See Correction letter of 3/3/86

December 5, 1985

Docket No. 50-247

Distribution

Docket file	NRC PDR
PWR#3-A RDG	L PDR
Gray file (4)	HThompson
CParrish	MSlosson
DNeighbors	OELD
LHarmon	EJordan
BGrimes	JPartlow
TBarnhart (4)	WJones
EButcher	ACRS (10)
OPA, CMiles	RDiggs

Mr. John D. O'Toole
Vice President
Nuclear Engineering and Quality Assurance
Consolidated Edison Company
of New York, Inc.
4 Irving Place
New York, New York 10003

Dear Mr. O'Toole:

The Commission has issued the enclosed Amendment No. 105 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated February 14, 1983. In addition, by letter dated August 1, 1985, Consolidated Edison provided changes which were administrative in nature and in no way changed the meaning or technical content of the earlier submittal.

The amendment revises the Technical Specifications to conform more closely with the Standard Technical Specifications regarding boric acid addition capabilities by adding operability requirements for the boric acid transfer pump, boric acid storage system and refueling water storage tank to the existing Specifications. A Specification concerning operation with reactor coolant temperature below 295°F is also added.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,
/s/MSlosson

Marylee M. Slosson, Project Manager
PWR Project Directorate #3
Division of PWR Licensing-A

Enclosures:
1. Amendment No. 105 to DPR-26
2. Safety Evaluation

cc: w/enclosures
See next page

*SEE PREVIOUS WHITE FOR CONCURRENCE

PWR#3-A*	PWR#3-A	D/PWR#3-A*	OELD*
CParrish	MSlosson/ts	SVarga	
11/12/85	12/5/85	11/18/85	11/20/85

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Sincerely,

Marylee M. Slosson, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. Amendment No. to DPR-26
2. Safety Evaluation

cc: w/enclosures
See next page

*SEE PREVIOUS WHITE FOR CONCURRENCE

ORB#1:DL*	ORB#1:DL	BC-ORB#1:DL	OELD	AD:OR:DL
CParrish	MSlosson/ts	Swarga	M. Kaplan	GLainas
11/12/85	11/18/85	11/18/85	11/20/85	11/ /85

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Sincerely,

Marylee M. Slosson, Project Manager
Operating Reactors Branch #1
Division of Licensing

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1. Amendment No. to DPR-26
2. Safety Evaluation

cc: w/enclosures
See next page

ORB#1:DL	ORB#1:DL MMS	ORB#1:DL	BC-ORB#1:DL	OELD	AD:OR:DL
CParrish	MSlosson/ts	DNeighbors	SVarga		GLainas
11/12/85	11/15/85	/ /85	/ /85	/ /85	/ /85

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

CONSOLIDATED EDISION COMPANY OF NEW YORK, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 105
License No. DPR-26

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

   A. The application for amendment by Consolidated Edison Company of New York, Inc. (the licensee) dated February 14, 1983, as supplemented August 1, 1985, 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 Facility Operating License No. DPR-26 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 105 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance to be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Director
PWR Project Directorate #3
Division of PWR Licensing-A

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 5, 1985

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Revise Appendix A as follows:

Remove Pages	Insert Pages
3.2-1	3.2-1
3.2-2	3.2-2
3.2-3	3.2-3

3.2 CHEMICAL AND VOLUME CONTROL SYSTEM

Applicability

Applies to the operational status of the Chemical and Volume Control System.

Objective

To define those conditions of the Chemical and Volume Control System necessary to ensure safe reactor operation.

Specification

A. When fuel is in the reactor there shall be at least one flow path to the core for boric acid injection.

B. The reactor shall not be made critical unless the following Chemical and Volume Control System conditions are met.

1. Two charging pumps shall be operable.

2. The boric acid storage system shall contain a minimum of 4400 gallons of 11 1/2% to 13% by weight (20,000 ppm to 22,500 ppm of boron) boric acid solution at a temperature of at least 145°F, and at least one boric acid transfer pump shall be operable.

