# ATTACHMENT 2

## TECHNICAL SPECIFICATION

## MARKUP PAGES

## OF PROPOSED CHANGES

## 2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

### 2.1 SAFETY LIMITS

THERMAL POWER, Low Pressure or Low Flow

2.1.1 THERMAL POWER shall not exceed 25% of RATED THERMAL POWER with the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With THERMAL POWER exceeding 25% of RATED THERMAL POWER and the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.7.1.

THERMAL POWER, High Pressure and High Flow

2.1.2 The MINIMUM CRITICAL POWER RATIO (MCPR) shall not be less than the Safety Limit MCPR of ~~1.07~~ 1.09 for two recirculation loop operation and shall not be less than the Safety Limit MCPR of ~~1.08~~ 1.11 for single loop operation with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With MCPR less than the Safety Limit MCPR of ~~1.07~~ 1.09 for two recirculation loop operation or less than the Safety Limit MCPR of ~~1.08~~ 1.11 for single loop operation and with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.7.1.

REACTOR COOLANT SYSTEM PRESSURE

2.1.3 The reactor coolant system pressure, as measured in the reactor vessel steam dome, shall not exceed 1325 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3 and 4.

ACTION:

With the reactor coolant system pressure, as measured in the reactor vessel steam dome, above 1325 psig, be in at least HOT SHUTDOWN with reactor coolant system pressure less than or equal to 1325 psig within 2 hours and comply with the requirements of Specification 6.7.1.

3/4.4 REACTOR COOLANT SYSTEM
3/4.4.1 RECIRCULATION SYSTEM
RECIRCULATION LOOPS
LIMITING CONDITION FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2*.

ACTION:

a. With one reactor coolant system recirculation loop not in operation:

1. Within 4 hours:

a) Place the individual recirculation pump flow controller for the operating recirculation pump in the Manual mode.

b) Reduce THERMAL POWER to less than or equal to 67.2% of RATED THERMAL POWER.

c) Limit the speed of the operating recirculation pump to less than or equal to 75% of rated pump speed.

d) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit ~~by 0.01 to 1.08 per~~ Specification 2.1.2. to the value for single loop operation required by

e) Reduce the Average Power Range Monitor (APRM) Scram and Rod Block Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation# per Specifications 2.2.1 and 3.3.6.

f) Perform Surveillance Requirement 4.4.1.1.4 if THERMAL POWER is less than or equal to 30% of RATED THERMAL POWER or the recirculation loop flow in the operating loop is less than or equal to 50% of rated loop flow.

2. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant system recirculation loop in operation while in OPERATIONAL CONDITION 1, immediately place the Reactor Mode Switch in the SHUTDOWN position.

c. With no reactor coolant system recirculation loops in operation, while in OPERATIONAL CONDITION 2, initiate measures to place the unit in at least HOT SHUTDOWN within the next 6 hours.

*See Special Test Exception 3.10.4.
#APRM gain adjustments may be made in lieu of adjusting the APRM Flow Biased Setpoints to comply with the single loop values for a period of up to 72 hours.

# ATTACHMENT 3

## PROPOSED

## TECHNICAL SPECIFICATION

## CHANGES

## 2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

### 2.1 SAFETY LIMITS

THERMAL POWER, Low Pressure or Low Flow

2.1.1 THERMAL POWER shall not exceed 25% of RATED THERMAL POWER with the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With THERMAL POWER exceeding 25% of RATED THERMAL POWER and the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.7.1.

THERMAL POWER, High Pressure and High Flow

2.1.2 The MINIMUM CRITICAL POWER RATIO (MCPR) shall not be less than the Safety Limit MCPR of 1.09 for two recirculation loop operation and shall not be less than the Safety Limit MCPR of 1.11 for single loop operation with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With MCPR less than the Safety Limit MCPR of 1.09 for two recirculation loop operation or less than the Safety Limit MCPR of 1.11 for single loop operation and with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.7.1.

REACTOR COOLANT SYSTEM PRESSURE

2.1.3 The reactor coolant system pressure, as measured in the reactor vessel steam dome, shall not exceed 1325 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3 and 4.

ACTION:

With the reactor coolant system pressure, as measured in the reactor vessel steam dome, above 1325 psig, be in at least HOT SHUTDOWN with reactor coolant system pressure less than or equal to 1325 psig within 2 hours and comply with the requirements of Specification 6.7.1.

3/4.4 REACTOR COOLANT SYSTEM
3/4.4.1 RECIRCULATION SYSTEM
RECIRCULATION LOOPS
LIMITING CONDITION FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2*.

