

ATTACHMENT 2

TECHNICAL SPECIFICATION PAGES WITH PEN AND INK CHANGES

REVISION "D" LICENSE AMENDMENT APPLICATION 92-10, NLR-N93161
INSTRUMENTATION REQUIREMENTS FOR SINGLE LOOP OPERATIONS
FACILITY OPERATING LICENSE NPF-57
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

The following Technical Specifications have
been revised to reflect the proposed changes:

<u>Technical Specification</u>	<u>Page</u>
2.2.1, Table 2.2.1-1	2-4
Specification 3.0.5	3/4 0-1
3.2.2	3/4 2-2
3/4.1.1	3/4 4-1
	3/4 4-2
	3/4 4-2a
Specification 3.0.5 Bases	B 3/4 0-3
Bases B 3/4 4-1	B 3/4 4-1

TABLE 2.2.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Intermediate Range Monitor, Neutron Flux-High	\leq 120/125 divisions of full scale	\leq 122/125 divisions of full scale
2. Average Power Range Monitor:		
a. Neutron Flux-Upscale, Setdown	\leq 15% of RATED THERMAL POWER	\leq 20% of RATED THERMAL POWER
b. Flow Biased Simulated Thermal Power-Upscale		
1) Flow Biased	\leq $0.66(w-\Delta w)+51\%^{**}$ with a maximum of	\leq $0.66(w-\Delta w)+54\%^{**}$ with a maximum of
2) High Flow Clamped	\leq 113.5% of RATED THERMAL POWER	\leq 115.5% of RATED THERMAL POWER
c. Fixed Neutron Flux-Upscale	\leq 118% of RATED THERMAL POWER	\leq 120% of RATED THERMAL POWER
d. Inoperative	NA	NA
3. Reactor Vessel Steam Dome Pressure - High	\leq 1037 psig	\leq 1057 psig
4. Reactor Vessel Water Level - Low, Level 3	\geq 12.5 inches above instrument zero*	\geq 11.0 inches above instrument zero
5. Main Steam Line Isolation Valve - Closure	\leq 8% closed	\leq 12% closed

*See Bases Figure B 3/4 3-1.

**The Average Power Range Monitor Scram function varies as a function of recirculation loop drive flow (w). Δw is defined as the difference in indicated drive flow (in percent of drive flow which produces rated core flow) between two loop and single loop operation at the same core flow. $\Delta w = 0$ for two recirculation loop operation. $\Delta w =$ "To be determined at a later date" for single recirculation loop operation.

90%

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding Specifications is required during the OPERATIONAL CONDITIONS or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a Specification shall exist when the requirements of the Limiting Condition for Operation and associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the Action requirements is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in an OPERATIONAL CONDITION in which the Specification does not apply by placing it, as applicable, in:

1. At least STARTUP within the next 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

This Specification is not applicable in OPERATIONAL CONDITIONS 4 or 5.

3.0.4 Entry into an OPERATIONAL CONDITION or other specified condition shall not be made when the conditions for the Limiting Condition for Operation are not met and the associated ACTION requires a shutdown if they are not met within a specified time interval. Entry into an OPERATIONAL CONDITION or other specified condition may be made in accordance with the ACTION requirements when conformance to them permits continued operation of the facility for an unlimited period of time. This provision shall not prevent passage through or to OPERATIONAL CONDITIONS as required to comply with ACTION requirements. Exceptions to these requirements are stated in the individual Specifications.

