

March 14, 1991

Docket No. 50-286

Mr. John C. Brons  
Executive Vice President - Nuclear Generation  
Power Authority of the State of New York  
123 Main Street  
White Plains, New York 10601

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Dear Mr. Brons:

SUBJECT: ISSUANCE OF AMENDMENT FOR INDIAN POINT 3 (TAC NO. 76964)

The Commission has issued the enclosed Amendment No. 106 to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated June 5, 1990.

The amendment revises Technical Specifications Section 3.5, and the Bases to include up to a six (6) second time delay for safety injection actuation for the high steam flow signal.

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,

ORIGINAL SIGNED BY:

Joseph D. Neighbors, Senior Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.106 to DPR-64
- 2. Safety Evaluation

cc: w/enclosures  
See next page

PDI-1:LA 12/19/90  
CVogan 12/25/90  
12-10-90

PDI-1-1:PE  
DOudinot  
12/10/90

PDI-1:PM  
DNeighbors:rsc  
12/17/90

SPLB  
CMcCracken  
12/11/90

SRXB  
RJones  
12/17/90

OGC 12/21/90

PDI-1:D ROC  
RACapra  
3/12/91

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

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Sincerely,

A handwritten signature in cursive script that reads "Joseph D. Neighbors".

Joseph D. Neighbors, Senior Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 106 to DPR-64
2. Safety Evaluation

cc: w/enclosures  
See next page

Mr. John C. Brons  
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of New York

Indian Point 3 Nuclear Power Plant

cc:

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

POWER AUTHORITY OF THE STATE OF NEW YORK

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 106  
License No. DPR-64

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Power Authority of the State of New York (the licensee) dated June 5, 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 Facility Operating License No. DPR-64 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 106, 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 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Capra, Director  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 14, 1991

ATTACHMENT TO LICENSE AMENDMENT NO.106

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

Remove Pages

3.5-4  
Table 3.5-1  
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Insert Pages

3.5-4  
Table 3.5-1 (sheet 1 of 2)  
Table 3.5-1 (sheet 2 of 2)

Signals are also provided to actuate the SIS upon sensing the effects of a steam line break accident. Therefore, SIS actuation following a steam line break is designed to occur upon sensing high differential steam pressure between any two steam generators or upon sensing high steam line flow in coincidence with low reactor coolant average temperature or low steam line pressure. A time delay of no greater than six (6) seconds for high steam flow SIS actuation is included to compensate for instrument lag, thus avoiding spurious high steam flow SIS actuations.

The increase in the extraction of RCS heat following a steam line break results in reactor coolant temperature and pressure reduction. For this reason protection against a steam line break accident is also provided by low pressurizer pressure signals actuating safety injection.

Protection is also provided for a steam line break in the containment by actuation of SIS upon sensing high containment pressure.

SIS actuation injects highly borated fluid into the Reactor Coolant System in order to counter the reactivity insertion brought about by cooldown of the reactor coolant which occurs during a steam line break accident.

**TABLE 3.5-1 (sheet 1 of 2)**

<b>ENGINEERED SAFETY FEATURES INITIATION INSTRUMENT SETTING LIMITS</b>		
<b>No. FUNCTIONAL UNIT</b>	<b>CHANNEL</b>	<b>SETTING LIMIT</b>
1. High Containment Pressure (Hi Level)	Safety Injection	≤3.5 psig
2. High Containment Pressure (Hi-Hi Level)	a. Containment Spray b. Steam Line Isolation	≤23 psig
3. Pressurizer Low Pressure	Safety Injection	≥1700 psig
4. High Differential Pressure Between Steam Lines	Safety Injection	≤150 psi
5. High Steam Flow in 2/4 Steam Lines Coincident with Low T <sub>avg</sub> or Low Steam Line Pressure	a. Safety Injection  b. Steam Line Isolation	≤ 6 sec. time delay for SI actuation ≤40% of full steam flow at zero load ≤40% of full steam flow at 20% load ≤110% of full steam flow at full load  ≥ 540°F T <sub>avg</sub> ≥ 600 psig steam line pressure
6. Steam Generator Water Level (low-low)	Auxiliary Feedwater	≥ 5% of narrow range instrument span each steam generator
7.* a. 480v Bus Undervoltage Relay  b. 480v Bus Degraded Voltage Relay (Non-SI) c. 480v Bus Degraded Voltage Relay (Coincident SI)		≥ 200v**  ≥ 414v with a ≤45 sec time delay ≥ 414v with a ≤10 sec time delay