ACTION:

a. With one reactor coolant system recirculation loop not in operation:

1. Within 4 hours:

a) Place the individual recirculation pump flow controller for the operating recirculation pump in the Manual mode.

b) Reduce THERMAL POWER to less than or equal to 67.2% of RATED THERMAL POWER.

c) Limit the speed of the operating recirculation pump to less than or equal to 75% of rated pump speed.

d) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit to the value for single loop operation required by Specification 2.1.2.

e) Reduce the Average Power Range Monitor (APRM) Scram and Rod Block Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation# per Specifications 2.2.1 and 3.3.6.

f) Perform Surveillance Requirement 4.4.1.1.4 if THERMAL POWER is less than or equal to 30% of RATED THERMAL POWER or the recirculation loop flow in the operating loop is less than or equal to 50% of rated loop flow.

2. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant system recirculation loop in operation while in OPERATIONAL CONDITION 1, immediately place the Reactor Mode Switch in the SHUTDOWN position.

c. With no reactor coolant system recirculation loops in operation, while in OPERATIONAL CONDITION 2, initiate measures to place the unit in at least HOT SHUTDOWN within the next 6 hours.

*See Special Test Exception 3.10.4.
#APRM gain adjustments may be made in lieu of adjusting the APRM Flow Biased Setpoints to comply with the single loop values for a period of up to 72 hours.

# ATTACHMENT 4

**GE REPORT**

**FOR**

**EVALUATION OF**

**PROPOSED**

**TECHNICAL SPECIFICATION**

**CHANGES**

GE Nuclear Energy

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SUBJECT: **Fermi 2 Cycle 6 Safety Limit MCPR Results**

REFERENCES:
1. Letter, W. M. Tucker to C. Papandrea, "Success Path for Potential Safety Limit MCPR Change", August 14, 1996.
2. Letter, D. B. Matthews (USNRC/NRR) to R. J. Reda(GENE), "Proposed General Electric Revision 12 to GESTAR II", August 5, 1996.

Dear Simon:

The reload licensing analyses for Fermi 2 Reload 5 (Cycle 6) are in progress and scheduled for completion in mid-September. As part of these analyses, GE has just completed the analysis and verification of the cycle-specific Safety Limit MCPR (SLMCPR) for Fermi 2 Cycle 6. These calculations are based upon USNRC approved methods (GESTAR-II Revision 13) and interim implementing procedures. Revision 13 to GESTAR-II was just issued this past Tuesday and is in accordance with the NRC's recent request to withdraw GESTAR-II Revision 12 (Reference 2). Revision 13 is identical to GESTAR-II Revision 11 with respect to SLMCPR (Sections 1.1.5 and 1.2.5). Copies of this Revision 13 will be supplied to Detroit Edison Company under separate cover. GE realizes that, because Revision 13 has only recently been

issued, DECo may have concerns regarding its acceptability by the NRC for referencing. If DECo prefers to reference Revision 11, we believe this is acceptable and will support that action with the NRC.

Per the interim implementing procedures, we evaluated the expected SLMCPR at Beginning of Cycle, Peak Hot Excess, and End of Cycle. The SLMCPR was calculated using our detailed Monte Carlo methodology for the limiting exposure points. For Fermi 2 Cycle 6, the maximum value for SLMCPR is 1.09 (Design Record File No. J11-02923). This cycle-specific value is 0.02 higher than the 1.07 generic Safety Limit MCPR for GE11 fuel. The 1.09 SLMCPR value will be documented in the Reload Licensing Report to be provided in mid-September. The Single Loop Operation (SLO) adder is 0.02.

The following additional information is in response to questions asked in the Reference 1 letter regarding the SLMCPR change:

The implementing procedures involve reconfirmation of the applicability of the generic SLMCPR to Fermi 2, Cycle 6. This reconfirmation was performed by incorporating cycle specific parameters into the analysis described in Section 1.1.5 of GESTAR II, Revision 11 and indicates that the generic SLMCPR will not bound Fermi 2, Cycle 6; therefore, the resulting cycle-specific SLMCPR will be applied to Fermi 2, Cycle 6. Instead of a typical large, high power density plant and bounding equilibrium core, the actual projected Fermi 2, Cycle 6 core loading was used and the analysis was performed at the maximum licensed thermal power for Fermi 2. Multiple exposure points in the projected Cycle 6 were checked to obtain the limiting case. The core radial power distribution was manipulated by adjusting control rods to maximize the number of bundles near thermal limits using only symmetric control rod patterns. The dependency of the local power distributions on specific bundle design characteristics is explicitly addressed by using actual bundle and pin-by-pin R-factors. The number of anticipated rods susceptible to boiling transition is uniquely defined by the core loading and local power distributions and cannot be increased without changes in the core loading. The uncertainties are unchanged from those used in previous generic analyses and the safety limit is calculated such that 99.9% of the rods in the core are expected to avoid boiling transition.

The calculational procedure has not changed since the May 1996 NRC inspection. Leaker fuel bundle power suppression, if performed, will result in more peaked power distributions, which will be bounded by the 1.09 SLMCPR value.

Please contact Ronaldo Szilard on (910) 675-6153 if you have any questions.

Very truly yours,

D. R. Hall for

C. J. Papandrea