

June 15, 1992

Docket No. 50-320

Dr. Robert L. Long
Director, Corporate Services/
Director, TMI-2
GPU Nuclear Corporation
Post Office Box 480
Middletown, Pennsylvania 17057

Dear Dr. Long:

Subject: EXEMPTION FROM 10 CFR 70.24 REGARDING CRITICALITY ACCIDENT
REQUIREMENTS AT THREE MILE ISLAND UNIT 2 (TAC NO. M65512)

In response to your letter dated May 21, 1987, the Commission has issued the enclosed Exemption from the requirements of 10 CFR 70.24, Criticality Accident Requirements. We conclude that your request for exemption from the requirements of 10 CFR 70.24 is appropriate and acceptable, as stated in the enclosed Exemption.

The exemption applies to irradiated Special Nuclear Material (SNM) samples and SNM sample storage areas containing uranium enriched to less than 3 percent in the U-235 isotope. The exemption is issued subject to the restrictions, (a) that no more than 70 Kg of SNM be stored in any sample storage area, (b) that SNM containers be criticality safe by design, and (c) that each sample storage area be separated from any other storage area by a minimum of 12 feet of air or 1 foot of concrete.

The Exemption is being forwarded to the Office of the Federal Register for publication. A copy of the Environmental Assessment and Finding of No Significant Impact is also enclosed.

Sincerely,
ORIGINAL SIGNED BY
Seymour H. Weiss, Director
Non-Power Reactors, Decommissioning and
Environmental Project Directorate
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
As stated
cc w/enclosures:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D C 20545

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Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosures:
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GPU Nuclear Corporation Unit No. 2

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

GENERAL PUBLIC UTILITIES
NUCLEAR CORPORATION

(Three Mile Island Nuclear
Station, Unit 2)

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Docket No. 50-320

EXEMPTION

I

GPU Nuclear Corporation, (the licensee) is the holder of Facility Operating License No. DPR-73, which had authorized the operation of the Three Mile Island Nuclear Station, Unit 2 (TMI-2) at power levels up to 2772 megawatts thermal. The facility, which is located in Londonderry Township, Dauphin County, Pennsylvania, is a pressurized water reactor previously used for the commercial generation of electricity.

By Order for Modification of License, dated July 20, 1979, the licensee's authority to operate the facility was suspended and the licensee's authority was limited to maintaining the facility in the shutdown cooling mode (44 FR 45271). By further Order of the Director, Office of Nuclear Reactor Regulation, dated February 11, 1980, a new set of formal license requirements was imposed to reflect the post-accident condition of the facility and to assure the continued maintenance of the safe, stable, long-term cooling condition of the facility (45 FR 11292). These license conditions and those imposed by subsequent orders were formally incorporated into the TMI-2 license

on January 27, 1987. The license provides, among other things, that it is subject to all rules, regulations and orders of the Commission now or hereafter in effect.

II

Section (a) of 10 CFR 70.24 requires that each licensee authorized to possess special nuclear material (SNM) shall maintain in each area where such material is handled, used, or stored, an appropriate criticality monitoring system. Section (a)(1) of 10 CFR 70.24 requires that coverage of all such areas at TMI-2 shall be provided by two criticality detectors.

By letter dated May 21, 1987, GPU Nuclear requested an exemption from this requirement for TMI-2 SNM sample storage areas. Specifically, the licensee proposed to handle and store SNM samples without having the two criticality monitoring systems required by 10 CFR 70.24. Such exemptions may be authorized pursuant to 10 CFR 70.24, provided that the licensee has shown that good cause exists for the exemption. In particular, Revision 2 of Regulatory Guide 8.12 "Criticality Accident Alarm Systems," October 1988, states that it is appropriate to request an exemption from 10 CFR 70.24 if an evaluation determines that a potential for criticality does not exist, as for example where the quantities or form of special nuclear material make criticality practically impossible or where geometric spacing is used to preclude criticality.

