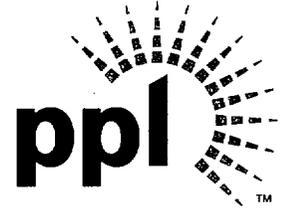


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and Chief Nuclear Officer
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MAR 20 2000

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station OP1-17
Washington, D.C. 20555

**SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENT NO. 194 TO
LICENSE NPF-22: MCPR SAFETY LIMITS
PLA-5169**

Docket No. 50-388

The purpose of this letter is to propose changes to the Susquehanna Steam Electric Station Unit 2 Technical Specifications. This proposed change entails the inclusion of Unit 2 Cycle 11 (U2C11) MCPR Safety Limits in Section 2.1.1.2.

Consistent with the previous Unit 2 reload analysis, the analysis methods described in Technical Specification 5.6.5b., as approved by the NRC, are used to generate the Safety Limits and Core Operating Limits for the U2C11 reload.

Enclosure A to this letter is the "Safety Assessment" supporting this change. Enclosure B is the No Significant Hazards Considerations evaluation performed in accordance with the criteria of 10 CFR 50.92 and the Environmental Assessment. Enclosure C to this letter contains the applicable page of the Susquehanna SES Unit 2 Technical Specifications, marked to show the proposed change. Attachment D contains "camera ready" version of the revised Technical Specification page. The proposed change has been approved by the Susquehanna SES Plant Operations Review Committee and reviewed by the Susquehanna Review Committee.

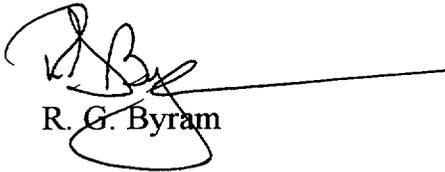
To assist in your review, Attachment E has been provided. Attachment E provides the U2C11 Core Composition.

A001

PPL plans to implement the proposed changes in May 2001 to support the startup of U2C11 operation. Therefore, we request NRC complete its review of this change by January 31, 2001 with the changes effective upon startup following the Unit 2 10th Refueling and Inspection Outage.

Any questions regarding this request should be directed to Mr. M. H. Crowthers at (610) 774-7766.

Very truly yours,



R. G. Byram

Attachments

copy: NRC Region I
Mr. R. G. Schaaf, NRC Sr. Project Manager
Mr. S. Hansell, NRC Sr. Resident Inspector
Mr. W. P. Dornsife, PA DEP

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of _____ :

PP&L, INC. _____ :

Docket No. 50-388

**PROPOSED AMENDMENT NO. 194 TO
LICENSE NPF-22: MCPR SAFETY LIMITS
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 2**

Licensee, PP&L, Inc., hereby files a revision to proposed Amendment No. 194 to its Facility Operating License No. NPF-22 dated March 23, 1984.

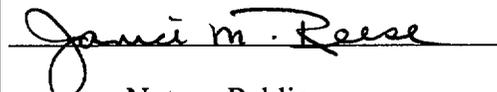
This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PP&L, INC.
BY:



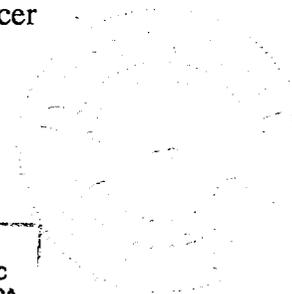
R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
this 20th day of March, 2000.



Notary Public

NOTARIAL SEAL
JANICE M. REESE, Notary Public
City of Allentown, Lehigh County, PA
My Commission Expires June 11, 2001



ENCLOSURE A TO PLA-5169

SAFETY ASSESSMENT

SAFETY ASSESSMENT

MCPR SAFETY LIMITS

BACKGROUND

Susquehanna Steam Electric Station Unit 2, Cycle 11 will contain SPC ATRIUM™-10 fuel. The ATRIUM™-10 fuel design is a 10x10 lattice design which contains 83 full length fuel rods, 8 part length fuel rods, and a central water channel.

The MCPR Safety Limits for U2C11 support Core Thermal Powers up to 3493 MWt, which is a 1.5% increase over U2C10 (3441 MWt). The analysis was performed at the 3493 MWt power level to support license amendments to be proposed in May 2000 for an increase in the Rated Thermal Power level for SSES Unit 2.

Siemens Power Corporation has developed the ANFB-10 critical power correlation which is applicable to the ATRIUM™-10 fuel assemblies (Technical Specification 5.6.5b.19). ANFB-10 is based on a large amount of critical power test data on the ATRIUM™-10 design.

