April 14, 1997

Mr. Michael B. Roche
Vice President and Director
GPU Nuclear Corporation
Oyster Creek Nuclear Generating Station
P.O. Box 388
Forked River, NJ 08731

SUBJECT: OYSTER CREEK - ISSUANCE OF AMENDMENT RE: AUTOMATIC DEPRESSURIZATION SYSTEM (TAC NO. M96905)

Dear Mr. Roche:

The Commission has issued the enclosed Amendment No. 190 to Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station, in response to your application dated October 10, 1996 (TSCR 243).

The amendment modifies the Technical Specifications (TS) by replacing the description of the existing permissive interlock from "AC Voltage" to core spray booster pump differential pressure (d/p) permissive: > 21.2 psid for initiation of the automatic depressurization system, adds corresponding surveillance requirements, and adds notes clarifying functional requirements.

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

Sincerely,

Original signed by

Ronald B. Eaton, Senior Project Manager
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosures: 1. Amendment No.190 to DPR-16
2. Safety Evaluation

cc w/encls: See next page

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M. Roche
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

GPU NUCLEAR CORPORATION

AND

JERSEY CENTRAL POWER & LIGHT COMPANY

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 190
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 October 10, 1996, 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.

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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 Facility 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. 190, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Patrick D. Milano, Acting Director
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 14, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 190

FACILITY OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

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

Remove	Insert
3.1-11	3.1-11
3.1-16	3.1-16
--	3.1-16a
4.1-6	4.1-6

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 System	Action Required*
D. Core Spray								Consider the respective core spray loop inoperable, and comply with Spec. 3.4
1. Low-Low Reactor Water Level	**	X(t)	X(t)	X(t)	X	2	2(pp)	
2. High Drywell Pressure	≤ 3.5 psig	X(t)	X(t)	X(t)	X	2(k)	2(k)(pp)	
3. Low Reactor Pressure (valve permissive)	≥ 285 psig	X(t)	X(t)	X(t)	X	2	2(pp)	
E. Containment Spray								
Comply with Technical Specification 3.4								
F. Primary Containment Isolation								
1. High Drywell Pressure	≤ 3.5 psig	X(u)	X(u)	X(u)	X	2(k)	2(k)(oo)	Isolate containment or PLACE IN COLD SHUT-DOWN CONDITION
2. Low-Low Reactor Water Level	≥ 7'2" above TOP OF ACTIVE FUEL	X(u)	X(u)	X(u)	X	2	2(oo)	
G. Automatic Depressurization								
1. High Drywell Pressure	< 3.5 psig	X(v)	X(v)	X(v)	X	2(k)	2(k)	See note h.
2. Low-Low-Low Reactor Water Level	≥ 4'8" above TOP OF ACTIVE FUEL	X(v)	X(v)	X(v)	X	2	2	See note h.
3. Core Spray Booster Pump d/p Permissives:	**> 21.2 psid**	**X(v)**	**X(v)**	**X(v)**	**X**	**note i.**	**note i.**	**See note i.**

* Action required when minimum conditions for operation are not satisfied. Also permissible to trip inoperable trip system. A channel may be placed in an inoperable status for up to six hours for required surveillance without placing the trip system in the tripped condition provided at least one OPERABLE instrument channel in the same trip system is monitoring that parameter.

** See Specification 2.3 for Limiting Safety System Settings.

Notes:

a. Permissible to bypass, with control rod block, for reactor protection system reset in REFUEL MODE.

b. Permissible to bypass below 800 psia in REFUEL and STARTUP MODES.

c. One (1) APRM in each OPERABLE trip system may be bypassed or inoperable provided the requirements of Specification 3.1.C and 3.10.C are satisfied. Two APRMs in the same quadrant shall not be concurrently bypassed except as noted below or permitted by note.

