APR 24 1986

Docket No. 50-219

Exemption to DPR-16

Mr. P. B. Fiedler
Vice President and Director
Oyster Creek Nuclear Generating Station
Post Office Box 388
Forked River, New Jersey 08731

Dear Mr. Fiedler:

SUBJECT: SCHEDULAR EXEMPTION - COMPLIANCE WITH 10 CFR 50.44(c)(3)(iii) - ISOLATION CONDENSER HIGH POINT VENTS (TAC 59342)

Re: Oyster Creek Nuclear Generating Station

By letters dated July 23, 1985, and February 3, 1986, you requested an exemption from compliance to 50.44(c)(3)(iii). You stated that new information demonstrated that venting of the isolation condensers to the torus (1) is not necessary for design basis loss-of-coolant accidents (LOCA) and (2) could benefit Oyster Creek performance only for certain small breaks which would also have to involve the failure of the Automatic Depressurization System. You stated that not having this benefit would be a small reduction in the risk of core damage and would be insignificant in comparison with the NRC specified value for Plant Performance Guideline for such risk in the "Proposed Policy Statement on Safety Goals for Nuclear Power Plants" in the Federal Register dated February 17, 1982, page 7026.

High point vents exist on the isolation condensers. These vents are isolated on reactor scram but can be remotely opened after isolation. Therefore, you are in compliance with the Regulations and do not need an exemption to 10 CFR 50.44(c)(3)(iii).

Sincerely,

[redacted]

John A. Zwolinski, Director
BWR Project Directorate #1
Division of BWR Licensing

Enclosure
Safety Evaluation

cc w/enclosur
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 24, 1986

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John A. Zwolinski, Director
BWR Project Directorate #1
Division of BWR Licensing

Enclosure:
Safety Evaluation

cc w/enclosure:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO HIGH POINT VENTS FOR THE ISOLATION CONDENSER

GPU NUCLEAR CORPORATION

JERSEY CENTRAL POWER AND LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

By letter dated August 9, 1984, the NRC staff granted GPU Nuclear (the licensee) a schedular exemption to 10 CFR 50.44(c)(3)(iii) (the Regulations). The exemption is effective until the startup from the Cycle 11 Refueling (Cycle 11R) outage at which time the installation of the high point vents on the isolation condensers (IC) must be complete.

By letter dated July 23, 1985, the licensee requested an exemption from compliance to the Regulations for high point vents on the isolation condensers. By letter dated February 3, 1986, the licensee provided answers to the staff's request for additional information dated August 30, 1985.

2.0 DISCUSSION

NUREG-0737 Item II.B.1 and 10 CFR 50.44(c)(3)(iii) include a requirement to provide "high point vents for systems required to maintain adequate core cooling if accumulation of non-condensibles would cause the loss of function of these systems." In being responsive to this requirement as applied to the IC in Oyster Creek, GPUN initially planned to install high point vents from the tube side of the IC's to the torus. (There is an existing vent on each IC to the main steam line.) This project was to be performed in the Cycle 10 refueling outage. Subsequently, due to other higher priority work, it was decided to defer the project until the Cycle 11 refueling outage.

The justification for the deferral was made on the basis of the perceived safety risk of deferral being acceptably small. This justification became the basis for which the NRC granted a scheduler exemption until the Cycle 11 refueling outage.

This evaluation addresses the need for IC operation for loss-of-coolant accident (LOCA) mitigation including long-term post-accident cooling. Accordingly, this evaluation is limited to consideration of only those loss-of-coolant events in which successful reactor scram occurs early in the event. Both design basis LOCA events and beyond design basis LOCA events are discussed. The impact on LOCA mitigation of the IC venting is evaluated as opposed to evaluating the impact of the over-all IC availability itself. In other words, the difference in LOCA performance with the IC function continuously available (by venting of noncondensibles if required) is evaluated

in comparison with LOCA performance with IC function initially available but postulated to be lost due to the inability to vent any expected accumulation of noncondensibles. Also, such a loss of IC function is considered to occur only after the core is uncovered for significant periods of time without effective cooling such as by core spray. This is because the only credible mechanisms for generation of noncondensible gases is considered to be metal-water reaction in the core or release of fission gases by cladding failure. These two mechanisms would not be significant if the core remains effectively cooled by coverage or core spray.

The effect of IC operation in loss-of-coolant events will be significant only when the following conditions are present:

1) Reactor pressure is sustained high.

2) Fast depressurization mechanisms (such as by intermediate or large size break or by the automatic depressurization system (ADS) valves) are not present.

Further, the difference in LOCA performance with and without the ability to vent the IC will be significant for events in which, in addition to the above, core uncovery without effective cooling by other means (such as core spray) occurs for significant periods of time to cause release of noncondensibles.

For Oyster Creek, a postulated break would have the ADS (with at least four valves) and two core spray loops available for LOCA mitigation. Analyses of these LOCA events show that the reactor will be depressurized and effective core cooling (by coverage for small bottom breaks and all top breaks or by continuous spray for large bottom breaks) will be established without significant release of noncondensibles. Also, since the ADS system is available, the reactor pressure would remain near the containment pressure level. Therefore, the venting of the IC's would be immaterial to mitigation of design basis LOCA events.

For beyond design basis accidents, GPU has stated that isolation condenser venting would impact mitigation only for below-the-core breaks of 0.005-0.8 ft^2 in which the ADS function is not available either by automatic initiation or manual operator action. The core damage frequency due to such LOCA has been conservatively estimated by GPU as $1.8X10^{-5}$ per reactor year without credit for manual ADS or $1.8X10^{-6}$ per reactor year with credit for manual ADS actuation. The benefit to be gained by adding the vent to the isolation condenser is insufficient to require addition of isolation condenser vents.

In the present configuration, Oyster Creek has the capability to vent the isolation condensers to the main steam header downstream of the main isolation valves. This is done to prevent the accumulation of noncondensible gases during startup and normal plant operation. This accumulation can result in a blockage such that steam from the reactor coolant system will not be able to pass through the isolation condenser. In an accident situation, this vent path is isolated; however,

these vents can be remotely opened after isolation. In the phone call on April 10, 1986, during the meeting on the licensee's requested cancellation of the upgrade to the nitrogen purge/vent system, the licensee explained that these high point vents can be reopened after isolation during an accident by moving a wire from one terminal block to another terminal block in the same control room panel within the control room. This will not cause any containment isolation valve to open. If there is a main steam isolation valve (MSIV) isolation signal, an additional jumper must be placed over contacts in control room panel 11F also within the control room. This would not reopen the MSIV.

4.0 CONCLUSION

Based on the above, the staff concludes that an operable high point vent for the isolation condensers would be useful only beyond the design basis accidents; and, therefore, the licensee means to reopen the high point vents are acceptable as a means to reopen the vents after isolation if they should ever be needed to be reopened. Based on this, the staff concludes that the licensee meets 10 CFR 50.44(c)(3)(iii) and no exemption to the regulations is needed.

5.0 REFERENCES

1. Letter from P.B. Fiedler (GPUN) to John A. Zwolinski (NRC) with attachment, dated July 23, 1985.

2. Letter from John A. Zwolinski (NRC) to P.B. Fiedler (GPUN) with attachment, dated August 30, 1985.

3. Letter from P.B. Fiedler (GPUN) to John A. Zwolinski (NRC) with attachment, dated February 3, 1986.

4. Letter from W. A Paulson (NRC) to P.B. Fiedler (GPUN) with attachment, dated August 9, 1984.

Principal Contributors: W. Hodges and J. Donohew.

Dated: April 24, 1986