

ATTACHMENT A

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. NPF-69

DOCKET NO. 50-410

Proposed Changes to the Technical Specifications

Replace existing Technical Specification page 6-23 and Bases page B3/4 2-4 with the attached revised pages. The pages have been retyped in their entirety and have marginal markings to indicate the changes to the text.

## POWER DISTRIBUTION LIMITS

### BASES

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#### 3/4.2.3 MINIMUM CRITICAL POWER RATIO

##### 3/4.2.3 (Continued)

while still allotting time for the power distribution to stabilize. The requirement for calculating MCPR, after initially determining that a LIMITING CONTROL ROD PATTERN exists, ensures MCPR will be known following a change in THERMAL POWER or power shape and therefore, operation while exceeding a thermal limit will be avoided.

#### 3/4.2.4 LINEAR HEAT GENERATION RATE

This specification assures that the linear heat generation rate (LHGR) in any rod is less than the design linear heat generation rate even if fuel pellet densification is postulated. The daily requirement for calculating LHGR when THERMAL POWER is greater than or equal to 25% of RATED THERMAL POWER is sufficient, since power distribution shifts are very slow when there have not been significant power or control rod changes. The requirement to calculate LHGR within 12 hours after the completion of a THERMAL POWER increase of at least 15% of RATED THERMAL POWER ensures thermal limits are met after power distribution shifts while still allotting time for the power distribution to stabilize. The requirement for calculating LHGR, after initially determining a LIMITING CONTROL ROD PATTERN exists, ensures that LHGR will be known following a change in THERMAL POWER or power shape and therefore, operation while exceeding a thermal limit will be avoided.

#### References

1. General Electric Company Analytical Model for Loss-of-Coolant Analysis in Accordance with 10 CFR 50, Appendix K, NEDE-20566, latest approved revision.
2. R. B. Linford, Analytical Methods of Plant Transient Evaluations for the GE BWR, NEDO-10802, latest approved revision.
3. Qualification of the One Dimensional Core Transient Model for Boiling Water Reactors, NEDO-24154, latest approved revision.
4. TASC 01-A Computer Program for the Transient Analysis of a Single Channel, Technical Description, NEDE-25149, latest approved revision.
5. General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A-9-US latest approved revision.
6. The GESTR-LOCA and SAFER Models of the Evaluation of the Loss-of-Coolant Accident - SAFER/GESTR Application Methodology, NEDE 23785-1-PA, latest approved revision.

## ADMINISTRATIVE CONTROLS

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### CORE OPERATING LIMITS REPORT

#### 6.9.1.9 (Continued)

- 2) The GESTR-LOCA and SAFER Models of the Evaluation of the Loss-of-Coolant Accident - SAFER/GESTR Application Methodology, NEDE-23785-1-PA, latest approved revision.
  - 3) General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A-US, latest approved revision.
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements shall be provided, upon issuance for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.

### SPECIAL REPORTS

6.9.2. Special reports shall be submitted in accordance with 10 CFR 50.4 within the time period specified for each report.

### 6.10 RECORD RETENTION

6.10.1 In addition to the applicable record retention requirements of Title 10, of the Code of Federal Regulations (10 CFR), the following records shall be retained for at least the minimum period indicated.

6.10.1.1 The following records shall be retained for at least 5 years:

- a. Records and logs of unit operation covering time interval at each power level
- b. Records and logs of principal maintenance activities, inspections, repair, and replacement of principal items of equipment related to nuclear safety
- c. All REPORTABLE EVENTS submitted to the Commission
- d. Records of surveillance activities, inspections, and calibrations required by these Technical Specifications
- e. Records of changes made to the procedures required by Specification 6.8.1
- f. Records of radioactive shipments
- g. Records of sealed source and fission detector leak tests and results
- h. Records of annual physical inventory of all sealed source material of record

## ATTACHMENT B

### NIAGARA MOHAWK POWER CORPORATION LICENSE NO. NPF-69 DOCKET NO. 50-410

#### Supporting Information and No Significant Hazards Consideration Analysis

#### 1.0 BACKGROUND

The proposed amendment will allow Nine Mile Point Unit 2 (NMP2) to utilize the SAFER/GESTR-LOCA Loss of Coolant Accident (LOCA) methodology which has been approved by the Commission. The use of SAFER/GESTR-LOCA methodology proposed by this change has been approved by the Staff in their Safety Evaluation Report on Amendment 13 to GESTAR II, "General Electric Standard Application for Reactor Fuel," dated March 26, 1986. SAFER/GESTR-LOCA provides more accurate modeling of Emergency Core Cooling System (ECCS) performance. The SAFER/GESTR-LOCA methodology will be applied to the GE11 fuel being loaded during the upcoming refueling outage.