   Any one APRM may be removed from service for up to six hours for test or calibration without inserting trips in its trip system only if the remaining OPERABLE APRMs meet the requirements of Specification 3.1.B.1 and no control rods are moved outward during the calibration or test. During this short period, the requirements of Specifications 3.1.B.2, 3.1.C and 3.10.C need not be met.

d. The IRMs shall be inserted and OPERABLE until the APRMs are OPERABLE and reading at least 2/150 full scale.

e. Offgas system isolation trip set at $\leq 2.1/\bar{E}$ Ci/sec where $\bar{E}$ = average gamma energy from noble gas in offgas after holdup line (Mev). Air ejector isolation valve closure time delay shall not exceed 15 minutes.

f. Unless SRM chambers are fully inserted.

g. Not applicable when IRM on lowest range.

h. **With one or more instrument channel(s) inoperable in one ADS trip system, place the relay contact(s) for the inoperable initiation signal in the tripped condition within 4 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3.**

   With one or more instrument channel(s) inoperable in both ADS trip systems, restore ADS initiation capability in at least one trip system within 1 hour, or declare ADS inoperable and take the action required by Specification 3.4.B.3.

   Relief valve controllers shall not be bypassed for any more than 3 hours (total time for all controllers) in any 30-day period and only one relief valve controller may be bypassed at a time.

i. **With two core spray systems OPERABLE:**

1. **A maximum of two core spray booster pump differential pressure (d/p) switches may be inoperable provided that the switches are in opposing ADS trip systems [i.e., only: either RV-40 A&D or RV-40 B&C]. Place the relay contacts associated with the inoperable d/p switch(es) in the de-energized position, within 24 hours. Restore the inoperable d/p switch(es) within 8 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3;**

   or,

2. **If two inoperable d/p switches are in the same ADS trip system [i.e., RV-40 A&B or RV-40 C&D], place the relay contacts associated with the inoperable d/p switch(es) in the de-energized position, within 24 hours. Restore the inoperable d/p switches within 4 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3.**

With only one core spray system OPERABLE:

If one or more d/p switches become inoperable in the OPERABLE core spray system, declare ADS inoperable and take the action required by Specification 3.4.B.3.

j. Not required below 40% of rated reactor thermal power.

TABLE 4.1.1 (cont'd)

Instrument Channel	Check	Calibrate	Test	Remarks (Apply to Test & Calibration)
29. Drywell High Radiation	N/A	Each re-fueling outage	Each re-fueling outage	
30. Automatic Scram Contactors	N/A	N/A	1/wk	Note 1
31. Core Spray Booster Pump Differential Pressure	**N/A**	**1/3 mo**	**1/3 mo**	**By application of a test pressure**

*Calibrate prior to startup and normal shutdown and thereafter check 1/s and test 1/wk until no longer required.

LEGEND: N/A = Not Applicable; 1/s = Once per shift; 1/d = Once per day; 1/3d = Once per 3 days; 1/wk = Once per week; 1/mo = Once per month; 1/3 mo = Once every 3 months; 1/20 mo = Once every 20 months; 1/24 mo = Once every 24 months

Note 1: Each automatic scram contactor is required to be tested at least once per week. When not tested by other means, the weekly test can be performed by using the subchannel test switches.

Note 2: At least daily during reactor POWER OPERATION, the reactor neutron flux peaking factor shall be estimated and flow-referenced APRM scram and rod block settings shall be adjusted, if necessary, as specified in Section 2.3 Specifications A.1 and A.2.

Note 3: Calibrate electronic bistable trips by injection of an external test current once per 3 months. Calibrate transmitters by application of test pressure once per 12 months.

The following notes are only for Item 15 of Table 4.1.1:

A channel may be taken out of service for the purpose of a check, calibration, test or maintenance without declaring the channel to be inoperable.

a. The Channel Test shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

1) Instrument indicates measured levels above the alarm setpoint.
2) Instrument indicates a downscale failure.
3) Instrument controls not set in operate mode.
4) Instrument electrical power loss.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 190

TO FACILITY 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

By letter dated October 10, 1996, the GPU Nuclear Corporation (the licensee) requested an amendment to the Technical Specifications (TSs) appended to Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station. The requested changes would:

1. replace the present interlock description "AC Voltage" with "Core Spray Booster Pump d/p Permissive: >21.2 psid" as a permissive for initiation of the automatic depressurization system (ADS), for Function Unit G.3 of TS Table 3.1.1,

2. add applicable reactor modes under which the permissive of Function Unit G.3 must be functional,

3. add corresponding surveillance requirement to TS Table 4.1.1 to test and calibrate the core spray booster pump differential pressure (d/p) switches pursuant to existing plant procedures, and

4. revise existing footnotes for the ADS initiation functions and provide new footnotes to identify the interlock function which always existed but was not clearly identified in the TS and, define operability and allowed outage times (AOT) for the interlock d/p switches.

