March 4, 1991

Docket No. 50-219

Mr. J. J. Barton, Director
Oyster Creek Nuclear Generating Station
Post Office Box 388
Forked River, New Jersey 08731

Dear Mr. Barton:

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SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. 77149)

The Commission has issued the enclosed Amendment No. 149to Provisional Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station, in response to your application dated July 10, 1990.

The amendment revises the Technical Specification (TS) to reduce the low condenser vacuum reactor scram setpoint in TS Table 3.1.1 from 23 inches Hg vacuum reactor to 20 inches Hg vacuum and revises the bases to support the new setpoint. Please correct the FSAR value of steam bypass block of 10 Hg vacuum to agree with the value in the TS of 7" Hg vacuum.

A copy of the related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/S/

Alexander W. Dromerick, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 149to DPR-16
2. Safety Evaluation

cc w/enclosures:
See next page

OFC	:PDI-4:LA	:PDI-4:PM	:PDI-4:D	:OGC	:
NAME	:SNorris	:ADromerick:cn	:JFStolz	:	:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

GPU NUCLEAR CORPORATION

AND

JERSEY CENTRAL POWER & LIGHT COMPANY

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 149
License No. DPR-16

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by GPU Nuclear Corporation, et al., (the licensee), dated July 10. 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Provisional Operating License No. DPR-16 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 149, are hereby incorporated in the license. GPU Nuclear Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Director
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 4, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 149

PROVISIONAL OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove	Insert
Page 3.1-4	Page 3.1-4
Page 3.1-5	Page 3.1-5
Page 3.1-8	Page 3.1-8

particular protection instrument is not required; or the plant is placed in the protection or safe condition that the instrument initiates. This is accomplished in a normal manner without subjecting the plant to abnormal operations conditions. The action and out-of-service requirements apply to all instrumentation within a particular function, e.g., if the requirements on any one of the ten scram functions cannot be met then control rods shall be inserted.

The trip level settings not specified in Specification 2.3 have been included in this specification. The bases for these settings are discussed below.

The high drywell pressure trip setting is $\leq$ 3.5 psig. This trip will scram the reactor, initiate reactor isolation, initiate containment spray in conjunction with low low reactor water level, initiate core spray, initiate primary containment isolation, initiate automatic depressurization in conjunction with low-low-low-reactor water level, initiate the standby gas treatment ;system and isolate the reactor building. The scram function shuts the core down during the loss-of-coolant accidents A steam leak of about 15 gpm and a liquid leak of about 35 gpm from the primary system will cause drywell pressure to reach the scram point; and, therefore, the scram provides protection for breaks greater than the above.

High drywell pressure provides a second means of initiating the core spray to mitigate the consequences of loss-of-coolant accident. Its trip setting of $\leq$3.5 psig initiates the core spray in time to provide adequate core cooling. The break-size coverage of high drywell pressure was discussed above. Low-low water level and high drywell pressure in addition to initiating core spray also causes isolation valve closure. These settings are adequate to cause isolation to minimize the offsite dose within required limits.

It is permissible to make the drywell pressure instrument channels inoperable during performance of the integrated primary containment leakage rate test provided the reactor is in the cold shutdown condition. The reason for this is that the Engineered Safety Features, which are effective in case of a LOCA under these conditions, will still be effective because they will be activated (when the Engineered Safety Features system is required as identified in the technical specification of the system) by low-low reactor water level.*

The scram discharge volume has two separate instrument volumes utilized to detect water accumulation. The high water level is based on the design that the water in the SDIV's, as detected by either set of level instruments, shall not be allowed to exceed 29.0 gallons; thereby, permitting 137 control rods to scram. To provide further margin, an accumulation of not more than 14.0 gallons of water, as detected by either instrument volume, will result in a rod block and an alarm. The accumulation of not more than 7.0 gallons of water, as detected in either instrument volume will result in an alarm.