The MCPR Safety Limit analysis is performed on a cycle specific basis since the core design changes from cycle to cycle. The U2C11 MCPR Safety Limit was calculated by Siemens Power Corporation (SPC) using the NRC approved methods described in Technical Specification 5.6.5b.5.

Description of the Proposed Change

The proposed Unit 2 Technical Specification changes consist of:

- (1) Revise Section 2.1.1.2 to reflect the U2C11 MCPR Safety limits. The MCPRSL values are 1.12 for two-loop operation and 1.14 for single-loop operation.

The NRC-approved topical reports contained in Section 5.6.5 of the Technical Specifications contain the methodology used to ensure safe operation of Unit 2 with ATRIUM™-10 fuel.

SAFETY ANALYSIS

Excessive thermal overheating of the fuel rod cladding can result in cladding damage and the release of fission products. In order to protect the cladding against thermal overheating due to boiling transition, the Thermal Power, High Pressure and High Flow Safety Limit (Section 2.1.1.2 of the Susquehanna SES Unit 2 Technical Specification) were established. The changes to Section 2.1.1.2 reflect the change from the U2C10 MCPR Safety Limits to the U2C11 MCPR Safety Limits for two-loop operation and single-loop operation.

NUREG-0800, Standard Review Plan Section 4.4, specifies an acceptable, conservative approach to define this Safety Limit. Specifically, a Minimum Critical Power Ratio (MCPR) value is specified such that at least 99.9% of the fuel rods are expected to avoid boiling transition during normal operation or Anticipated Operational Occurrences (AOOs). Boiling transition is predicted using a correlation based on test data (i.e., a Critical Power Correlation). The Safety Limit MCPR calculation accounts for various uncertainties such as feedwater flow, feedwater temperature, pressure, power distribution uncertainties, and uncertainty in the Critical Power Correlation.

The proposed Safety Limit MCPR values (two-loop and single-loop) were calculated using SPC's NRC approved licensing methods with the ANFB-10 correlation for ATRIUM™-10 fuel. Input to the U2C11 MCPRSL analysis, provided by PPL, covered plant operation up to a rated core thermal power of 3493 MWt. Therefore, the analysis bounds U2C11 operation up to this Core Thermal Power, which is a 1.5% increase in power over U2C10 (3441 MWt).

The proposed Safety Limit MCPRs (two-loop and single-loop) assure that at least 99.9% of the fuel rods are expected to avoid boiling transition during normal operation or anticipated operational occurrences.

The MCPR Safety Limit analysis is the first in a series of analyses that assure the new core loading for U2C11 is operated in a safe manner. Prior to the startup of U2C11, other licensing analyses are performed to determine changes in the critical power ratio as a result of anticipated operational occurrences. These results are combined with the MCPR Safety limit values proposed here to generate the MCPR operating limits in the U2C11 COLR. Other analyses and evaluations are performed which are independent of MCPR (e.g., Mechanical Design analyses, LOCA, etc.) and also result in limits which go into the U2C11 COLR. After completion of the COLR, a reload Safety Evaluation is written which provides the safety basis (i.e., no unreviewed safety question) for the new U2C11 core loading, the U2C11 COLR, the U2C11 FSAR changes, and any other evaluations/changes as a result of the new U2C11 core configuration. Therefore, the proposed action does not involve an increase in the probability or an increase in consequences of an accident previously evaluated in the SAR.

As alluded to above, the MCPR Safety Limit analysis and the U2C11 core loading which it supports does not directly or indirectly affect any plant system, equipment, or component (other than the core itself) and therefore does not affect the failure modes of any of these. Thus, the proposed changes do not create the possibility of a previously unevaluated operator error or a new single failure. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

As discussed above, since the proposed changes do not affect any plant system, equipment, or component (other than the core itself), the proposed change will not jeopardize or degrade the function or operation of any plant system or component governed by Technical Specifications. The proposed MCPR Safety Limits do not involve a significant reduction in the margin of safety as currently defined in the BASES of the applicable Technical Specification sections, because the MCPR Safety Limits calculated for U2C11 preserve the required margin of safety.

Operator performance and procedures are unaffected by these proposed changes since the changes are essentially transparent to the operators and plant procedures, and do not change the way in which the plant is operated. Following use of the methodology to analyze the Unit 2 Cycle 11 core design and future Unit 2 reloads, the reload cycle specific results are incorporated into the FSAR via an FSAR change notice. There are no other impacts on licensing documents and/or commitments.

CONCLUSIONS

NRC approval of the proposed change does not involve any reduction in the margin of safety.

