UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
GPU NUCLEAR CORPORATION AND JERSEY CENTRAL POWER & LIGHT COMPANY	)	Docket No. 50-219
	)	
(Oyster Creek Nuclear Generating Station)	)	

EXEMPTION

I.

The GPU Nuclear Corporation and Jersey Central Power & Light Company (the licensees) are holders of Provisional Operating License No. DPR-16 which authorizes operation of the Oyster Creek Nuclear Generating Station. The license provides among other things, that it is subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

The facility comprises one boiling water reactor located in Ocean County, New Jersey.

II.

Section 50.44(c)(3)(iii) of 10 CFR Part 50 requires a licensee authorized to operate a nuclear power reactor to provide improved operational capability to maintain adequate core cooling following an accident by the end of the first scheduled outage beginning after July 1, 1982 of sufficient duration to permit required modifications. Each light-water reactor shall be provided with high point vents for the reactor coolant system, reactor vessel head, and for other systems required to maintain adequate core cooling if the accumulation of noncondensible gases would cause the loss of function of these systems.

The licensees' letter of August 2, 1982 as supplemented December 15, 1982, March 27, and May 8, 1984 requested a schedular exemption for the installation of high point vents on the Isolation Condenser. The licensees requested that the vents be installed during the Cycle 11 refueling (1985) outage, stating that the plant's overall margin of safety would not be reduced by this deferral.

The isolation condensers of the reactor coolant system provide a means of removing decay heat from the core and reducing primary pressure to the level required for the injection of the low pressure core sprays in the event of an accident. Since Oyster Creek does not have safety-related high pressure injection capability, the pressure reducing systems take on an added importance.

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 RCS will not be able to pass through the isolation condenser. However, in an accident situation this vent path is isolated. Therefore, the concern is that in a situation where sufficient noncondensibles are produced, the isolation condensers may become unavailable for achieving pressure reduction. To produce this amount of noncondensibles, the core would have to be degraded beyond what is calculated for the design basis events.

In order to degrade the core, water level would have to be lost. Recent studies have shown that significant hydrogen generation will not begin until the two phase level has dropped so as to uncover at least half

the core. Along the way, all ECCS setpoints would have been passed and emergency procedures would be in force. The importance of this is that:

- o The isolation condensers will be functional from the point of their initiation (low-low level-7'2" above the top of the active fuel) to the point where half the core is uncovered.
- o The Automatic Depressurization System (ADS) will automatically open the five safety-related emergency relief valves (ERV) on low-low-low level (4'8" above the top of the active fuel) as long as other coincident signals are present. This is to ensure depressurization of the RCS.
- o By procedure, the operators are instructed to manually open the ERVs from the control room if level has dropped to the top of the active fuel and if they are not already open.

In the case of a large break LOCA, where level will be lost very quickly, depressurization is not a concern since it is the event itself that depressurizes the vessel. Thus, there are methods, other than using the isolation condensers, available to achieve depressurization prior to, and in the event of core degradation.

In the analysis of a beyond-the-design-basis accident, the licensee is assumed to utilize all available means to try and mitigate the consequences. Operators at Oyster Creek are instructed by procedure to try to inject water into the vessel using the feedwater system (3 feedwater pumps, high pressure), the control rod drive system (2 pumps powered from safety buses, high pressure), the fire protection pumps (2 pumps, high volume, low pressure,

taking suction from either the fire pond or the backup storage tank and discharging to low pressure spargers, diesel powered), and the standby liquid control system (high pressure, low volume) among others.

In the event that the isolation condensers are still needed to achieve a low pressure condition, the licensees have stated a willingness to use the presently available means to vent off the noncondensible gases. The drawback to using this method is the possible release to the environment of radionuclides. However, only a small fraction of the radioactivity will actually be released. This is due to the fact that 50-90% of the radionuclides are expected to plate out on the steam separators. Additional plate out is expected to occur in the condenser, vent line, and in the main steam lines (the relatively cool main steam lines will see significant plate out). In addition, it is possible that the main steam lines would have maintained their integrity so that the vented gases would remain bottled up. As such, use of the present 3/4" piping to vent the isolation condensers to reduce the likelihood of further degradation to achieve recovery would result in a release primarily made up of noble gases and would thus give the operators a viable alternative for ultimately reducing pressure.

For Oyster Creek, the total frequency of core damage caused by internal events is estimated to be approximately 9×10^{-5} per year. In addition, over 80% of the total risk of core damage comes from sequences involving failure to scram and these sequences do not take credit for operation of the isolation condensers. Because these sequences have a very small chance of occurrence over the next operating cycle, the installation of a new vent line to the torus would extend the present outage by an

additional six months, and because a vent line already exists, the modification to the isolation condenser in the present outage is not required.

Based on our evaluation the staff has concluded that deferment of installation of isolation condenser vents will not adversely affect plant operation, and that the requested schedular exemption from the requirements of 10 CFR 50.44(c)(3)(iii) should be granted.

III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the schedular exemption requested by the licensees' letter of August 2, 1982 is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest. The Commission hereby grants to the licensees a schedular exemption from the requirements to provide isolation condenser high point vents during the current Cycle 10 refueling outage to the Cycle 11 refueling outage.

Pursuant to 10 CFR 51.32 the Commission has determined that the issuance of the exemption will have no significant impact on the environment (August 9, 1984, 49 FR 31964).

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 9 day of August 1984.