

March 30, 1992

Docket No. 50-286

DISTRIBUTION:
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Mr. Ralph E. Beedle
Executive Vice President - Nuclear Generation
Power Authority of the State of New York
123 Main Street
White Plains, New York 10601

Dear Mr. Beedle:

SUBJECT: ISSUANCE OF AMENDMENT FOR INDIAN POINT NUCLEAR GENERATING
UNIT NO. 3 (TAC NO. M76971)

The Commission has issued the enclosed Amendment No. 113 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 8, 1990, and supplemented on January 22, 1992.

The amendment revises Technical Specifications Section 3.5 to reduce the minimum number of operable channels required for the high steam flow safety injection signal to 1 channel per steam line in each of 3 steam lines and changes the associated minimum degree of redundancy to 1 channel per steam line in each of 3 steam lines. The amendment also reformats Table 3.5-3.

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

Sincerely,
Original Signed By:

Nicola F. Conicella, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

- Enclosures:
1. Amendment No. 113 to DPR-64
2. Safety Evaluation

cc w/enclosures:
See next page

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

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Executive Vice President - Nuclear Generation
Power Authority of the State of New York
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A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

A handwritten signature in cursive script, appearing to read "N. F. Conicella".

Nicola F. Conicella, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 113 to DPR-64
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Ralph E. Beedle
Power Authority of the State
of New York

Indian Point Nuclear Generating Station
Unit No. 3

cc:

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

Resident Inspector
Indian Point 3 Nuclear Power Plant
U.S. Nuclear Regulatory Commission
Post Office Box 337
Buchanan, New York 10511

Mr. Gerald C. Goldstein
Assistant General Counsel
Power Authority of the State
of New York
1633 Broadway
New York, New York 10019

Mr. Charles W. Jackson
Manager, Nuclear Safety and Licensing
Consolidated Edison Company
of New York, Inc.
Broadway and Bleakley Avenues
Buchanan, New York 10511

Mr. John C. Brons, President
Power Authority of the State
of New York
1633 Broadway
New York, New York 10019

Mayor, Village of Buchanan
236 Tate Avenue
Buchanan, New York 10511

Mr. Joseph E. Russell
Resident Manager
Indian Point 3 Nuclear Power Plant
Post Office Box 215
Buchanan, New York 10511

Mr. Peter Kokolakis
Director Nuclear Licensing - PWR
Power Authority of the State of New York
123 Main Street
White Plains, New York 10601

Ms. Donna Ross
New York State Energy Office
2 Empire State Plaza
16th Floor
Albany, New York 12223

Charles Donaldson, Esquire
Assistant Attorney General
New York Department of Law
120 Broadway
New York, New York 10271

DATED: March 30, 1992

AMENDMENT NO. 113 TO FACILITY OPERATING LICENSE NO. DPR-64-INDIAN POINT UNIT 3

Docket File

NRC & Local PDRs

PDI-1 Reading

S. Varga, 14/E/4

J. Calvo, 14/A/4

R. Capra

C. Vogan

NConicella

C. Cowgill

OGC-WF

D. Hagan, 3302 MNBB

G. Hill (4), P-137

Wanda Jones, P-130A

C. Grimes, 11/F/23

S. Newberry, 8/H/7

I. Ahmed, 8/H/3

ACRS (10)

OPA

OC/LFMB

Plant File

cc: Plant Service list



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. 113
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 8, 1990, and supplemented on January 22, 1992, 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. 113, 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

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

2

Date of Issuance: March 30, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 113

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

Remove Pages

Table 3.5-3 (Sheet 1 of 3)
Table 3.5-3 (Sheet 2 of 3)
Table 3.5-3 (Sheet 3 of 3)

Insert Pages

Table 3.5-3 (Sheet 1 of 3)
Table 3.5-3 (Sheet 2 of 3)
Table 3.5-3 (Sheet 3 of 3)

TABLE 3.5-3 (Sheet 1 of 3)

INSTRUMENTATION OPERATING CONDITION FOR ENGINEERED SAFETY FEATURES					
NO. FUNCTIONAL UNIT	1 NO. OF CHANNELS	2 NO. OF CHANNELS TO TRIP	3 MIN. NUMBER OF OPERABLE CHANNELS	4 MIN. DEGREE OF REDUNDANCY	5 OPERATOR ACTION IF CONDITIONS OF COL. 3 OR 4 CANNOT BE MET (Note 6)
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 μ	2/steam line	1/steam line	Cold Shutdown
d. Pressurizer Low Pressure (Note 3)	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/steam line	1/2 in any 2 steam lines	1/steam line in each of 3 steam lines	1/steam line in each of 3 steam lines	Cold Shutdown or main steam isolation valves closed
	4 T_{avg} Signals	2	3	2	
	4 Pressure Signals	2	3	2	
f. Pressurizer Low Pressure (Automatic Unblock)	3	2	2 (Note 5)	1 (Note 5)	Cold Shutdown

