. J. W. Williams, Jr.
Vice President
Nuclear Energy Department
Florida Power & Light Company
P. O. Box 14000
Juno Beach, Florida 33408

Dear Mr. Williams:

The Commission has issued the enclosed Amendment No. 70 to Facility Operating License No. DPR-67 for the St. Lucie Plant, Unit No. 1. This amendment consists of changes to the Technical Specifications in response to your application dated October 17, 1985 as supplemented by letter dated December 2, 1985.

This amendment revises the Technical Specifications to change the Linear Heat Generation Rate (LHGR) Limiting Condition for Operation (LCO) from a constant value of 15.0 Kw/ft to an axially dependent limit. In addition, the Local Power Density LCO curve and the associated Bases are changed. The fuel densification and thermal expansion uncertainty factor of 1.01 is deleted. Added is a license condition requiring the submittal of a supplement to EXXON Report XN-NF-85-117 for the Commission staff's review and approval. This supplement is to cover the complete large break LOCA spectrum results to demonstrate full compliance with the criteria of 10 CFR 50.46 and Appendix K to 10 CFR Part 50 with 15% tube plugging which will be considered following receipt of the supplement. Action on your request to allow you to exceed the limits of Figure 3.2-1 during the performance of Specification 4.1.1.4.2 is deferred until further justification is provided that shows that you can verify that the limit of 10 CFR 50.46 is not exceeded.

A copy of the related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,

/S/

Donald E. Sells, Project Manager
PWR Project Directorate #8
Division of PWR Licensing-B