#### 2.0 DESCRIPTION OF PROPOSED CHANGES

##### 2.1 SAFER/GESTR-LOCA Methodology

##### Section 6.9.1.9, "Core Operating Limits Report"

Present subsection 6.9.1.9.b:

- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following document.
  - 1. General Electric Company Analytical Model for Loss-of-Coolant Analysis in Accordance with 10CFR50, Appendix K, NEDE-20566 latest approved revision.
  - 2. General Electric Standard Application for Reactor fuel, NEDE-24011-P-A-9-US latest approved revision.

Proposed subsection 6.9.1.9.b:

- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
  - 1. General Electric Company Analytical Model for Loss-of-Coolant Analysis in Accordance with 10CFR50, Appendix K, NEDE-20566 latest approved revision.

2. The GESTR-LOCA and SAFER Models of the Evaluation of the Loss-of-Coolant Accident - SAFER/GESTR Application Methodology, NEDE 23785-1-PA, latest approved revision.
3. General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A-US, latest approved revision.

Bases Section B2.3, "Power Distribution Limits"

Add to the reference:

6. The GESTR-LOCA and SAFER Models of the Evaluation of the Loss-of-Coolant Accident - SAFER/GESTR Application Methodology, NEDE 23785-1-PA, latest approved revision.

**2.2 Editorial Changes**

Bases Section 3/4.2

Revise the last sentence of B3/4.2.3 from:

The requirement for calculating MCPR after initially determining that a LIMITING CONTROL ROD PATTERN exists ensures MCPR will be known following a change in THERMAL POWER or power shape, and therefore avoid operation while exceeding a thermal limit.

to:

The requirement for calculating MCPR, after initially determining that a LIMITING CONTROL ROD PATTERN exists, ensures that MCPR will be known following a change in THERMAL POWER or power shape and therefore, operation while exceeding a thermal limit will be avoided.

Revise the last sentence of B3/4.2.4 from:

The requirement for calculating LHGR after initially determining a LIMITING CONTROL ROD PATTERN exists ensures that LHGR will be known following a change in THERMAL POWER or power shape that could place operation exceeding a thermal limit.

to:

The requirement for calculating LHGR, after initially determining that a LIMITING CONTROL ROD PATTERN exists, ensures that LHGR will be known following a change in THERMAL POWER or power shape and therefore, operation while exceeding a thermal limit will be avoided.

### **3.0 ANALYSIS**

#### **3.1 SAFER/GESTR-LOCA Methodology**

SAFER/GESTR-LOCA is an improved ECCS evaluation methodology. SAFER/GESTR-LOCA uses a realistic approach to calculate peak cladding temperatures with margin substantiated by statistical considerations. LOCA events are analyzed with nominal values for inputs and correlations. The SAFER/GESTR-LOCA Appendix K conformance calculation is performed for the limiting break and results are checked for consistency with generic statistical analyses that encompass modeling uncertainties and uncertainties related to plant parameters.

The use of SAFER/GESTR-LOCA methodology was approved by the Staff in their Safety Evaluation on Amendment 13 to GESTAR II. In that Safety Evaluation, the Staff concluded that SAFER/GESTR-LOCA satisfies the requirements of 10CFR § 50.46 and Appendix K. The Staff stated that SAFER/GESTR-LOCA is acceptable as a basis for and reference in license applications so long as the material contained in SAFER/GESTR-LOCA is applicable to the specific plant involved. Niagara Mohawk has reviewed GESTAR II and confirmed the applicability of SAFER/GESTR-LOCA to NMP2.

SAFER/GESTR-LOCA is being added to Section 6.9.1.9 as an approved analytical method for determining core operating limits. Bases Section B3/4.2 is also being revised to reflect this change. The fuel currently residing in the NMP2 reactor has been analyzed using the SAFER/REFLOOD methodology. The GE fuel that will be added during the upcoming refueling outage (Refuel 3) will be analyzed using SAFER/GESTR-LOCA, as will fuel loaded in subsequent reloads.

#### **3.2 Editorial Change**

Bases Sections B3/4.2.3 and B3/4.2.4 are revised to more clearly describe actions taken to ensure that operation while exceeding a thermal limit is avoided.