TABLE 3.5-1 (sheet 2 of 2)

- \* To be effective after completion of all required modifications.
- \*\* The undervoltage protection devices used for diesel generator starting are induction type disc relays; therefore, the time to actual trip will decrease as a function of voltage decrease below the setpoint.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 106 TO FACILITY OPERATING LICENSE NO. DPR-64  
POWER AUTHORITY OF THE STATE OF NEW YORK  
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3  
DOCKET NO. 50-286

1.0 INTRODUCTION

By letter dated June 5, 1990, the Power Authority of the State of New York, the licensee, submitted an application for amendment to the Technical Specifications for the Indian Point Nuclear Generating Unit No. 3. The proposed change to Table 3.5-1 in Section 3.5 of the Technical Specification and the associated Bases would allow a time delay of up to six (6) seconds for safety injection (SI) actuation on a high steam flow signal. The inclusion of a time delay would avoid spurious SI actuations.

2.0 EVALUATION

The engineered safety features actuation system automatically starts operation of the Safety Injection System on coincidence of high steam flow in any two steam lines with two out of four (2/4) low Tavg or two out of four (2/4) low steam line pressure signals. These signals will also initiate steam line isolation, containment isolation and fan cooling actuation. The high steam flow setpoint is automatically adjusted to main turbine load by use of the first stage turbine pressure. When the actual steam flow, as indicated by the steam flow transmitters, reaches the high steam flow setpoint, a high steam flow signal is generated.

The licensee cites instances when a combination of circumstances caused initiation of an SI on high steam flow even though the high steam flow condition did not exist. For example, after a turbine trip, the first stage turbine pressure decreases rapidly. As a result, the generated high steam flow setpoint decreases rapidly. Instrument lag causes the actual steam flow signal to decrease at a slower rate than the generated high steam flow setpoint. This could result in a momentary high steam flow signal. The licensee cites instances when an instrument failure has initiated a plant trip. The bus failure provided the two out of four permissive logic which together with the momentary high steam flow signal initiated an SI signal.

The licensee proposes to install a time delay relay in the engineered safety system circuitry which initiates SI on high steam flow in coincidence with 2/4 low Tavg or 2/4 low steam line pressure. This modification would allow a delay of up to six (6) seconds. The licensee has determined through analysis that the proposed up to six (6) second delay is short enough so that in the event of a steam line rupture, SI and steam line isolation would still be assured.

Additionally, the licensee has factored the time delay into an analysis of the steam line rupture events which rely on the engineered safety system circuitry to mitigate the consequences of the events. With regard to core response, the departure from nucleate boiling ratio (DNBR), assuming up to six second SI time delay, is within the acceptable DNBR limit. The staff finds this result acceptable since the acceptance criteria for steam line rupture is met.

With regard to containment integrity, the containment peak accident pressure, assuming up to six second SI time delay, is 42.42 psig. This is less than the containment design pressure of 47 psig. It should be noted that Amendment No. 98 issued on May 7, 1990, incorporated the proposed SI time delay in the analysis performed to support the submittal. Therefore, the value of 42.42 psig for containment peak accident pressure, assuming up to six seconds SI time delay, has already been found acceptable by the staff.

### 3.0 STATE CONSULTATION

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

### 4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component 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 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.

### 5.0 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor:  
D. Oudinot

Date: 03/14/91