

JULY 10 1979

Docket No. 50-247

RETURN TO REACTOR DOCKET FILES

Mr. William J. Cahill, Jr.
Vice President
Consolidated Edison Company
of New York, Inc.
4 Irving Place
New York, New York 10003

Dear Mr. Cahill:

In response to your application dated May 29, 1979, the Commission has issued the enclosed Amendment No. 56 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2.

The amendment deletes pressurizer level as an input to safety injection, and requires actuation of safety injection based on two out of three channels of low pressurizer pressure.

As discussed with you, it is understood and acceptable for the pressurizer level bistables to be returned to their normal position while this modification is underway. Further, it is understood that the changes will be made one train at a time, with each train tested before being placed into service.

Copies of the related Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original Signed By

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

*Construct
GP*

Enclosures:

1. Amendment No. 56 to DPR-26
2. Safety Evaluation
3. Notice of Issuance

TAC
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cc: w/enclosures

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Docket No. 50-247

Mr. William J. Cahill, Jr.
 Vice President
 Consolidated Edison Company
 of New York, Inc.
 4 Irving Place
 New York, New York 10003

Dear Mr. Cahill:

In response to your application dated May 29, 1979, the Commission has issued the enclosed Amendment No. to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2.

The amendment revises the Technical Specifications to require actuation of safety injection based on two out of three channels of low pressurizer pressure. *← What did require before?*

As discussed with you, it is understood and acceptable for the pressurizer level bistables to be returned to their normal position while this modification is underway. Further, it is understood that the changes will be made on train at a time, with each train tested before being placed into service.

Copies of the related Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

The amendment deletes pressurizer level as an input to safety injection, and requires actuation of safety injection based on two out of three channels of low pressurizer pressure.

A. Schwencer, Chief
 Operating Reactors Branch #1
 Division of Operating Reactors

Done
AS 7/10/79

Enclosures:

- 1. Amendment No. to DPR-26
- 2. Safety Evaluation
- 3. Notice of Issuance

*Subject to additions → X/NO
 noted to letter &
 notice*

OELD
 S.H. Lewis
 06/16/79

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*TAC#
 11254*

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

July 10, 1979

Docket No. 50-247

Mr. William J. Cahill, Jr.
Vice President
Consolidated Edison Company
of New York, Inc.
4 Irving Place
New York, New York 10003

Dear Mr. Cahill:

In response to your application dated May 29, 1979, the Commission has issued the enclosed Amendment No. 56 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2.

The amendment deletes pressurizer level as an input to safety injection, and requires actuation of safety injection based on two out of three channels of low pressurizer pressure.

As discussed with you, it is understood and acceptable for the pressurizer level bistables to be returned to their normal position while this modification is underway. Further, it is understood that the changes will be made one train at a time, with each train tested before being placed into service.

Copies of the related Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. Schwencer".

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:

1. Amendment No. 56 to DPR-26
2. Safety Evaluation
3. Notice of Issuance

cc: w/enclosures
See next page

Mr. William J. Cahill, Jr.

Consolidated Edison Company of New York, Inc. - 2 - July 10, 1979

cc: White Plains Public Library
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26 Federal Plaza
New York, New York 10007



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

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 56
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 May 29, 1979, 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:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 56, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 10, 1979

ATTACHMENT TO LICENSE AMENDMENT NO. 56

FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Replace the following pages of the Technical Specifications contained in Appendix A of the above-indicated license with the attached pages bearing the same numbers, except as otherwise indicated. The changed areas on the revised pages are reflected by a marginal line.

<u>Remove</u>	<u>Insert</u>
3.5-2	3.5-2
3.5-3	3.5-3
3.5-4	3.5-4
3.5-6	3.5-6
Table 3-1	Table 3-1
Table 3-3	Table 3-3

3.5.5 The cover plate on the rear of the safeguard panel, in the control room, shall not be removed without authorization from the Watch Supervisor.

Basis

Instrumentation has been provided to sense accident conditions and to initiate operation of the Engineered Safety Features (1) (4)

Safety Injection System Actuation

Protection against a Loss of Coolant or Steam Break accident is brought about by automatic actuation of the Safety Injection System which provides emergency cooling and reduction of reactivity.

The Loss of Coolant Accident is characterized by depressurization of the Reactor Coolant System and rapid loss of reactor coolant to the containment. The Engineered Safety Features have been designed to sense the effects of the Loss of Coolant accident by detecting low pressurizer pressure and generate signals actuating the SIS active phase.

The SIS active phase is also actuated by a high containment pressure signal (Hi-Level) brought about by loss of high enthalpy coolant to the containment. This actuation signal acts as a backup to the low pressurizer pressure signal actuation of the SIS and also adds diversity to protection against loss of coolant.

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.

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.

Containment Spray

The Engineered Safety Features actuation system also initiate containment spray upon sensing a high containment pressure signal (Hi-Hi Level). The containment spray acts to reduce containment pressure in the event of a loss of coolant or steam line break accident inside the containment. The spray cools the containment directly and limits the release of fission products by absorbing iodine should it be released to the containment.

