

June 24, 1998

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

SUBJECT: ISSUANCE OF EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 70.24
REGARDING CRITICALITY ACCIDENT REQUIREMENTS - JAMES A.
FITZPATRICK NUCLEAR POWER PLANT - (TAC NO. MA1587)

Dear Mr. Knubel:

By letter dated April 24, 1998, you requested an exemption from the requirements of
10 CFR 70.24 concerning criticality monitors for the James A. FitzPatrick Nuclear Power Plant.

On the basis of the information provided, there is reasonable assurance that irradiated and
unirradiated fuel will remain subcritical. Although James A. FitzPatrick Nuclear Power Plant is
not licensed to General Design Criterion (GDC) 63, you maintain radiation monitors consistent
with these standards. The low probability of a criticality, together with your adherence to GDC 63
standards, constitutes good cause for granting an exemption from 10 CFR 70.24.

Pursuant to 10 CFR 70.14, the NRC is granting the enclosed exemption for the James A.
FitzPatrick Nuclear Power Plant. A copy of the exemption is being sent to the Office of the
Federal Register for publication.

Sincerely,

Original Signed by:

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

Docket No. 50-333

Enclosure: Exemption

cc w/encl: See next page

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OFFICE	OGC*		D:DRPE(A)		ADPR(A)		D:NRR		
NAME			JZwolinski		BBoger		SCollins		
DATE	06/11/98		06/18/98		06/18/98		06/20/98		06/ /98

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exemption from the requirements of 10 CFR 70.24 for the James A FitzPatrick Nuclear Power Plant.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not result in any significant adverse environmental impact (63 FR 34205).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Samuel J. Collins

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland, this
day of June 1998

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Dated: June 24, 1998

ISSUANCE OF EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 70.24 REGARDING
CRITICALITY ACCIDENT REQUIREMENTS - JAMES A FITZPATRICK NUCLEAR POWER
PLANT (TAC NO. MA1587)

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B. McCabe
C. Hehl, Region I

Dated: June 24, 1998

**ISSUANCE OF EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 70.24 REGARDING
CRITICALITY ACCIDENT REQUIREMENTS - JAMES A FITZPATRICK NUCLEAR POWER
PLANT (TAC NO. MA1587)**

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June 24, 1998

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

SUBJECT: ISSUANCE OF EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 70.24
REGARDING CRITICALITY ACCIDENT REQUIREMENTS - JAMES A.
FITZPATRICK NUCLEAR POWER PLANT - (TAC NO. MA1587)

Dear Mr. Knubel:

By letter dated April 24, 1998, you requested an exemption from the requirements of
10 CFR 70.24 concerning criticality monitors for the James A. FitzPatrick Nuclear Power Plant.

On the basis of the information provided, there is reasonable assurance that irradiated and
unirradiated fuel will remain subcritical. Although James A. FitzPatrick Nuclear Power Plant is
not licensed to General Design Criterion (GDC) 63, you maintain radiation monitors consistent
with these standards. The low probability of a criticality, together with your adherence to GDC 63
standards, constitutes good cause for granting an exemption from 10 CFR 70.24.

Pursuant to 10 CFR 70.14, the NRC is granting the enclosed exemption for the James A.
FitzPatrick Nuclear Power Plant. A copy of the exemption is being sent to the Office of the
Federal Register for publication.

Sincerely,

Original Signed by:

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

Docket No. 50-333

Enclosure: Exemption

cc w/encl: See next page

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NAME			JZwolinski		BBoger		TCollins		
DATE	06/11/98		06/18/98		06/18/98		06/20/98		06/ /98

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June 24, 1998

- 5 -

exemption from the requirements of 10 CFR 70.24 for the James A FitzPatrick Nuclear Power Plant.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not result in any significant adverse environmental impact (63 FR 34205).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Samuel J. Collins

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland, this
day of June 1998

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NAME	APH		JZwolinski	BBoger	SCollins	
DATE	06/11/98		06/18/98	06/18/98	06/2/98	06/ /98

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**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

June 24, 1998

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

**SUBJECT: ISSUANCE OF EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 70.24
REGARDING CRITICALITY ACCIDENT REQUIREMENTS - JAMES A.
FITZPATRICK NUCLEAR POWER PLANT - (TAC NO. MA1587)**

Dear Mr. Knubel:

By letter dated April 24, 1998, you requested an exemption from the requirements of 10 CFR 70.24 concerning criticality monitors for the James A. FitzPatrick Nuclear Power Plant.

On the basis of the information provided, there is reasonable assurance that irradiated and unirradiated fuel will remain subcritical. Although James A. FitzPatrick Nuclear Power Plant is not licensed to General Design Criterion (GDC) 63, you maintain radiation monitors consistent with these standards. The low probability of a criticality, together with your adherence to GDC 63 standards, constitutes good cause for granting an exemption from 10 CFR 70.24.