The ADS is designed to provide for a controlled blowdown of the primary system in order to reduce reactor pressure rapidly during a small pipe break event which will allow core injection prior to uncovering the fuel. ADS is automatically initiated on low-low-low reactor water level coincident with high drywell pressure and with core spray injection booster pump d/p switch as a permissive interlock. The d/p switch permissive-interlock ensures that

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cooling water for the injection function is available prior to depressurization of the reactor. This permissive is similar to the Improved Standard TS requirement to monitor core spray pump discharge pressure.

In its submittal, the licensee stated that the d/p switch interlock function was incorporated in the ADS logic design in 1985 but was not identified clearly in the existing TS. The proposed amendment identifies the functional requirements of this interlock for the TS.

2.0 EVALUATION

2.1 Proposed change: Table 3.1.1, Protective Instrumentation Requirements, revise Function G, Automatic Depressurization, item 3 to read: "Core Spray Booster Pump d/p Permissive[s]: > 21.2 psid."

Revise the table to require that the d/p instrument channels be operable during the shutdown and refuel modes, consistent with the mode applicability of both the High Drywell Pressure and the Low-Low-Low Reactor Water Level initiation signals required for ADS actuation.

Evaluation: For the ADS to provide its protective function, i.e., opening of the electromatic relief valves (EMRVs) and blowdown to the torus to reduce pressure following a small break LOCA, both initiation signals (high drywell pressure and low-low-low reactor level) must be tripped in conjunction with a permissive-interlock indicating that the core spray system (CSS) is available. Availability of the CSS is indicated by the booster pump d/p switches.

In its submittal, the licensee stated that the TS limit for d/p >21.2 psid was established by determining both upper and lower safety limits for actuation by using established calculation methodologies to ensure that adequate margins would be available to account for the potential of pump run out, instrument error, drift, switch reset dead bands, potential pump failure, and electrical transients associated with a pump trip or a pump start.

The proposed TS revision does not modify the ADS design nor does it change instrument setpoints but identifies the functional requirements of the existing d/p switch interlock as part of the protective system actuation requirement in the TS. This modification is acceptable to the staff.

2.2 Proposed change: Table 3.1.1, Protective Instrumentation Requirements, item G - Automatic Depressurization, Function 3, add a new footnote "i" to read:

"With two core spray systems OPERABLE:

1. A maximum of two core spray booster pump differential pressure (d/p) switches may be inoperable provided that the switches are in opposing ADS trip systems [i.e., only: either RV-40 A&D or RV-40 B&C]. Place the relay contacts associated with the inoperable d/p switch(es) in the de-energized position, within 24

hours. Restore the inoperable d/p switch(es) within 8 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3; or,

2. If two inoperable d/p switches are in the same ADS trip system [i.e., RV-40 A&B or RV-40 C&D], place the relay contacts associated with the inoperable d/p switch(es) in the de-energized position, within 24 hours. Restore the inoperable d/p switches within 4 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3.

With only one core spray system OPERABLE

If one or more d/p switches become inoperable in the OPERABLE core spray system, declare ADS inoperable and take the action required by Specification 3.4.B.3."

Evaluation: In its submittal, the licensee stated that the new Footnote "i" is provided to specify the operator action(s) required when failure of a core spray booster pump d/p switch occurs. Footnote "i" also takes into account the redundancy of the d/p switches in the as-built configuration, i.e., the fact that each of the two d/p switches provided in each CSS monitors the operation of both core spray booster pumps simultaneously. If one of the two core spray booster pump d/p switches were to fail in either CSS-I or CSS-II or both (A&D or B&C), monitoring of both pairs of redundant booster pumps in each of the respective CCS would continue to be accomplished by the redundant d/p switches in each system that remain operable. A maximum of 8 days is allowed to perform repairs under these conditions. Placing the relay contacts for the failed d/p switch in the "de-energized" state ensures that the redundant d/p switch performs the function of monitoring operability of either of the redundant booster pumps, such that ADS is prevented from being inadvertently initiated.