Detailed analysis of transients have shown that sufficient protection is provided by other scrams below 45% power to permit bypassing of the turbine trip and generator load rejection scrams. However, for operational convenience, 40% of rated power has been chosen as the setpoint below which these trips are bypassed. This setpoint is coincident with bypass valve capacity.

A low condenser vacuum scram trip of 20 inches Hg has been provided to protect the main condenser in the event that vacuum is lost. A loss of condenser vacuum would cause the turbine stop valves to close, resulting in a turbine trip

transient. The low condenser vacuum trip provides a reliable backup to the turbine trip. Thus, if there is a failure of the turbine trip on low vacuum, the reactor would automatically scram at 20 inches Hg. The condenser is capable of receiving bypass steam until 7 inches Hg vacuum thereby mitigating the transient and providing a margin.

Main steamline high radiation is an indication of excessive fuel failure. Scram and reactor isolation are initiated when high activity is detected in the main steam lines. These actions prevent further release of fission products to the environment. This is accomplished by setting the trip at 10 times normal rated power background. Although these actions are initiated at this level, at lower activities the monitoring system also provides for continuous monitoring of radioactivity in the primary steam lines as discussed in Section VII-6 of the FDSAR. Such capability provides the operator with a prompt indication of any release of fission products from the fuel to the reactor coolant above normal rated power background. The gross failure of any single fuel rod could release a sufficient amount of activity to approximately double the background activity at normal rated power. This would be indicative of the onset of fuel failures and would alert the operator to the need for appropriate action, as defined by Section 6 of these specifications.

The settings to isolate the isolation condenser in the event of a break in the steam or condensate lines are based on the predicted maximum flows that these systems would experience during operation, thus permitting operation while affording protection in the event of a break. The settings correspond to a flow rate of less than three times the normal flow rate of $3.2X10^5$ lb/hr. Upon initiation of the alternate shutdown panel, this function is bypassed to prevent spurious isolation due to fire induced circuit faults.

The setting of ten times the stack release limit for isolation of the air-ejector offgas line is to permit the operator to perform normal, immediate remedial action if the stack limit is exceeded. The time necessary for this action would be extremely short when considering the annual averaging which is allowed under 10CFR 20.106, and, therefore, would produce insignificant effects on doses to the public.

Four radiation monitors are provided which initiate isolation of the reactor building and operation of the standby gas treatment system. Two monitors are located in the ventilation ducts, one is located in the area of the refueling pool and one is located in the reactor vessel head storage area. The trip logic is basically a 1 out of 4 system. Any upscale trip will cause the desired action. Trip settings of 17 mr/hr in the duct and 100 mr/hr on the refueling floor are based upon initiating standby gas treatment system so as not to exceed allowed dose rates of 10 CFR 20 at the nearest site boundary.

The SRM upscale of $5X10^5$ CPS initiates a rod block so that the chamber can be relocated to a lower flux area to maintain SRM capability as power is increased to the IRM range. Full scale reading is 1×10^6 CPS. This rod block is bypassed in IRM Ranges 8 and higher since a level of 5×10^5 CPS is reached and the SRM chamber is at its fully withdrawn position.

The SRM downscale rod block of 100 CPS prevents the instrument chamber from being withdrawn too far from the core during the period that it is required to monitor the neutron flux. This downscale rod block is also bypassed in IRM

TABLE 3.1.1 PROTECTIVE INSTRUMENTATION REQUIREMENTS

	Function	Trip Setting	Reactor Modes in which Function Must Be Operable: Shutdown	Refuel	Startup	Run	Min. No. of Operable or Operating [tripped] Trip Systems	Min. No. of Instrument Channels Per Operable Trip Systems	Action Required*
A.	Scram								
	1. Manual Scram		X	X	X	X	2	1	Insert control rods
	2. High Reactor Pressure	**		X(s)	X(11)	X	2	2	
	3. High Drywell Pressure	≤ 3.5 psig		X(u)	X(u)	X	2	2	
	4. Low Reactor Water Level	**		X	X	X	2	2	
	5. a. High Water Level in Scram Discharge Volume North Side	≤ 29 gal.		X(a)	X(z)	X(z)	2	2	
	b. High Water Level in Scram Discharge Volume South Side	≤ 29 gal.		X(a)	X(z)	X(z)	2	2	
	6. Low Condenser Vacuum	≥ 20 inches hg.			X(b)	X	2	2	
	7. High Radiation in Main Steam Line Tunnel	≤ 10 x normal background		X(s)	X	X	2	2	