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POWER DISTRIBUTION LIMITS

3/4.2.2 RM SETPOINTS

LIMITING CONDITION FOR OPERATION

3.2.2 The APRM flow biased simulated thermal power-upscale scram trip setpoint (S) and flow biased neutron flux-upscale control rod block trip setpoint (S_{RB}) shall be established according to the following relationships:

TRIP SETPOINT

$$S \leq (0.66(w-\Delta w)^{**} + 51\%)T$$

$$S_{RB} \leq (0.66(w-\Delta w)^{**} + 42\%)T$$

ALLOWABLE VALUE

$$S \leq (0.66(w-\Delta w)^{**} + 54\%)T$$

$$S_{RB} \leq (0.66(w-\Delta w)^{**} + 45\%)T$$

where: S and S_{RB} are in percent of RATED THERMAL POWER,
W = Loop recirculation flow as a percentage of the loop recirculation flow which produces a rated core flow of 100 million lbs/hr,
T = Lowest value of the ratio of FRACTION OF RATED THERMAL POWER (FRTM) divided by the CORE MAXIMUM FRACTION OF LIMITING POWER DENSITY (CMFLPD). T is applied only if less than or equal to 1.0.

APPLICABILITY: OPERATIONAL CONDITION 1, when THERMAL POWER is greater than or equal to 25% of RATED THERMAL POWER.

ACTION:

With the APRM flow biased simulated thermal power-upscale scram trip setpoint and/or the flow biased neutron flux-upscale control rod block trip setpoint less conservative than the value shown in the Allowable Value column for S or S_{RB} , as above determined, initiate corrective action within 15 minutes and adjust S and/or S_{RB} to be consistent with the Trip Setpoint values* within 6 hours or reduce THERMAL POWER to less than 25% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.2 The FRTM and the CMFLPD shall be determined, the value of T calculated, and the most recent actual APRM flow biased simulated thermal power-upscale scram and flow biased neutron flux-upscale control rod block trip setpoints verified to be within the above limits or adjusted, as required:

- At least once per 24 hours,
- Within 12 hours after completion of a THERMAL POWER increase of at least 15% of RATED THERMAL POWER, and
- Initially and at least once per 12 hours when the reactor is operating with CMFLPD greater than or equal to FRTM.
- The provisions of Specification 4.0.4 are not applicable.

*With CMFLPD greater than the FRTM, rather than adjusting the APRM setpoints, the APRM gain may be adjusted such that the APRM readings are greater than or equal to 100% times CMFLPD provided that the adjusted APRM reading does not exceed 100% of RATED THERMAL POWER and a notice of adjustment is posted on the reactor control panel.

**The Average Power Range Monitor Scram function varies as a function of recirculation loop drive flow (w). Δw is defined as the difference in indicated drive flow (in percent of drive flow which produces rated core flow) between two loop and single loop operation at the same core flow. $\Delta w = 0$ for two recirculation loop operation. $\Delta w =$ To be determined at a later date for single recirculation loop operation.

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 with:

- a. Total core flow greater than or equal to 45% of rated core flow, or
- b. THERMAL POWER less than or equal to the limit specified in Figure 3.4.1.1-1.

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 recirculation flow control system in the Local Manual mode, and
- b) Reduce THERMAL POWER to $\leq 70\%$ of RATED THERMAL POWER, and
- c) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit by 0.01 to 1.08 per Specification 2.1.2, and
- d) Reduce the Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limit to a value of 0.86 times the two recirculation loop limit per Specification 3.2.1, and

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- e) ~~Reduce the Average Power Range Monitor (APRM) Scram and Rod Block Monitor Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation per Specifications 2.2.1, 3.2.2 and 3.3.6, and~~

38%

- f) Limit the speed of the operating recirculation pump to less than or equal to 90% of rated pump speed, and
- g) Perform surveillance requirement 4.4.1.1.2 if THERMAL POWER is $\leq 30\%$ ~~or~~ of RATED THERMAL POWER or the recirculation loop flow in the operating loop is $\leq 50\%$ ~~or~~ of rated loop flow.

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5.
6.

2.
3.

The provisions of Specification 3.0.4 are not applicable.

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

*See Special Test Exception 3.10.4.