Containment spray is designed to be actuated at a higher containment pressure (approximately 50% of design containment pressure) than the SIS (2.0 psig). Since spurious actuation of containment spray is to be avoided, it is automatically initiated only on coincidence of Hi-Hi Level containment pressure sensed by both sets of two-out-of-three containment pressure signals and the derived S. I. signal provided for its actuation.

Steam Line Isolation

Steam line isolation signals are initiated by the Engineered Safety Features closing all steam line stop valves. In the event of a steam line break, this action prevents continuous, uncontrolled steam release from more than

one steam generator by isolating the steam lines on high containment pressure (Hi-Hi Level) or high steam line flow. Protection is afforded for breaks inside or outside the containment even when it is assumed that there is a single failure in the steam line isolation system.

Feedwater Line Isolation

The feedwater lines are isolated upon actuation of the Safety Injection System in order to prevent excessive cooldown of the reactor coolant system. This mitigates the effect of an accident such as steam break which in itself causes excessive coolant temperature cooldown.

Feedwater line isolation also reduces the consequences of a steam line break inside the containment, by stopping the entry of feedwater.

Setting Limits

1. The Hi-Level containment pressure limit is set at 2.0 psig containment pressure. Initiation of Safety Injection protects against loss of coolant⁽²⁾⁽⁴⁾ or steam line break⁽³⁾⁽⁴⁾ accidents as discussed in the safety analysis.
2. The Hi-Hi Level containment pressure limit is set at about 50% of design containment pressure. Initiation of Containment Spray and Steam Line Isolation protects against large loss of coolant⁽²⁾ or steam line break accidents⁽³⁾ as discussed in the safety analysis.
3. The pressurizer low pressure limit is set substantially below system operating pressure limits. However, it is sufficiently high to protect against a loss of coolant accident as shown in the safety analysis.⁽²⁾
4. The steam line high differential pressure limit is set well below the differential pressure expected in the event of a large steam line break accident as shown in the safety analysis.⁽³⁾
5. The high steam line flow limit is set at approximately 40% of the full steam flow at the no load to 20% load. Between 20% and 100% (full) load, the trip set point is ramped linearly with respect to first stage turbine

and remaining NIS channels still provide the dropped-rod protection. Testing does not trip the system unless a trip condition exists in a concurrent channel.

Reference

- (1) FSAR - Section 7.5
- (2) FSAR - Section 14.3
- (3) FSAR - Section 14.2.5
- (4) Safety Evaluation accompanying the Indian Point Unit No. 2 "Application for Amendment to Operating License," sworn to on May 29, 1979 by Mr. William J. Cahill, Jr. of Consolidated Edison.

TABLE 3-1

ENGINEERED SAFETY FEATURES INITIATION INSTRUMENT SETTING LIMITS

No. <u>FUNCTIONAL UNIT</u>	<u>CHANNEL</u>	<u>SETTING LIMITS</u>
1. High Containment Pressure (Hi level)	Safety Injection	≤ 2.0 psig
2. High Containment Pressure (Hi-Hi level)	a. Containment Spray b. Steam Line Isolation	≤ 30 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_{avg} or Low Steam Line Pressure	a. Safety Injection b. Steam Line Isolation	≤ 40% of full steam flow at zero load
		≤ 40% of full steam flow at 20% load
		≤ 110% of full steam at full load
		≥ 540°F T_{avg}
		≥ 600 psig steam line pressure

TABLE 3-3

INSTRUMENTATION OPERATING CONDITION FOR ENGINEERED SAFETY FEATURES

NO.	FUNCTIONAL UNIT	1 NO. OF CHANNELS	2 NO. OF CHANNELS TO TRIP	3 MIN. OPERABLE CHANNELS	4 MIN. DEGREE OF REDUN- DANCY	5 OPERATOR ACTION IF CONDITIONS OF COLUMN 3 or 4 CANNOT BE MET
1	SAFETY INJECTION					
a.	Manual	2	1	1	0	Cold Shutdown
b.	High Containment Pressure (Hi Level)	3	2	2	1	Cold Shutdown
c.	High Differential Pressure Between steam Lines	3/steam line	2/steam line	2/steam line	1/steam line	Cold Shutdown
d.	Pressurizer Low Pressure*	3	2	2	1	Cold Shutdown
e.	High Steam Flow in 2/4 Steam Lines Coincident with Low T _{avg} or Low Steam Line Pressure	2/line 4 T _{avg} Signals 4 Pressure Signals	1/2 in any 2 lines 2 2	1/line in each of 3 lines 3 3	2 2 2	Cold Shutdown
2	CONTAINMENT SPRAY					
a.	Manual	2	2	2	0***	Cold Shutdown
b.	High Containment Pressure (Hi Hi Level)	2 sets of 3	2 of 3 in each set	2 per set	1/set	Cold Shutdown

* Permissible bypass if reactor coolant pressure less than 2000 psig.