Pursuant to 10 CFR 70.14, the NRC is granting the enclosed exemption for the James A. FitzPatrick Nuclear Power Plant. A copy of the exemption is being sent to the Office of the Federal Register for publication.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph F. Williams".

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

Docket No. 50-333

Enclosure: Exemption

cc w/encl: See next page

James Knubel
Power Authority of the State
of New York

James A. FitzPatrick Nuclear
Power Plant

cc:

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Albany, NY 12223

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
POWER AUTHORITY OF THE) Docket No. 50-333
STATE OF NEW YORK)
)
(James A. FitzPatrick)
Nuclear Power Plant))

EXEMPTION

I

The Power Authority of the State of New York (the Licensee), also known as the New York Power Authority is the holder of Facility Operating License No. DPR-59, which authorizes operation of the James A. FitzPatrick Nuclear Power Plant (the facility). The license provides, among other things, that the facility is subject to all the rules, regulations, and orders of the U.S. Nuclear Regulatory Commission now or hereafter in effect.

The facility is a boiling-water reactor located at the licensee's site in Oswego County, New York.

II

Section 70.24 of Title 10 of the Code of Federal Regulations, "Criticality Accident Requirements," requires that each licensee authorized to possess special nuclear material maintain a criticality accident monitoring system in each area in which such material is handled, used, or stored. Subsections (a)(1) and (a)(2) of 10 CFR 70.24 specify 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 requires that (1) the procedures

ensure that all personnel withdraw to an area of safety upon the sounding of a criticality accident monitor alarm, (2) the procedures include drills to familiarize personnel with the evacuation plan, and (3) 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 provide the means of identifying quickly any 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, arrangements for a physician and other medical personnel qualified to handle radiation emergencies, and 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 that believes that there is good cause why it 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 James A. FitzPatrick Nuclear Power Plant is in the form of nuclear fuel. The quantity of special nuclear material other than fuel that is stored on site in any given location is small enough to preclude achieving a critical mass. The Commission's technical staff has evaluated the possibility of an inadvertent criticality of the nuclear fuel at James A. FitzPatrick Nuclear Power Plant and has determined that it is extremely unlikely that such an accident will occur if the licensees meet the following seven criteria:

1. Only three boiling-water reactor new fuel assemblies are allowed out of a shipping cask or a storage rack at one time;
2. The k-effective does not exceed 0.95, at a 95-percent probability, 95-percent 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 occurs at low moderator density, the k-effective does not exceed 0.98, at a 95-percent probability, 95-percent 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 a moderator at the density corresponding to optimum moderation;
4. The k-effective does not exceed 0.95, at a 95-percent probability, 95-percent 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 special nuclear material, other than nuclear fuel, stored on-site in any given area is less than the quantity necessary for a critical mass;
6. Radiation monitors, as required by General Design Criterion (GDC) 63, are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions; and
7. The maximum nominal U-235 enrichment is limited to 5.0 weight percent.

By letter dated April 24, 1998, the licensee requested an exemption from 10 CFR 70.24. In this request, the licensee addressed the seven criteria previously stated. The licensee stated that James A. FitzPatrick Nuclear Power Plant does not analyze optimum moderation conditions as addressed in Criteria 3 above, but has used a standard industry practice by implementing administrative and physical controls in accordance with General Electric Service Information Letter 152, "Criticality Margins for the Storage of New Fuel." To preclude the existence of an

optimum moderation condition in the new fuel storage vault area, the following controls are used: the new fuel storage vault is equipped with drains; the pre-fire plans have been updated to prevent the use of fire fighting foam or fire hose streams in a fog pattern during the storage and transfer of new nuclear fuel; and the new fuel storage vault plugs are installed during prolonged work delays. The staff has found this practice acceptable.

The Commission's technical staff has reviewed the licensee's submittal and has determined that James A. FitzPatrick Nuclear Power Plant meets the criteria for prevention of inadvertent criticality. Therefore, the staff has determined that it is extremely unlikely that an inadvertent criticality will occur in the handling of special nuclear materials or in their storage areas at the James A FitzPatrick Nuclear Power Plant.

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 it is extremely unlikely that such an accident could occur. Although James A. FitzPatrick Nuclear Power Plant is not licensed to GDC 63, the licensee has radiation monitors consistent with the standards of 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 standards, constitutes 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 licensee an

exemption from the requirements of 10 CFR 70.24 for the James A. FitzPatrick Nuclear Power Plant.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not result in any significant adverse environmental impact (63 FR 34205).

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
24th day of June 1998