~~**Initial values. Final values to be determined during Startup Testing based upon the threshold THERMAL POWER and recirculation loop flow which will sweep the cold water from the vessel bottom head preventing stratification~~

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.1.1.2 With one reactor coolant system recirculation loop not in operation within no more than 15 minutes prior to either THERMAL POWER increase or recirculation loop flow increase, verify that the following differential temperature requirements are met if THERMAL POWER is \leq 38% of RATED THERMAL POWER or the recirculation loop flow in the operating recirculation loop is \leq 50% of rated loop flow:

- a. $\leq 145^{\circ}\text{F}$ between reactor vessel steam space coolant and bottom head drain line coolant, and
- b. $\leq 50^{\circ}\text{F}$ between the reactor coolant within the loop not in operation and the coolant in the reactor pressure vessel, and
- c. $\leq 50^{\circ}\text{F}$ between the reactor coolant within the loop not in operation and the operating loop.

The differential temperature requirements of Specifications 4.4.1.1.2b and 4.4.1.1.2c do not apply when the loop not in operation is isolated from the reactor pressure vessel.

4.4.1.1.3 Each pump MG set scoop tube mechanical and electrical stop shall be demonstrated OPERABLE with overspeed setpoints less than or equal to 109% and 107%, respectively, of rated core flow, at least once per 18 months.

4.4.1.1.4 Establish a baseline APRM and LPRM* neutron flux noise value within the regions for which monitoring is required (Specification 3.4.1.1, ACTION c) within 2 hours of entering the region for which monitoring is required unless baselining has previously been performed in the region since the last refueling outage.

*Detector levels A and C of one LPRM string per core octant plus detectors A and C of one LPRM string in the center of the core should be monitored.

#Initial values. Final values to be determined during Startup Testing based upon the threshold THERMAL POWER and recirculation loop flow which will sweep the cold water from the vessel bottom head preventing stratification.

3/4.0 APPLICABILITY

BASES (Con't)

a lower CONDITION of operation is reached in less time than allowed, the total allowable time to reach COLD SHUTDOWN, or other OPERATIONAL CONDITION, is not reduced. For example, if STARTUP is reached in 2 hours, the time allowed to reach HOT SHUTDOWN is the next 11 hours because the total time to reach HOT SHUTDOWN is not reduced from the allowable limit of 13 hours. Therefore, if remedial measures are completed that would permit a return to POWER operation, a penalty is not incurred by having to reach a lower CONDITION of operation in less than the total time allowed.

The same principle applies with regard to the allowable outage time limits of the ACTION requirements, if compliance with the ACTION requirements for one specification results in entry into an OPERATIONAL CONDITION or condition of operation for another specification in which the requirements of the Limiting Condition for Operation are not met. If the new specification becomes applicable in less time than specified, the difference may be added to the allowable outage time limits of the second specification. However, the allowable outage time limits of ACTION requirements for a higher CONDITION of operation may not be used to extend the allowable outage time that is applicable when a Limiting Condition for Operation is not met in a lower CONDITION of operation.

The shutdown requirements of Specification 3.0.3 do not apply in CONDITIONS 4 and 5, because the ACTION requirements of individual specifications define the remedial measures to be taken.

Specification 3.0.4 establishes limitations on a change in OPERATIONAL CONDITIONS when a Limiting Condition for Operation is not met. It precludes placing the facility in a higher CONDITION of operation when the requirements for a Limiting Condition for Operation are not met and continued noncompliance to these conditions would result in a shutdown to comply with the ACTION requirements if a change in CONDITIONS were permitted. The purpose of this specification is to ensure that facility operation is not initiated or that higher CONDITIONS of operation are not entered when corrective action is being taken to obtain compliance with a specification by restoring equipment to OPERABLE status or parameters to specified limits. Compliance with ACTION requirements that permit continued operation of the facility for an unlimited period of time provides an acceptable level of safety for continued operation without regard to the status of the plant before or after a change in OPERATIONAL CONDITIONS. Therefore, in this case, entry into an OPERATIONAL CONDITION or other specified condition may be made in accordance with the provisions of the ACTION requirements. The provisions of this specification should not, however, be interpreted as endorsing the failure to exercise good practice in restoring systems or components to OPERABLE status before plant startup.