3. System piping and valves shall be operable to the extent of establishing one flow path from the boric acid storage system and one flow path from the refueling water storage tank (RWST) to the Reactor Coolant System.

4. Two channels of heat tracing shall be operable for the flow path from the boric acid storage system.

C. During power operation, the requirements of 3.2.B may be modified to allow any one of the following components to be inoperable. If the system is not restored to meet the requirements of 3.2.B within the time period specified, the reactor shall be placed in the hot shutdown condition utilizing normal operating procedures. If the requirements of 3.2.B are not satisfied within an additional 48 hours, the reactor shall be placed in the cold shutdown condition utilizing normal operating procedures.

1. One of the two operable charging pumps may be removed from service provided a second charging pump is restored to operable status within 24 hours.

2. The boric acid storage system (including the boric acid transfer pumps) may be inoperable provided the RWST is operable and provided that the boric acid storage system and at least one boric acid transfer pump is restored to operable status within 48 hours.

3. One channel of heat tracing for the flow path from the boric acid storage system to the Reactor Coolant System may be out of service provided the failed channel is restored to an operable status within 7 days and the redundant channel is demonstrated to be operable daily during that period.

4. Both channels of heat tracing for the flow path from the boric acid storage system to the Reactor Coolant System may be out of service provided at least one channel is restored to operable status within 48 hours, the required flow path is shown to be clear of blockage, and the second channel is restored to operable status within 7 days.

D. When RCS temperature is less than or equal to 295°F, the requirements of Table 3.1.A-2 regarding the number charging pumps allowed to be energized shall be adhered to.

Basis

The Chemical and Volume Control System provides control of the Reactor Coolant System boron inventory. This is normally accomplished by using any one of the three charging pumps in series with either one of the two boric acid transfer pumps. An alternate method of boration will be to use the charging pumps taking suction directly from the refueling water storage tank.

A third method will be to depressurize and use the safety injection pumps. There are three sources of borated water available for injection through 3 different paths.

(1) The boric acid transfer pumps can deliver the contents of the boric acid storage system to the charging pumps.

(2) The charging pumps can take suction from the refueling water storage tank. (2000 ppm boron solution). Reference is made to Technical Specification 3.3.A.

(3) The safety injection pumps can take their suction from either the refueling water storage tank or the boron injection tank.

The quantity of boric acid in storage from either the boric acid storage system or the refueling water storage tank is sufficient to borate the reactor coolant in order to reach cold shutdown at any time during core life.

Approximately 4000 gallons of the 11 1/2% to 13% by weight (20,000 ppm to 22,500 ppm of boron) of boric acid are required to meet cold shutdown conditions.

Thus, a minimum of 4400 gallons in the boric acid storage system is specified. An upper concentration limit of 13% (22,500 ppm of boron) boric acid in the boric acid storage system is specified to maintain solution solubility at the specified low temperature limit of 145°F. One of two channels of heat tracing is sufficient to maintain the specified low

temperature limit. Since both channels out of service could result in boron precipitation, it is necessary to show that the required flow path is clear of blockage following operation in this condition.

Reference

FSAR - Section 9.2

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. DPR-26

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

INTRODUCTION

By letter dated February 14, 1983, Consolidated Edison Company of New York (the licensee) proposed the following changes to the Technical Specifications for the Chemical and Volume Control System (CVCS) appended to Facility Operating License No. DPR-26 for Indian Point Nuclear Generating Unit No. 2.

1. Revise Technical Specification 3.2, Specification Item B.2, to allow reactor criticality with one operable boric acid transfer pump for the boric acid storage system. The revision deletes the existing item B.2, which requires two operable boric acid transfer pumps when the reactor is critical.

2. Revise Technical Specification 3.2, Specification Item C.2, to allow power operation without the boric acid storage system and operable boric acid transfer pumps. The revision deletes the existing item C.2, and permits operating for 48 hours without the boric acid storage system but with one operable boric acid flow path from the refueling water storage system.

