PSEG Nuclear LLC
P.O. Box 236, Hancocks Bridge, New Jersey 08038-0236

NOV 0 4 2004

PSEG
Nuclear LLC

LR-N04-0492
Bases Change H04-10B

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

TECHNICAL SPECIFICATION BASES CHANGE H04-10B
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354

PSEG Nuclear, LLC (PSEG) has revised the Bases for Technical Specification (TS) 3/4.9.2 for the Hope Creek Generating Station. This change was reviewed in accordance with the requirements of the Technical Specification Bases Control Program and 10 CFR 50.59.

TS Bases 3/4.9.2 is being changed to provide additional clarifying information on the required characteristics of spiral reload and spiral unload methodologies.

Attachment 1 contains the revised pages for the Hope Creek Technical Specification Bases. In accordance with the TS Bases Control Program, PSEG has incorporated these changes into the Bases.

Should you have any questions regarding this transmittal, please contact Mr. Paul Duke at (856) 339-1466.

Sincerely,

Christina L. Perino
Director - Licensing and Nuclear Safety

Attachment

A001

C Mr. S. Collins, Administrator – Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. D. Collins, Project Manager - Hope Creek
U. S. Nuclear Regulatory Commission
Mail Stop 08C2
Washington, DC 20555

USNRC Senior Resident Inspector - Hope Creek (X24)

Mr. K. Tosch, Manager IV (without Attachment 1)
Bureau of Nuclear Engineering
PO Box 415
Trenton, NJ 08625

Attachment 1

LR-N04-0492
Bases Change H04-10B

HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354
REVISIONS TO THE TECHNICAL SPECIFICATIONS BASES

<u>Page</u>

B 3/4 9-1
B 3/4 9-2
B 3/4 9-3

3/4.9.1 REACTOR MODE SWITCH

Locking the OPERABLE reactor mode switch in the Shutdown or Refuel position, as specified, ensures that the restrictions on control rod withdrawal and refueling platform movement during the refueling operations are properly activated. These conditions reinforce the refueling procedures and reduce the probability of inadvertent criticality, damage to reactor internals or fuel assemblies, and exposure of personnel to excessive radiation.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of at least two source range monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core. The flux need not be monitored for the first sixteen bundles loaded before a SPIRAL RELOAD or for the last sixteen bundles unloaded during a SPIRAL UNLOAD. In the case of the SPIRAL RELOAD, the sixteen bundles loaded may be different from the bundles scheduled to occupy the bundle locations for the next cycle provided; (i) the cold reactivity of any unscheduled bundle temporarily loaded is individually less than the cold reactivity of the respective bundle scheduled for the subject location, (ii) the uncontrolled k-infinity of the lattice is less than 1.31, and (iii) the bundles are arranged in four two-by-two arrays surrounding an SRM with each array having a minimum of 12 inches between it and an adjacent array.

A SPIRAL RELOAD or SPIRAL UNLOAD can have various implementations consistent with the general guidance provided in Definitions 1.44 and 1.45, respectively.

A SPIRAL RELOAD implementation must have the following characteristics:

1) Spiral movements are used to enhance symmetry of the fuel bundles around the SRMs (i.e. enhanced SRM redundancy, enhanced SRM response).
2) The first fuel bundles to be installed are those immediately surrounding each SRM to generate at least 3 cps (up to four bundles per SRM).
3) The first stage of spiral movements establishes a single fueled region containing the SRMs (i.e. enhanced neutron coupling).
4) The intermediate stages of spiral movements maintain a single fueled region containing the SRMs (i.e. enhanced neutron coupling, no unmonitored fuel).
5) The last stage of spiral movements starts at the SRMs and moves outward to the periphery.

A SPIRAL UNLOAD implementation must have the following characteristics:

1) Spiral movements are used to enhance symmetry of the fuel bundles around the SRMs (i.e. enhanced SRM redundancy, enhanced SRM response).
2) The first stage of spiral movements starts at the periphery and moves inward toward the SRMs.
3) The intermediate stages of spiral movements are chosen to maintain a single fueled region containing the SRMs (i.e. enhanced neutron coupling, no unmonitored fuel).

INSTRUMENTATION (Continued)

4) The last stage of spiral movements leaves up to four bundles immediately surrounding each SRM to maintain at least 3 cps.
5) The last fuel bundles to be removed are those immediately surrounding each SRM.
6) Prior to the start of a SPIRAL UNLOAD, fuel bundles may be removed as long as the removals do not impact the above characteristics.

A "fueled region" is a group of adjacent fuel bundles (preferably face-adjacent) containing at least one SRM. The region can have interior "holes" (i.e. positions without fuel bundles).

Fuel Loading Chambers (FLCs, "Dunking Chambers") can be substituted for SRMs as long as they are connected to the SRM circuitry.

3/4.9.3 CONTROL ROD POSITION

The requirement that all control rods be inserted during other CORE ALTERATIONS minimizes the possibility that fuel will be loaded into a cell without a control rod, although one rod may be withdrawn under control of the reactor mode switch refuel position one-rod-out-interlock.

3/4.9.4 DELETED

3/4.9.5 DELETED

3/4.9.6 DELETED

3/4.9.7 DELETED

3/4.9.8 and 3/4.9.9 WATER LEVEL - REACTOR VESSEL and WATER LEVEL - SPENT FUEL STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. This minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.10 CONTROL ROD REMOVAL

These specifications ensure that maintenance or repair of control rods or control rod drives will be performed under conditions that limit the probability of inadvertent criticality. The requirements for simultaneous removal of more than one control rod are more stringent since the SHUTDOWN MARGIN specification provides for the core to remain subcritical with only one control rod fully withdrawn.

3/4.9.11 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one residual heat removal loop be OPERABLE or that an alternate method capable of decay heat removal be demonstrated and that an alternate method of coolant mixing be in operation ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during REFUELING, and (2) sufficient coolant circulation would be available through the reactor core to assure accurate temperature indication and to distribute and prevent stratification of the poison in the event it becomes necessary to actuate the standby liquid control system.

The requirement to have two shutdown cooling mode loops OPERABLE when there is less than 22 feet 2 inches of water above the reactor vessel flange ensures that a single failure of the operating loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 22 feet 2 inches of water above the reactor vessel flange, a large heat sink is available for core cooling. Thus, in the event a failure of the operating RHR loop, adequate time is provided to initiate alternate methods capable of decay heat removal or emergency procedures to cool the core.