When a shutdown is required to comply with ACTION requirements, the provisions of Specification 3.0.4 do not apply because they would delay placing the facility in a lower CONDITION of operation.

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B →

3/4.4 REACTOR COOLANT SYSTEM

BASES

3/4.4.1 RECIRCULATION SYSTEM

The impact of single recirculation loop operation upon plant safety is assessed and shows that single loop operation is permitted if the MCPR fuel cladding Safety Limit is increased as noted by Specification 2.1.2, APRM scram and control rod block setpoints are adjusted as noted in Tables 2.2.1-1 and 3.3.6-2, respectively. MAPLHGR limits are decreased by the factor given in Specification 3.2.1, and MCPR operating limits are adjusted per Specification 3/4.2.3.

Additionally, surveillance on the pump speed of the operating recirculation loop is imposed to exclude the possibility of excessive core internals vibration. The surveillance on differential temperatures below 38% THERMAL POWER or 50% rated recirculation loop flow is to mitigate the undue thermal stress on vessel nozzles, recirculating pump and vessel bottom head during the extended operation of the single recirculation loop mode.

An inoperable jet pump is not, in itself, a sufficient reason to declare a recirculation loop inoperable, but it does, in case of a design-basis-accident, increase the blowdown area and reduce the capability of reflooding the core; thus, the requirement for shutdown of the facility with a jet pump inoperable. Jet pump failure can be detected by monitoring jet pump performance on a prescribed schedule for significant degradation.

Recirculation loop flow mismatch limits are in compliance with the ECCS LOCA analysis design criteria for two recirculation loop operation. The limits will ensure an adequate core flow coastdown from either recirculation loop following a LOCA. In the case where the mismatch limits cannot be maintained during two loop operation, continued operation is permitted in a single recirculation loop mode.

In order to prevent undue stress on the vessel nozzles and bottom head region, the recirculation loop temperatures shall be within 50°F of each other prior to startup of an idle loop. The loop temperature must also be within 50°F of the reactor pressure vessel coolant temperature to prevent thermal shock to the recirculation pump and recirculation nozzles. Sudden equalization of a temperature difference > 145°F between the reactor vessel bottom head coolant and the coolant in the upper region of the reactor vessel by increasing core flow rate would cause undue stress in the reactor vessel bottom head.

The objective of GE BWR plant and fuel design is to provide stable operation with margin over the normal operating domain. However, at the high power/low flow corner of the operating domain, a small probability of limit cycle neutron flux oscillations exists depending on combinations of operating conditions (e.g., rod pattern, power shape). To provide assurance that neutron flux limit cycle oscillations are detected and suppressed, APRM and LPRM neutron flux noise levels should be monitored while operating in this region.

~~*Initial values. Final values will be determined during Startup Testing based upon the threshold THERMAL POWER and recirculation loop flow which will sweep the cold water from the vessel bottom head, preventing saturation.~~

INSERT A

3.0.5 Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

INSERT C

2. Within 4 hours, reduce the Average Power Range Monitor (APRM) Scram Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation per Specifications 2.2.1 and 3.2.2; otherwise, with the Trip Setpoints and Allowable Values associated with one trip system not reduced to those applicable for single recirculation loop operation, place the affected trip system in the tripped condition and within the following 6 hours, reduce the Trip Setpoints and Allowable Values of the affected channels to those applicable for single recirculation loop operation per Specifications 2.2.1 and 3.2.2.
3. Within 4 hours, reduce the APRM Control Rod Block Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation per Specifications 3.2.2 and 3.3.6; otherwise, with the Trip Setpoints and Allowable Values associated with one trip function not reduced to those applicable for single recirculation loop operation, place at least one affected channel in the tripped condition and within the following 6 hours, reduce the Trip Setpoints and Allowable Values of the affected channels to those applicable for single recirculation loop operation per Specifications 3.2.2 and 3.3.6.
4. Within 4 hours, reduce the Rod Block Monitor Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation per Specification 3.3.6; otherwise, with the Trip Setpoints and Allowable Values associated with one trip function not reduced to those applicable for single recirculation loop operation, place at least one affected channel in the tripped condition and within the following 6 hours, reduce the Trip Setpoints and Allowable Values of the remaining channels to those applicable for single recirculation loop operation per Specification 3.3.6.