3. Add a new Technical Specification 3.2, Specification Item C.4, to allow power operation without both channels of heat tracing for the flow paths from the boric acid storage system. The revision permits operating for 48 hours with both channels of heat tracing out of service; existing Item C.4 is renumbered as Item C.3.

4. Add a Technical Specification 3.2, Specification Item D, to allow per table 3.1.A-2, the number of charging pumps energized when the Reactor Coolant System (RCS) temperature is less than or equal to 295°F. The revision adds the Item D.

By letter dated October 23, 1985 Amendment No. 101 to the Indian Point Nuclear Generating Unit No. 2 Operating License was issued. As part of this amendment the overpressure protection system Technical Specifications were issued. During the review process for Amendment No. 101 the overpressure protection arming temperature was revised from 310°F to 295°F. As a result the reference to the overpressure protection arming temperature on Specification 3.2 item D required revision. By letter dated August 1, 1985 Consolidated Edison provided this change. This change was administrative in nature and in no way changed the meaning or technical content of the Specification.

DISCUSSION AND EVALUATION

The proposed changes are all associated with operability requirements for the boric acid storage system and flow paths but under different operating conditions. As such, each was reviewed separately as described below and are discussed in the same sequence as above.

1. The proposed change deletes the requirement of having two operable boric acid transfer pumps whenever the reactor is made critical. The boric acid storage system consists of two 100% capacity canned centrifugal pumps, each capable of circulating and transferring the chemical solution at full capacity. Thus, only one pump is required for boric acid batching and transfer, and the second pump may function as a standby. This redundancy is provided for the pumps to permit maintenance during operation of the plant.

   The design pressure head of each pump is sufficient to deliver rated flow to the charging pump suction header when the volume control tank pressure is at the maximum operating value (relief valve setting). Therefore, one transfer pump can provide a flow path from the boric acid tank to the reactor coolant system, and the proposed change obviates the need for unnecessary and unwarranted plant shutdowns for maintenance work on the second pump. Furthermore, this change is consistent with the guidelines provided in the standard technical specifications and Standard Review Plan, NUREG-0800, for the boric acid injection flow path requirements.

   The staff concluded that the proposed change is fully within the technical basis of the safety analysis and the flow path requirements of the boric acid storage system, and no other safety concerns have been introduced. The staff therefore, considers the change to be acceptable.

2. The proposed change deletes the requirement of maintaining two operable boric acid transfer pumps for the boric acid storage system during power operation, and permits power operation without the boric acid storage system for 48 hours.

   According to the Standard Review Plan NUREG-0800, and the Standard Technical Specification for Westinghouse PWR plants, boration of the reactor coolant system can be accomplished through either of two flow paths and from either of two boric acid sources. One flow path consists of the boric acid tanks, as one boric acid source, via one boric acid transfer pump and a charging pump to the reactor coolant system. Another flow path is from the refueling water storage tank, as a second boric acid source, via a charging pump. Since each boric acid transfer pump has 100% capacity and is capable of delivering sufficient suction head to the charging pump, one pump can provide a full flow path for the boric acid storage system.

   The single failure criteria for providing boric acid flow paths to the reactor is met as follows. The boric acid storage system via one operable boric acid transfer pump can provide one flow path and the refueling water storage tank can provide a redundant boric acid source and flow path for the charging pumps and ultimately to the reactor coolant system. Under these circumstances, a failure of the operating transfer pump, with the other inoperable, will disable the boric acid storage system. However, the refueling water storage system via the charging pumps will serve as an alternate source of boric acid to the reactor coolant system, and the failure of the operating transfer pump still meets the single failure criteria.

However, the Standard Technical Specification for Westinghouse PWR plants made an exception to the above criteria, and permits operating for an additional 72 hours with only one boron injection flow path from the refueling water storage system. Within this 72 hour period, two boron injection flow paths to the Reactor Coolant System must be restored. Otherwise, the Standard Technical Specification requires placing the reactor in at least Hot Standby. The proposed revision requires establishing both boric acid injection flow paths (one from the boric acid storage system and other from the Refueling Water Storage System) to an operable status within 48 hours when the boric acid storage system becomes inoperable. Otherwise, the revision proposes to place the reactor in a Hot Shutdown condition.