TABLE 3.5-3 (Sheet 2 of 3)

INSTRUMENTATION OPERATING CONDITION FOR ENGINEERED SAFETY FEATURES					
NO. FUNCTIONAL UNIT	1 NO. OF CHANNELS	2 NO. OF CHANNELS TO TRIP	3 MIN. NUMBER OF OPERABLE CHANNELS	4 MIN. DEGREE OF REDUNDANCY	5 OPERATOR ACTION IF CONDITIONS OF COL. 3 OR 4 CANNOT BE MET (Note 6)
2. CONTAINMENT SPRAY					
a. Manual	2	2	2	0 (Note 4)	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
3. AUXILIARY FEEDWATER					
a. Stm. Gen. Water Level-Low-Low					
i. Start Motor Driven Pumps	3/stm. gen.	2 in any stm. gen.	2 chan. in each stm. gen.	1	Reduce system temperature such that $T \leq 350^{\circ}\text{F}$
ii. Start Turbine-Driven Pump	3/stm. gen.	2/3 in each of two stm. gen.	2 chan. in each stm. gen.	1	$T \leq 350^{\circ}\text{F}$
b. S.I. Start Motor-Driven Pumps	(All	safety	injection	initiating	functions and requirements)
c. Station Blackout Start Turbine-Driven Pump	2	1	1	0	$T \leq 350^{\circ}\text{F}$
d. Trip of Main Feedwater Pumps Start Motor-Driven Pumps	2	1	1	0	Hot Shutdown

TABLE 3.5-3 (Sheet 3 of 3)

INSTRUMENTATION OPERATING CONDITION FOR ENGINEERED SAFETY FEATURES						
NO.	FUNCTIONAL UNIT	1 NO. OF CHANNELS	2 NO. OF CHANNELS TO TRIP	3 MIN. NUMBER OF OPERABLE CHANNELS	4 MIN. DEGREE OF REDUNDANCY	5 OPERATOR ACTION IF CONDITIONS OF COL. 3 OR 4 CANNOT BE MET (Note 6)
4.	LOSS OF POWER					
	a. 480v Bus Undervoltage Relay	2/bus	1/bus	1/bus	0	See Note 1
	b. 480v Bus Degraded Voltage Relay	2/bus	2/bus	2/bus (See Note 2)	0	See Note 1
5.	OVERPRESSURE PROTECTION SYSTEM (OPS)	3	2	2	1	See Note 7

Note 1. If the 138KV and 13.8KV sources of offsite power are available and the conditions of column 3 or 4 cannot be met within 72 hours, then the requirements of 3.7.C.1 or 2 shall be met.

Note 2. If one channel becomes inoperable, it is placed in the trip position and the minimum number of operable channels is reduced by one.

Note 3. Permissible to bypass if reactor coolant pressure is less than 2000 psig.

Note 4. Must actuate 2 switches simultaneously.

Note 5. The minimum Number of Operable Channels and the Minimum Degree of Redundancy may be reduced to zero if the SI bypass is in the unblocked position.

Note 6. If the condition of Column 3 or 4 cannot be met, the reactor shall be placed in the hot shutdown condition, utilizing normal operating procedures, within 4 hours of the occurrence. If the conditions are not met within 24 hours of the occurrence, the reactor shall be placed in the cold shutdown condition, or the alternate condition, if applicable, within an additional 24 hours.

Note 7. Refer to Specification 3.1.A.8.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 113 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 8, 1990, as supplemented January 22, 1992, the Power Authority of the State of New York (the licensee) submitted a request for changes to the Indian Point Nuclear Generating Unit No. 3, Technical Specifications. The requested changes would revise Technical Specifications Section 3.5 to reduce the minimum number of operable channels required for the high steam flow safety injection signal from "2 channels per steam line in each of 3 steam lines" to "1 channel per steam line in each of 3 steam lines." The requested change would also change the associated minimum degree of redundancy from "2" to "1 channel per steam line in each of 3 steam lines." This change would make the specification more consistent with the Westinghouse Standard Technical Specifications which permits the minimum number of operable channels to be one less than the number of installed channels and this change would clarify the minimum degree of redundancy requirement. Additionally, this change reformats Table 3.5-3 to make it consistent with other Tables contained in the facility's technical specifications.