Enclosures:
1. Amendment No. 70 to DPR-67
2. Safety Evaluation

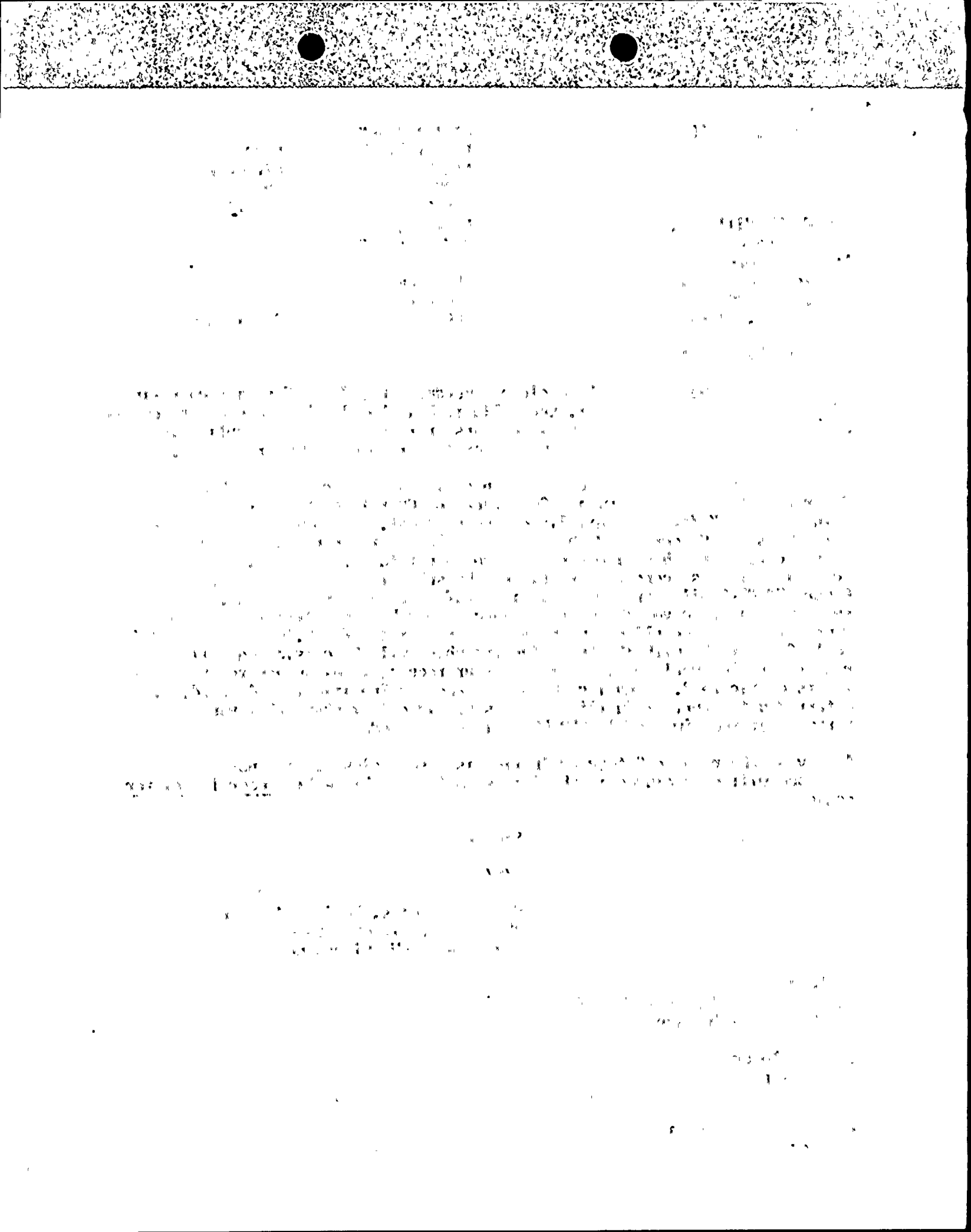
cc w/enclosures:
See next page

*See previous white for concurrences

PBD#8*	PBD#8	PBD#8*	OELD*
PKreutzer	DSells:ef	AThadani	JMcGurren
12/9/85	12/12/85	12/9/85	12/10/85

Signed

ML013540271



Docket No. 50-335

DISTRIBUTION:

Docket File	LFMB
NRC PDR	LTremper
L PDR	OPA
PBD#8 Rdg	ACRS-10
FMiraglia	WRegan
PMKreutzer-3	WJones
DSells	TBarnhart-4
JPartlow	EJordan
LJHarmon	OELD
SECY	PS Files +4

Mr. J. W. Williams, Jr.
Vice President
Nuclear Energy Department
Florida Power & Light Company
P. O. Box 14000
Juno Beach, Florida 33408

Dear Mr. Williams:

The Commission has issued the enclosed Amendment No. to Facility Operating License No. DPR-67 for the St. Lucie Plant, Unit No. 1. This amendment consists of changes to the Technical Specifications in response to your application dated October 17, 1985 as supplemented by letter dated December 2, 1985.

This amendment revises the Technical Specifications to change the Linear Heat Generation Rate (LHGR) Limiting Condition for Operation (LCO) from a constant value of 15.0 Kw/ft to an axially dependent limit. In addition, the Local Power Density LCO curve and the associated Bases are changed. The fuel densification and thermal expansion uncertainty factor of 1.01 is deleted. Added is a license condition requiring the submittal of a supplement to EXXON Report XN-NF-85-117 for the Commission staff's review and approval. This supplement is to cover the complete large break LOCA spectrum results to demonstrate full compliance with the criteria of 10 CFR 50.46 and Appendix K to 10 CFR Part 50.

A copy of the related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,

Donald E. Sells, Project Manager
PWR Project Directorate #8
Division of PWR Licensing-B

Enclosures:
1. Amendment No. to DPR-67
2. Safety Evaluation

cc w/enclosures:
See next page

No legal objection has been received

PBD#8	PBD#8	PBD#8	OELD
PKreutzer	DSells:ef	AThadani	McGuinnen
12/9/85	12/9/85	12/9/85	12/10/85

Mr. J. W. Williams, Jr.
Florida Power & Light Company

St. Lucie Plant

cc:
Mr. Jack Shreve
Office of the Public Counsel
Room 4, Holland Building
Tallahassee, Florida 32304

Resident Inspector
c/o U.S. NRC
7585 S. Hwy A1A
Jensen Beach, Florida 33457

State Planning & Development
Clearinghouse
Office of Planning & Budget
Executive Office of the Governor
The Capitol Building
Tallahassee, Florida 32301

Harold F. Reis, Esq.
Newman & Holtzinger
1615 L Street, N.W.
Washington, DC 20036

Norman A. Coll, Esq.
McCarthy, Steel, Hector and Davis
14th Floor, First National Bank Building
Miami, Florida 33131

Administrator
Department of Environmental Regulation
Power Plant Siting Section
State of Florida
2600 Blair Stone Road
Tallahassee, Florida 32301

Mr. Weldon B. Lewis, County
Administrator
St. Lucie County
2300 Virginia Avenue, Room 104
Fort Pierce, Florida 33450

Mr. Charles B. Brinkman, Manager
Washington - Nuclear Operations
Combustion Engineering, Inc.
7910 Woodmont Avenue
Bethesda, Maryland 20814

Mr. Allan Schubert, Manager
Public Health Physicist
Department of Health and
Rehabilitative Services
1323 Winewood Blvd.
Tallahassee, Florida 32301

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
Executive Director for Operations
101 Marietta Street N.W., Suite 2900
Atlanta, Georgia 30323