Based upon the above, the staff concludes that the licensee's proposed change is more conservative than the Standard Technical Specification for Westinghouse PWR plants, and is acceptable.

3. The proposed change relaxes further the requirement for having two operable channels of heat tracing for the flow path from the boric acid storage system to the reactor coolant system during power operation, and permits operating for 48 hours without both channels of heat tracing for the flow path, provided certain conditions are met.

The Standard Review Plan NUREG-0800 provides a guideline to determine the adequacy of the boric acid flow paths, in that all components and piping containing boric acid will either be heat traced or will be located within heated rooms to prevent precipitation of boric acid. Paraphrasing the operability requirements of boric acid storage system in the Standard Technical Specification for Westinghouse PWR plants, the boric acid storage system and one associated heat tracing system must maintain the boric acid solution at a temperature of at least 145°F.

The proposed change of the heat tracing requirements is consistent with the change discussed in the above item 2 regarding flow paths, provided that at least one channel of heat tracing associated with the required boric acid storage system and the boric acid transfer pump in the above item 2 is restored to operable status within 48 hours, and that the boric acid storage system and both transfer pumps are not inoperable for more than 48 hours. However, the required flow path must be demonstrated to be clear of blockage within this time period.

The staff concludes that this proposed change is consistent with the flow path requirements of the boric acid storage system and the proposed item 2 change, and therefore considers this change to be acceptable.

4. The proposed change adds the requirement of energizing the number of charging pumps per TS Table 3.1.A-2, when RCS temperature is less than or equal to 295°F. This addition is provided to be consistent with TS Section 3.1 of Overpressure Protection System (OPS) requirements. Table 3.1.A-2 is provided to define the Safety Injection and Charging Pumps operability requirements when the OPS is not required to be operable at or below 295°F RCS primary temperature.

   OPS is designed to relieve the RCS pressure for certain unlikely overpressure transients and to prevent such incidents from causing an excessive pressure peaking, exceeding 10 CFR Part 50, Appendix G limits. Thus, the OPS will be set to cause the PORVs to open at a pressure sufficiently below the Appendix G limits.

   When the RCS temperature is less than or equal to 295°F, the restrictions are imposed on the number of charging pumps and safety injection pumps if the PORVs or the gas space in the pressurizer can not mitigate the overpressurization. When the secondary side water temperature is higher than the primary side, these restrictions will prevent RCS overpressurization from the resulting volumetric swell into the pressurizer. However, when the pressurizer level is less than 30% of the span, the reliance on the PORVs will be unnecessary since the compression due to the insurging water will not be sufficiently large to result in the overpressurization or to exceed Appendix G limits. Therefore, when the PORVs are not operational, the control of pressurizer pressure and level can be used to accommodate the mass insurge from safety injection and charging pump starts.

   Under this mode of operation, at least one charging pump will be energized in accordance with the Table 3.1.A-2, and will provide one flow path for the boric acid. This is consistent with Standard Technical Specifications LCO requirements in Section 3.1.2.2, for Westinghouse PWRs.

   Based on this, the staff concludes that the proposed change is consistent with the specification 3.1.A-2, and proposed change Item 1 and recommends its approval, pending final approval of the proposed amendment in Section 3.1.A.

We have evaluated the proposed changes to the Technical Specifications and conclude that these changes are administrative and do not involve any physical change to the plants safety-related structures, systems or components. Further, these changes do not increase the likelihood of a malfunction of safety-related equipment, or increase the consequences of an accident previously analyzed or create the possibility of a malfunction different from those previously evaluated. Therefore, as stated above, we find the licensee's requested changes to be acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20. The 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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 this amendment.

CONCLUSION

We have 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; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: December 5, 1985

Principal Contributor:

Jin W. Chung, DRS, Region I