2.0 EVALUATION

The high steam flow circuitry is designed to mitigate the consequences of a steam line break by initiating a safety injection (SI). The circuit indicates a steam line break by sensing high steam line flow in any two steam lines coincident with low T_{avg} or low steam line pressure. The SI is required to ultimately shut down the reactor by boric acid injection delivered from the emergency core cooling system (ECCS). A return to power following a steam line rupture is a potential problem due to the rapid depressurization (cooldown) and the positive reactivity added as a result of this cooldown. The SI also redundantly isolates normal feedwater flow to the steam generators since sustained high feedwater flow would cause additional cooldown. The high differential pressure between steam lines circuitry is a redundant SI input which also indicates a steam line break.

The high steam flow circuitry is also designed to mitigate the consequences of a steam line break by closing the fast-acting main steam line isolation valves. This valve closure prevents a continuous, uncontrolled depressurization (cooldown) from more than one steam generator. Each steam line has a fast-closing isolation valve along with a downstream check valve. Therefore, protection is afforded for breaks upstream or downstream of the main steam isolation valves even when it is assumed there is a single failure of the main steam isolation system. The high-high containment pressure circuitry is a redundant main steam isolation valve closure input which also indicates a steam line break.

The high steam flow circuitry is designed such that each steam line is provided with two redundant channels. Each channel contains a steam flow transmitter whose output is compared to a variable setting. The variable setting is power dependent and is derived from the high pressure (HP) turbine first stage pressure. The setting varies linearly from 40% to 110% of full steam flow as turbine load (reactor power) varies from 20% to 100%. If actual steam flow in either channel in a steam line is higher than the setting, the comparator bistable will trip providing one of the inputs to a two of four coincidence logic. When comparator bistables in two or more steam lines trip, an SI and steam line isolation will occur.

The current technical specifications high steam flow circuitry requirement for minimum number of operable channels is two channels in each of three steam lines. The current requirement for minimum degree of redundancy is two. The degree of redundancy is defined as the difference between the number of operable channels and the number of channels which when tripped will cause an automatic system trip. Therefore, the current technical specifications would require the plant be placed in the cold shutdown condition or the main steam isolation valves closed in the event that one channel became inoperable in any of the required steam lines. The licensee states that the current requirements for the high steam flow circuitry are excessively prohibitive since they do not allow the flexibility that the standard technical specifications allow and they do not provide any additional safety margin. Additionally, the current technical specifications requirement for minimum degree of redundancy is not clearly stated and can be easily misinterpreted.

The licensee's proposed change for the minimum degree of redundancy is "1/steam line in each of 3 steam lines." For this particular specification, the minimum degree of redundancy is referenced to each individual steam line and not the trip system as a whole. Therefore, to comply with the proposed minimum degree of redundancy, the licensee would be required to manually insert a trip of the steam line (i.e., tripping the bistable of a failed channel) if a channel failed in that steam line and that steam line was one of the three steam lines required operable. This action will provide one of the two inputs required by the two of four coincidence logic that would initiate an SI and steam line isolation. The licensee currently has administrative requirements to place failed channels in the tripped condition. Since the proposed changes would ensure the bistables of failed, required channels of

the high steam flow circuitry are tripped, the circuitry will always be configured such that it is able to perform its intended function as stated in the accident analysis even when assuming any single failure.

The accident analysis contains two scenarios in which the high steam line flow isolation circuitry is the primary system required to mitigate the consequences of the accident. One scenario is the steam line break downstream of a main steam isolation valve. For this scenario, given all possible configurations of the circuitry allowed by the proposed changes, there are no combinations which would preclude the circuitry from performing its intended function even assuming any single failure.

The other scenario in the accident analysis is the steam line break outside of containment but upstream of the main steam isolation valve. For this scenario, the single failure assumed is a stuck open steam line check valve on the piping of the steam line break. Again, given all possible configurations of the circuitry allowed by the proposed changes, there are no combinations which would preclude the circuitry from performing its intended function. The NRC staff finds the proposed changes to the technical specifications acceptable since the changes do not result in any changes to the steam line break accident analysis which was previously 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

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 (55 FR 28481). 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: N. Conicella

Date: March 30, 1992