ENCLOSURE B TO PLA-5169

**NO SIGNIFICANT HAZARDS CONSIDERATIONS
AND ENVIRONMENTAL ASSESSMENT**

NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL ASSESSMENT

MCPR SAFETY LIMITS

PPL has evaluated the proposed Technical Specification change in accordance with the criteria specified by 10 CFR 50.92 and has determined that the proposed change does not involve a significant hazards consideration. The criteria and conclusions of our evaluation are presented below.

- 1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

The proposed changes in MCPR Safety Limits do not affect any plant system or component (except the reactor core) and therefore does not increase the probability of an accident previously evaluated.

A Unit 2 Cycle 11 MCPR Safety Limit analysis was performed for PPL by SPC. This analysis used NRC approved methods as required by SSES Technical Specifications. For Unit 2 Cycle 11, the critical power performance of the ATRIUM™-10 fuel was determined using the NRC approved ANFB-10 correlation. Also, the analysis for U2C11 supports a Core Thermal Power of 3493 MWt which is a 1.5% increase over U2C10 (3441 MWt). The Safety Limit MCPR calculations statistically combine uncertainties on feedwater flow, feedwater temperature, core flow, core pressure, core power distribution, and uncertainties in the Critical Power Correlation. The SPC analysis used cycle specific power distributions and calculated MCPR values such that at least 99.9% of the fuel rods are expected to avoid boiling transition during normal operation or anticipated operational occurrences. The resulting two-loop and single-loop MCPR Safety Limits are included in the proposed Technical Specification change. Thus, the cladding integrity and its ability to contain fission products are not adversely affected. It is therefore concluded that the proposed change does not increase the consequences of an accident previously evaluated.

- 2. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

As discussed above, the proposed changes to the Unit 2 Technical Specifications (MCPR Safety Limits) do not affect any plant system or component and do not affect plant operation. The consequences of transients and accidents will remain within the criteria approved by the NRC. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. The proposed change does not involve a significant reduction in a margin of safety.**

Since the proposed changes do not affect any plant system or component, and do not have any impact on plant operation, the proposed changes will not affect the function or operation of any plant system or component. The consequences of transients and accidents will remain within the criteria approved by the NRC. The proposed MCPR Safety Limits do not involve a significant reduction in the margin of safety as currently defined in the bases of the applicable Technical Specification sections. Therefore, the proposed change does not involve a significant reduction in the margin of safety.

ENVIRONMENTAL CONSEQUENCES

An environmental assessment is not required for the proposed change because the requested change conforms to the criteria for actions eligible for categorical exclusion as specified in 10 CFR 51.22(c)(9). The requested change will have no impact on the environment. The proposed change does not involve a significant hazards consideration as discussed above. The proposed change does not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. In addition, the proposed change does not involve a significant increase in the individual or cumulative occupational radiation exposure.

ENCLOSURE C TO PLA-5169
TECHNICAL SPECIFICATION MARK-UPS

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10 million lbm/hr:

THERMAL POWER shall be \leq 25% RTP.

2.1.1.2 With the reactor steam dome pressure \geq 785 psig and core flow \geq 10 million lbm/hr:

MCPR shall be \geq ^{1.12}1.11 for two recirculation loop operation or \geq ^{1.14}1.12 for single recirculation loop operation.

2.1.1.3 Reactor vessel water level shall be greater than the top of active irradiated fuel.

2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be \leq 1325 psig.

2.2 SL Violations

With any SL violation, the following actions shall be completed within 2 hours:

2.2.1 Restore compliance with all SLs; and

2.2.2 Insert all insertable control rods.

ATTACHMENT D TO PLA-5169
“CAMERA-READY” TECHNICAL
SPECIFICATION PAGES

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10 million lbm/hr:

THERMAL POWER shall be \leq 25% RTP.

2.1.1.2 With the reactor steam dome pressure \geq 785 psig and core flow \geq 10 million lbm/hr:

MCPR shall be \geq 1.12 for two recirculation loop operation or \geq 1.14 for single recirculation loop operation.

2.1.1.3 Reactor vessel water level shall be greater than the top of active irradiated fuel.

2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be \leq 1325 psig.

2.2 SL Violations

With any SL violation, the following actions shall be completed within 2 hours:

2.2.1 Restore compliance with all SLs; and

2.2.2 Insert all insertable control rods.

ENCLOSURE E TO PLA-5169**UNIT 2 CYCLE 11 CORE COMPOSITION**

Assembly Type	Previous Cycle Operational History	Number Of Assemblies
SPC ATRIUM™-10	Fresh	300
SPC ATRIUM™-10	Once-burned	280
SPC ATRIUM™-10	Twice-burned	184