INSERT B

Specification 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of testing required to restore and demonstrate:

- a. The OPERABILITY of the equipment being returned to service;
or
- b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the testing required to restore and demonstrate the OPERABILITY of the equipment. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the testing required to restore and demonstrate OPERABILITY.

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of testing required to restore OPERABILITY on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of testing required to restore and demonstrate OPERABILITY on another channel in the same trip system."

LCO 3.0.5 is applicable to all Technical Specifications; however, the intent of LCO 3.0.5 is not to supercede more specific guidance contained within any individual specification.

ATTACHMENT 3
DESCRIPTION OF REVISIONS TO HOPE CREEK LCR 92-10

REVISION TO LICENSE AMENDMENT APPLICATION
INSTRUMENTATION REQUIREMENTS FOR SINGLE LOOP OPERATIONS
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354

NLR-N93161
REVISION TO LCR 92-10

I. CHANGES TO THE DESCRIPTION OF THE PROPOSED CHANGES

Replace Section I.C of Attachment 1 to NLR-N92187 with the following:

C. Specification 3.0.5

Add Limiting Condition for Operation (LCO) 3.0.5 of NUREG-1433 to the Hope Creek Technical Specifications. The new LCO 3.0.5 would state the following:

"Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY."

Incorporate Bases for LCO 3.0.5 which are similar to the NUREG-1433 Bases. The new Bases would state the following:

Specification 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of testing required to restore and demonstrate:

- a. The OPERABILITY of the equipment being returned to service;
or
- b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the testing required to restore and demonstrate the OPERABILITY of the equipment. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the testing required to restore and demonstrate OPERABILITY.

Description of Revisions to Hope Creek LCR 92-10

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of testing required to restore OPERABILITY on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of testing required to restore and demonstrate OPERABILITY on another channel in the same trip system."

LOO 3.0.5 is applicable to all Technical Specifications; however, the intent of LOO 3.0.5 is not to supercede more specific guidance contained within any individual specification.

II. CHANGES TO THE REASON FOR THE PROPOSED CHANGES

Replace Section II.C of Attachment 1 to NLR-N92187 with the following:

C. Specification 3.0.5

PSE&G believes that it is not the intent of LOO 3.0.2 that conformance to the action requirements for equipment removed from service or declared inoperable preclude the performance of surveillance testing to demonstrate the operability of that or other equipment. Therefore, the new LOO 3.0.5 and its associated Bases are being proposed.

III. CHANGES TO THE JUSTIFICATION FOR THE PROPOSED CHANGES

Replace Section III.C of Attachment 1 to NLR-N92187 with the following:

C. Specification 3.0.5

PSE&G believes that adopting the proposed LOO 3.0.5 and the associated Bases maintains compliance with the intent of LOO 3.0.2.

IV. SIGNIFICANT HAZARDS CONSIDERATION EVALUATION

The basis and conclusions of the significant hazards consideration evaluation contained in Attachment 1 of our original license amendment application (NLR-N92187) are unaffected by the changes contained in this revision.

V. CONCLUSIONS

The conclusions contained in Attachment 1 of our original license amendment application (NLR-N92187) are unaffected by the changes contained in this revision.

VI. CHANGES TO TECHNICAL SPECIFICATION PAGES

The changes to the Bases for Specification 3.0.2 on Page B 3/4 0-2 are retracted and a new Specification 3.0.5 is added to Page 3/4 0-1 along with its associated Bases on Page B 3/4 0-3.