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 149

TO PROVISIONAL OPERATING LICENSE NO. DPR-16

GPU NUCLEAR CORPORATION AND
JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

Pursuant to 10 CFR 50.59, GPU Nuclear Corporation (GPUN, the licensee), operator of the Oyster Creek Nuclear Generating Station (OCNGS), submitted on July 10, 1990, a Technical Specification (TS) Change Request No. 188. This is a change request to Appendix A of the Provisional Operating License No. DPR-16. The change request proposes to reduce the low condenser vacuum reactor scram setpoint in Table 3.1.1 from 23 inches Hg vacuum to 20 inches Hg vacuum and revises the bases to support the new setpoint.

2.0 EVALUATION

The low vacuum reactor scram provides protection to the condenser, turbine, and an anticipated loss of the reactor heat sink. In the Final Safety Analysis Report (FSAR) Chapter 15, Section 15.2.5, there is a statement " A loss of condenser vacuum results in a loss of the main decay heat sink for the reactor. A turbine trip occurs at 22" Hg vacuum, and a reactor scram at 23" HG vacuum. This event behaves similarly to a turbine trip with bypass failure, since the bypass to the condenser is automatically blocked upon receiving the loss of vacuum at 10" Hg vacuum. Relief valves and the Isolation Condensers are used to remove decay heat. The loss of condenser vacuum is considered to be a transient of moderate frequency."

The TS Bases 3.1, page 3-1-4, has a statement, "A low condenser vacuum scram trip of 23" Hg has been provided to protect the main condenser in the event that vacuum is lost. A loss of condenser vacuum would cause the turbine stop valves to close, resulting in a turbine trip transient. The low condenser vacuum trip anticipates this transient and scrams the reactor. The condenser is capable of receiving bypass steam until 7" Hg vacuum thereby mitigating the transient and providing a margin." The TS 7" Hg vacuum bypass steam block does not agree with the 10" Hg vacuum stated in the FSAR.

The licensee's purpose for changing the low vacuum reactor scram setpoint from equal or greater than 23" Hg vacuum to 20" Hg vacuum is to reduce the high possibility of a spurious reactor scram when backwashing the condenser in the summer, when the condenser cooling water is at its highest temperature, while maintaining full load on the turbine, generator, and reactor.

The licensee does not take credit for the low condenser vacuum reactor trip in the FSAR, Chapter 15, Section 15.2.5 analysis nor in any other transient analysis in the FSAR.

With the new setpoint of 20" Hg vacuum, the reactor scram will occur after the turbine trip of 22" Hg vacuum. Since the turbine trip also scrams the reactor the low condenser vacuum reactor scram is now a backup to the turbine trip. The actual reactor scram would then occur at 22" Hg vacuum when the turbine trips, instead of the present condenser vacuum setpoint of 23" Hg. The turbine trip without bypass bounds the loss of condenser vacuum trip.

The licensee has performed an analysis using a computer code (RELAP5 MOD2) to evaluate several degraded condenser coolant and increased air leakage events and concluded that a setpoint of 20" Hg condenser vacuum had little or no impact upon condenser protection as compared to 23" Hg vacuum.

Based on the above, the staff concludes that the change of the condenser low vacuum reactor trip setpoint from 23" Hg vacuum to 20" Hg vacuum is acceptable. However, the value of steam bypass block in the FSAR of 10" Hg vacuum should be corrected to agree with the value in the TS of 7" Hg vacuum.

3.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public

will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: F. Paulitz

Date: March 4, 1991