*** Must actuate 2 switches simultaneously.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATING TO AMENDMENT NO. 56 TO FACILITY OPERATING LICENSE NO. DPR-26

CONSOLIDATED EDISON COMPANY OF NEW YORK
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

Introduction

By letter dated May 29, 1979, Consolidated Edison Company of New York, (the licensee) requested an amendment to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The proposed amendment would change the Technical Specifications to require actuation of safety injection based on two out of three channels of low pressurizer pressure. Until this change has been accomplished, it is understood that the low pressurizer level trips in the existing safety injection logic would remain tripped as provided for in IE Bulletin 79-06A (Item 3) and 79-06A, Revision 1.

Discussion

As a result of our ongoing review of the events associated with the March 28 accident at Three Mile Island Unit 2, the NRC Office of Inspection and Enforcement issued a number of IE Bulletins describing actions to be taken by licensees. IE Bulletin 79-06 (April 11, 1979) called for licensees with Westinghouse PWRs to instruct operators to manually initiate safety injection when the pressure indication reaches the actuation setpoint whether or not the level indication has dropped to the actuator setpoint. IE Bulletin 79-06A (April 14, 1979) further called for these licensees to trip the low pressurizer level bistables such that, when the pressurizer pressure reaches the low setpoint, safety injection would be initiated regardless of the pressurizer level.

IE Bulletin 79-06A, Revision 1 (April 18, 1979) modified the action called for in 79-06A by allowing pressurizer level bistables to be returned to their normal (untripped) operating positions during the pressurizer pressure channel functional surveillance tests.

The effect of tripping the pressurizer low level bistables which are normally coincident with the pressurizer low pressure bistables, has the effect of reducing this safety injection actuation logic to a 1 out of 3 logic. A single instrument failure of 1 of the 3 low pressure

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bistable channels could therefore result in an unwanted safety injection. To prevent this, the licensee proposed in a May 29, 1979 letter, a design modification which would align the existing pressurizer low pressure bistables in a 2 out of 3 logic.

Evaluation

The proposed modification to the safety injection actuation system entails removing the pressurizer level signal from each of the pressurizer level/pressure channel trips and converting the system to a two-out-of-three pressurizer low pressure trip. The instrumentation logic takes pressurizer pressure signals from three pressure transmitters and initiates a safety injection actuation whenever two of the three signals reach the low pressure setpoint of 1700 psig. These modifications will satisfy the requirements of IEEE 279-1971, and other standards of installation required during the plant construction stage. We find these modifications acceptable.

We have reviewed the instrumentation and controls aspect of the proposed change in accordance with IEEE-279 and other applicable standards. The modification eliminates pressurizer level as a required initiating signal to actuate safety injection. The licensee proposes to use a two-out-of-three logic on low pressurizer pressure alone. Separation of trains will be maintained, testability will be maintained, and verification of proper actuation of the first train can be performed prior to modification of the second train.

We have reviewed the instrumentation channels for pressurizer pressure measurements and their power supplies. Three separate and independent pressure transmitters are provided for the protective function. A fourth pressure transmitter provides a pressure measurement signal for the variable pressurizer pressure control system. All four measurement channels are supplied power from four separate inverters, with each having its own back-up battery power source.

One power operated relief valve (PORV) is operated by one protection channel measurement signal and the other is operated by the control system channel. Each valve has an interlock with one of the remaining protection system pressure channels. These interlocks prevent operation of the PORVs until a preset pressure is exceeded. The present pressure for deactivating this interlock is below normal operating pressure, but it will be changed to a value above normal pressure. This change will prevent the relief valves from opening due to a single measurement channel failure. This change will help to minimize unnecessary operation of the PORVs and hence reduce the potential for a stuck open PORV becoming the equivalent of a very small break LOCA.

The proposed Technical Specifications change the discussion in the basis of Section 3.5, and revise Item 3 of Table 3-1 and Item 1.d of Table 3-3 to specify automatic safety injection actuation on a two-out-of-three pressurizer low pressure of 1700 psig. We find the changes to the Technical Specifications to be acceptable.

Based on our review of the licensee's submittal, we conclude that the modifications to the safety injection actuation system logic satisfy the requirements of IEEE 279-1971 and that the associated Technical Specifications are correct; and therefore, are acceptable.

We also conclude that the proposed change will be in accordance with the above standards and guides, and that none of the transient and accident analyses are adversely affected by the change. The only effect may be a sooner SI actuation. Therefore, we find the proposed change to be acceptable.

Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the consideration discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: July 10, 1979

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UNITED STATES NUCLEAR REGULATORY COMMISSION
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
DOCKET NO. 50-247
NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 56 to Facility Operating License No. DPR-26 issued to Consolidated Edison Company of New York, Inc. (the licensee), which revised Technical Specifications for operation of the Indian Point Nuclear Generating Unit No. 2 (the facility) located in Buchanan, Westchester County, New York. The amendment is effective as of the date of issuance.

The amendment deletes pressurizer level as an input to safety injection actuation, and requires actuation of safety injection based on two out of three channels of low pressurizer pressure.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

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The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated May 29, 1979, (2) Amendment No. 56 to License No. DPR-26, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C., and at the White Plains Public Library, 100 Martine Avenue, White Plains, New York. A single copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 10th day of July, 1979.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors