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September 9, 1994
C321-94-2144

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

Gentlemen:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Facility Operating License No. DPR-16
Response to Generic Letter No. 94-02
Re: Boiling Water Reactor Stability

- References: (1) Letter from J. J. Barton, GPU Nuclear, to U.S. Nuclear Regulatory Commission (NRC), "Technical Specification Change Request No. 191," dated October 9, 1991.
- (2) Letter from L.A. England, BWR Owners' Group, to M. J. Virgilio (NRC), "BWR Owners' Group Improved Guidelines for Stability Interim Corrective Actions, April 4, 1994.

This letter responds to requested actions 1 and 2 of NRC Generic Letter 94-02, "Long-Term Solutions and Upgrade of Interim Operating Recommendations for Thermal-Hydraulic Instabilities in Boiling Water Reactors." The generic letter requested Boiling Water Reactor licensees to review operating procedures and operator training programs and to modify them as appropriate to strengthen administrative provisions intended to avoid power oscillations or to detect and suppress them if they occur.

GPUN has implemented Interim Corrective Actions (ICAs) specified in NRC Bulletin 88-07, Supplement 1 at Oyster Creek. These ICAs establish procedural controls to prohibit operation in a designated region on the power/flow map known as the exclusion region. In addition, GPU Nuclear (GPUN) has actively pursued a resolution to the stability issue and has submitted to the NRC a license amendment application (Reference 1) supporting the Oyster Creek-specific long term solution. The application provides analytical results that demonstrate the effectiveness of quadrant-based Average Power Range Monitor (APRM)

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scram protection for both in-phase and out-of-phase oscillations. The license amendment request is under review by the NRC staff.

In response to the BWR Owners' Group effort to develop improved guidelines for ICAs to better address startup and low power maneuvering conditions (Reference 2), GPUN has recently conducted a review of Oyster Creek procedures and training programs. The review focused on areas that could be modified to strengthen the administrative provisions intended to avoid power oscillations or to detect and suppress them if they occur. Several changes have been identified, are discussed in response to requested action 1.b below and are currently scheduled to be implemented in June 1995. These changes are intended to remain in place following resolution of the long term solution.

Requested Action 1

- 1.a Existing procedural controls and operator training at Oyster Creek provide a high degree of assurance that reactor instability will be avoided following a trip of all five recirculation pumps. Procedural requirements exist for initiation of manual reactor scram if two or more of the five pumps trip with the reactor in the Run Mode.
- 1.b Plant operating procedures have been reviewed to assess improvements to further reduce the likelihood of instability. The evaluation considered procedures governing changes in reactor power, including startup and shutdown, particularly at low-flow operating conditions. During normal plant startups and shutdowns significant margin to the exclusion region is maintained. While operating in the Startup Mode (IRM Range 10) the Technical Specifications require flow to be greater than 65% of rated, well above the instability region. In the Run Mode core flow must be maintained greater than 45% flow (this value will be changed to 40% flow upon NRC approval of Reference 1). However, during normal power maneuvering recirculation flow is usually not reduced below 65% of rated providing plenty of margin to the exclusion region.

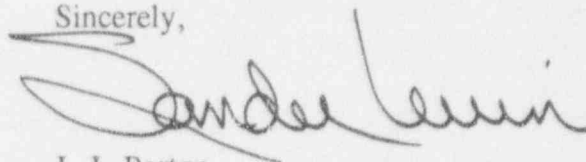
Changes to instability regions will be made in order to strengthen the procedural controls intended to avoid power oscillations. Figure 1, attached, defines the new regions to be implemented into plant procedures. The exclusion region is defined procedurally as an area on the power/flow map where intentional operation is prohibited and inadvertent entry into the region requires an immediate exit. If at any time in this region reactor instability is observed (defined as $\pm 4\%$ power oscillations indicated by the APRMs) procedures require an immediate reactor scram. The heightened awareness (or buffer) region has no operational restrictions but will act as a buffer zone to the exclusion region providing the operator with enough margin and time to take steps to avoid entering the exclusion region. These regions will be

procedurally defined and posted on panel 3F in the control room. The Safety Parameter Display System (SPDS) reactivity/power distribution display will be modified to identify the various regions on the power operation curve. The regions will be color-coded, a message displayed and an alarm flashes informing the operator when a specific region has been entered.


Requested Action 2

The long-term stability corrective action is Option II (quadrant based flow-biased APRM scram protection) per Reference 3 of Generic Letter 94-02. As indicated above, GPUN has previously submitted to the NRC a plant-specific evaluation of Oyster Creek's APRM scram protection with respect to reactor instability. The NRC staff is currently reviewing this proposed resolution.

Sincerely,


for J. J. Barton
Vice President and Director
Oyster Creek

Sworn to and subscribed before me this 9th day of September, 1994


Notary Public

Attachment

cc: Administrator, NRC Region I
NRC Senior Resident Inspector, Oyster Creek
Oyster Creek NRC Project Manager

JUDITH M. CROWE
Notary Public of New Jersey
My Commission Expires 1/25/95

FIGURE 1

