

Mr. James Knubel
 Chief Nuclear Officer
 Power Authority of the State
 of New York
 123 Main Street
 White Plains, NY 10601

December 10, 1998

SUBJECT: ISSUANCE OF EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 70.24
 INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 (TAC NO. MA3667)

Dear Mr. Knubel:

By letter dated September 24, 1998, you requested an exemption from the requirements of 10 CFR 70.24 concerning criticality monitors for Indian Point Unit No. 3.

On the basis of the information provided, there is reasonable assurance that irradiated and unirradiated fuel will remain subcritical. The low probability of criticality together with your adherence to GDC 63 standards, constitutes good cause for granting an exemption to 10 CFR 70.24.

A copy of the exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Orig. signed by G. Wunder

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

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Docket No. 50-286

Enclosure: Exemption

cc w/encl: See next page

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**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

December 10, 1998

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Power Authority of the State
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Sincerely,

A handwritten signature in black ink, appearing to read "George F. Wunder".

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

Docket No. 50-286

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James Knubel
Power Authority of the State
of New York

Indian Point Nuclear Generating
Unit No. 3

cc:

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
POWER AUTHORITY OF THE STATE) Docket No. 50-286
OF NEW YORK)
)
(Indian Point Nuclear Generating)
Unit No. 3))

EXEMPTION

I.

The Power Authority of the State of New York (the licensee) is the holder of Facility Operating License No. DPR-64, which authorizes operation of the Indian Point Nuclear Generating Unit No. 3 (IP3). The license provides that the licensee is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The facility consists of a pressurized-water reactor at the licensee's site located in Westchester County, New York.

II.

The Code of Federal Regulations, 10 CFR 70.24, "Criticality Accident Requirements," requires that each licensee authorized to possess special nuclear material shall maintain a criticality accident monitoring system in each area where such material is handled, used, or stored. Subsection (a)(1) and (a)(2) of 10 CFR 70.24 specifies detection and sensitivity requirements that these monitors must meet. Subsection a(1) also specifies that all areas

subject to criticality accident monitoring must be covered by two detectors. Subsection (a)(3) of 10 CFR 70.24 requires licensees to maintain emergency procedures for each area in which this licensed special nuclear material is handled, used, or stored and provides (1) that the procedures ensure that all personnel withdraw to an area of safety upon the sounding of a criticality accident monitor alarm, (2) that the procedures must include drills to familiarize personnel with the evacuation plan, and (3) that the procedures designate responsible individuals for determining the cause of the alarm and placement of radiation survey instruments in accessible locations for use in such an emergency. Subsection (b)(1) of 10 CFR 70.24 requires licensees to have a means to identify quickly personnel who have received a dose of 10 rads or more. Subsection (b)(2) of 10 CFR 70.24 requires licensees to maintain personnel decontamination facilities, to maintain arrangements for a physician and other medical personnel qualified to handle radiation emergencies, and to maintain arrangements for the transportation of contaminated individuals to treatment facilities outside the site boundary. Paragraph (c) of 10 CFR 70.24 exempts Part 50 licensees from the requirements of paragraph (b) of 10 CFR 70.24 for special nuclear material used or to be used in the reactor. Subsection (d) of 10 CFR 70.24 states that any licensee who believes that there is good cause why he should be granted an exemption from all or part of 10 CFR 70.24 may apply to the Commission for such an exemption and shall specify the reasons for the relief requested.

III.

The special nuclear material that could be assembled into a critical mass at IP3 is in the form of nuclear fuel; the quantity of special nuclear material other than fuel that is stored on site is small enough to preclude achieving a critical mass. The Commission technical staff has evaluated the possibility of an inadvertent criticality of the nuclear fuel at IP3 and has

determined that such an accident cannot occur if the licensee meets the following seven criteria:

1. Plant procedures permit only one new fuel assembly to be in transit between the associated shipping cask and dry storage rack.
2. The k-effective does not exceed 0.95, at a 95% probability, 95% confidence level in the event that the fresh fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.
3. If optimum moderation of fuel in the fresh fuel storage racks occurs when the fresh fuel storage racks are not flooded, the k-effective corresponding to this optimum moderation does not exceed .98, at a 95 percent probability, 95 percent confidence level.
4. The k-effective does not exceed 0.95, at a 95% probability, 95% confidence level in the event that the spent fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.
5. The quantity of forms of special nuclear material, other than nuclear fuel, that are stored on site in any given area is less than the quantity necessary for a critical mass.
6. Radiation monitors are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions.
7. The maximum nominal U-235 enrichment is limited to 5 wt%.

By letter dated September 24, 1998, the licensee requested an exemption from 10 CFR 70.24. In this exemption request, the licensee addressed the seven criteria given above. The Commission's technical staff has reviewed the licensee's submittal and has determined that IP3 meets the criteria for prevention of inadvertent criticality; therefore, the staff has determined that there is no credible way in which an inadvertent criticality could occur in special nuclear materials handling or storage areas at IP3.

The purpose of the criticality monitors required by 10 CFR 70.24 is to ensure that if a criticality were to occur during the handling of special nuclear material personnel would be alerted to that fact and would take appropriate action. The staff has determined that there is no credible way in which such an accident could occur; furthermore, the licensee has radiation monitors, as required by General Design Criterion (GDC) 63, in fuel storage and handling areas. These monitors will alert personnel to excessive radiation levels and allow them to initiate appropriate safety actions. The low probability of an inadvertent criticality together with the licensee's adherence to GDC 63 constitute good cause for granting an exemption to the requirements of 10 CFR 70.24.

IV.

The Commission has determined that, pursuant to 10 CFR 70.14, this exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest; therefore, the Commission hereby grants the following exemption:

The Power Authority of the State of New York is exempt from the requirements of 10 CFR 70.24 for Indian Point Unit No. 3.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the quality of the human environment (63 FR 68315).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 10th day of December 1998.