As per new note "i", if one of the two ADS divisions becomes inoperable due to inoperability of one or more (A&B or C&D) d/p switch(es), a maximum of 4 days is allowed to perform repairs. Thus, the plant can operate 4 days with only one ADS train available. In this situation, if a single failure occurs in one of the two operable d/p switches, an operable ADS train will still be available in the presence of a single failure, because the last operable d/p switch can monitor both booster pumps of the operable CSS-I or CSS-II (as the case may be). The 8-day and 4-day AOTs for the inoperable d/p switches are consistent with those for other ADS protective system functions in the Oyster Creek TS. Note "i" as discussed above is, therefore, acceptable to the staff.

2.3 Proposed change: Table 3.1.1, Protective Instrumentation Requirements, item G - Automatic Depressurization, Functions 1 and 2, revise footnote "h" to read:

"With one or more instrument channel(s) inoperable in one ADS trip system, place the relay contact(s) for the inoperable initiation signal in the tripped

condition within 4 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3.

With one or more instrument channel(s) inoperable in both ADS trip systems, restore ADS initiation capability in at least one trip system within 1 hour, or declare ADS inoperable and take the action required by Specification 3.4.B.3.

Relief valve controllers shall not be bypassed for any more than 3 hours (total time for all controllers) in any 30-day period and only one relief valve controller may be bypassed at a time."

Evaluation: The licensee stated that Footnote "h." is revised to change the AOTs associated with the initiating signals of High Drywell Pressure or Low-Low-Low Reactor Water Level (Items G.1 and G.2 on Table 3.1.1) to align them with the surveillance test intervals and AOTs for the ADS. Of note, the Improved Standard Technical Specifications (ISTS) allow channel inoperability which does not result in a loss of function to continue for an indefinite period. This is based on the reliability analyses performed on the ADS and continued operability of the ADS assuming a single failure when an inoperable channel is placed into the tripped condition.

The revised Footnote "h." clarifies specifically what operator action is required with respect to placing the inoperable instrument channel in the ADS initiation circuit in a tripped state. The previous wording in Footnote "h." indicated that "One instrument channel in each trip system may be inoperable provided 'the circuit which it operates in the trip system is placed in a simulated tripped condition'...." As a result of the above proposed change, any confusion related to the phrase in single quote marks above is eliminated by specifically requiring the relay contacts for the inoperable initiation signal to be placed in the tripped condition.

In case one instrument channel in each trip system is found inoperable, the existing note "h" requires the inoperable channel(s) to be placed in its tripped state. Therefore, both ADS divisions are available to perform their design function. In accordance with the revised note "h", with one or more instrument channel(s) inoperable in one ADS trip system, the inoperable channel(s) will be placed in the tripped system within 4 days. This means that the affected ADS division will be inoperable for 4 days since the inoperable channel is not placed in the tripped state, and the plant will operate 4 days with only one ADS division available. In this situation, if a single failure occurs during these 4 days in the available ADS train, neither division of ADS will be available. Thus, the proposed revision to Footnote "h" is nonconservative compared to the existing version. In its submittal, the licensee stated that the ISTS allow 96 hours (4 days) for the AOT for the above situation. Therefore, the revision to footnote "h" was proposed to make the existing Oyster Creek TS AOT consistent with that of the ISTS. The ISTS acceptance of the longer AOT was based on the availability of diverse systems to perform the design objectives of the ADS system. Since this proposed change is consistent with the ISTS, the staff finds it acceptable.

2.4 Proposed change: TS Table 4.1.1, add item 31 to read:

"Core Spray Booster Pump Differential Pressure". Add "N/A" in Check, "Once every 3 months" in Calibrate, "Once every 3 months" in Test and "By application of a test pressure" in Remarks columns.

Evaluation: In its submittal, the licensee stated that the new item 31 is added to the table to reflect surveillance activities such as channel check, calibration, and test that are associated with the core spray booster pump d/p switches. The performance checks will be implemented by existing plant procedures. The surveillance frequencies are consistent with those established in Reference 2 of TS Bases Section 4.1. This is acceptable to the staff.

Based on the above review, the staff concludes the proposed Oyster Creek TS modifications for the ADS initiation function are consistent with the current Oyster Creek protective system TS requirements and the ISTS and are, therefore, acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 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 and changes surveillance requirements. 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 (61 FR 57485). 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.

5.0 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 or to the health and safety of the public.

Principal Contributor: S. V. Athavale

Date: April 14, 1997