### **4.0 CONCLUSION**

The proposed amendment allows utilization of the SAFER/GESTR-LOCA methodology which has been approved by the Commission. SAFER/GESTR-LOCA is an improved ECCS evaluation methodology which uses a realistic approach to calculate peak cladding temperatures. LOCA events are analyzed with nominal values for inputs and correlations. The SAFER/GESTR-LOCA Appendix K conformance calculation is performed for the limiting break and results are checked for consistency. The Staff has previously determined that SAFER/GESTR-LOCA methodology conforms to 10CFR § 50.46 and Appendix K and may be used in lieu of the currently referenced SAFE/REFLOOD methodology. The Staff stated that SAFER/GESTR-LOCA is acceptable so long as the material contained in SAFER/GESTR-LOCA is applicable to the specific plant involved. Niagara Mohawk has reviewed GESTAR II and confirmed the applicability of SAFER/GESTR-LOCA to NMP2.

Editorial changes by their nature do not change the intent or interpretation of the Technical Specification Bases. The proposed changes provide more consistent and clearer discussion.



The effect of the proposed changes has been evaluated and found to have no resulting impact on system reliability or performance. The proposed changes assure that the fuel cladding response to postulated accidents remains within accepted limits and will not cause existing Technical Specification Safety Limits, operational limits, or system performance criteria to be exceeded. Therefore, there is reasonable assurance the operation of Nine Mile Point Unit 2 in the proposed manner will not endanger the public health and safety and that issuance of the proposed amendment will not be inimical to the common defense and security.

10CFR § 50.91 requires that at the time a licensee requests an amendment, it must provide to the Commission its analysis using the standards in 10CFR § 50.92 concerning the issue of no significant hazards consideration. Therefore, in accordance with 10CFR § 50.91, the following analysis has been performed:

**The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated.**

SAFER/GESTR-LOCA uses a realistic approach to calculate peak cladding temperatures with margin substantiated by statistical considerations. The use of SAFER/GESTR-LOCA methodology was approved by the Staff in their Safety Evaluation on Amendment 13 to GESTAR II. In the Safety Evaluation, the Staff concluded that SAFER/GESTR-LOCA satisfies the requirements of 10CFR § 50.46 and Appendix K. The Staff stated that SAFER/GESTR-LOCA is acceptable as a basis for and reference in license applications so long as the material contained in SAFER/GESTR-LOCA is applicable to the specific plant involved. Niagara Mohawk has confirmed the applicability of SAFER/GESTR-LOCA to NMP2. The SAFER/GESTR-LOCA methodology conservatively calculates peak cladding temperatures such that USAR accident analyses remain bounding for the new methodology. Therefore, operation of Nine Mile Point Unit 2, in accordance with this proposed change, will not involve a significant increase in the probability or consequences of any accident previously evaluated.

**The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any accident previously evaluated.**

SAFER/GESTR-LOCA uses a realistic application approach to calculate peak cladding temperatures with margin substantiated by statistical considerations. The peak cladding temperatures calculated with SAFER/GESTR-LOCA are in accordance with Appendix K and remain bounding for all operating conditions and evolutions. The use of SAFER/GESTR-LOCA methodology was approved by the Staff in their Safety Evaluation on Amendment 13 to GESTAR II. Incorporation of SAFER/GESTR-LOCA is only a change to analytical techniques and does not affect plant operating modes or any system operation. Thus, the proposed change does not adversely affect the response of any component or system to previously analyzed accidents. The response to previously evaluated accidents remains within previously assessed limits of temperature and pressure. Further, all safety-related systems and components remain within their applicable design limits. Thus, system and component performance is not adversely affected by this change, thereby assuring that the design capabilities of those systems and components are not challenged in a manner not previously assessed so as to create the possibility of a new or different kind of accident.

Therefore, operation of Nine Mile Point Unit 2, in accordance with the proposed change, will not create the possibility of a new or different kind of accident from any previously assessed.

**The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.**

SAFER/GESTR-LOCA is an improved ECCS evaluation methodology which uses a realistic approach to calculate peak cladding temperatures. LOCA events are analyzed with nominal values for inputs and correlations. The Staff has previously determined that SAFER/GESTR-LOCA methodology conforms to 10CFR § 50.46 and Appendix K and may be used in lieu of the currently referenced SAFE/REFLOOD methodology. Therefore, the peak cladding temperatures calculated with SAFER/GESTR-LOCA are applicable. The Staff stated that SAFER/GESTR-LOCA is acceptable so long as the material contained in SAFER/GESTR-LOCA is applicable to the specific plant involved. Niagara Mohawk has reviewed GESTAR II and confirmed the applicability of SAFER/GESTR-LOCA to NMP2. Thus, the proposed changes do not affect the basis for any Technical Specification and previously established safety limits remain valid. Therefore, the operation of Nine Mile Point Unit 2, in accordance with the proposed change, will not involve a significant reduction in any margin of safety.