The licensee has previously demonstrated in "Ex-RCS Criticality Safety" TPO/TMI-132, November 1985, that the minimum critical mass has been conservatively calculated to be 93 Kg for the maximally enriched fuel used at

TMI-2. The NRC staff has confirmed the licensee's evaluation. This has been documented most recently in the staff's "Technical Evaluation of TMI-2 Post-Defueling Monitored Storage," February 1992. The licensee has applied an additional 25 percent mass conservatism and derived an administrative safe fuel mass limit of 70 Kg. The licensee proposes to limit storage of SNM in any storage area to less than 70 Kg and to use criticality safe storage containers for all storage of SNM. Additionally, the licensee has placed geometric limits requiring a minimum separation distance of either 12 feet of air or 1 foot of concrete between SNM storage areas. The NRC staff finds this acceptable. The limitations on spacing of adjacent SNM storage areas will preclude neutronic interaction between any of the storage areas. The staff has also required that all storage containers be criticality safe by design.

Since the stored SNM will be criticality safe by the use of mass limits and geometric spacing, we conclude that the licensee's request for and exemption from the requirements of 10 CFR 70.24 with respect to storage of SNM samples is acceptable and should be granted.


III

Accordingly, the Commission has determined that pursuant to 10 CFR 70.24(d) good cause exists for the granting of this exemption. In accordance with 10 CFR 70.14 exemption from the requirements of 10 CFR 70.24 is authorized by law and granting the exemption will not endanger life or property or the common defense and security, and is in the public interest.

Accordingly, the Commission hereby grants exemption from the requirements of 10 CFR 70.24, criticality accident requirements for SNM storage areas at

Three Mile Island, Unit 2. 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 (57 FR 26668, June 15, 1992).

FOR THE NUCLEAR REGULATORY COMMISSION



Bruce A. Boger, Director
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 15th day of June 1992.

UNITED STATES NUCLEAR REGULATORY COMMISSION
GPU NUCLEAR CORPORATION
DOCKET NO. 50-320
ENVIRONMENTAL ASSESSMENT AND FINDING
OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from the requirements of 10 CFR 70.24, criticality accident requirements relative to Facility Operating license No. DPR-73, issued to GPU Nuclear Corporation (the licensee), for the Three Mile Island Nuclear Station, Unit 2 (TMI-2), located in Londonderry Township, Dauphin County, Pennsylvania. By Order for Modification of License, dated July 20, 1979, the licensee's authority to operate the facility was suspended and the licensee's authority was limited to maintenance of the facility in the shutdown cooling mode (44 FR 45271). By further Order of the Director, Office of Nuclear Reactor Regulation, date February 11, 1980, a new set of formal license requirements was imposed by order to reflect the post-accident condition of the facility and to assure the continued maintenance of the safe, stable, long-term cooling condition of the facility (45 FR 11292). These license conditions and those imposed by subsequent orders were formally incorporated in the TMI-2 license on January 27, 1987. The license provides, among other things, that it is subject to all rules, regulations, and orders of the Commission now or hereafter in effect.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action:

The action being considered by the Commission is exemption from 10 CFR 70.24 requirement for a monitoring system capable of detecting a criticality accident in special nuclear materials (SNM) storage areas. The need for such a system at TMI-2 is obviated by the use of safe mass limits and safe geometries in the SNM storage areas.

The Need for the Proposed Action:

The exemption is necessary to grant relief from criticality monitoring requirements that are burdensome and not needed for safety purposes.

Environmental Impacts of the Proposed Action:

The proposed action will have no environmental impact as it only affects the installation or lack thereof of electronic instrumentation in SNM storage areas. Thus, this exemption will not change the types, or allow an increase in the amounts of effluents that may be released to the environment. Individual and cumulative occupational radiation exposure would actually decrease slightly as the need to use radioactive sources to periodically calibrate the criticality monitors would be obviated. The SNM storage areas will be criticality safe by mass limit and geometric limits. Therefore, the Commission concludes that there are no significant radiological impacts associated with the proposed exemption.

With regard to potential nonradiological impacts, the proposed exemption involves features located entirely within restricted areas as defined by 10 CFR Part 20. It does not affect nonradiological plant effluents and has no

other environmental impact. Therefore, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed exemption.

Alternatives to the Proposed Action:

Since the Commission concludes that there are no significant environmental effects associated with the proposed exemption, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested action; this would increase the environmental impact by increasing occupational radiation exposure to personnel calibrating the instruments using radiation sources.

Alternative Use of Resources:

This action does not involve the use of resources not previously considered in the Final Programmatic Environmental Impact Statement for TMI-2 dated March 1981 as supplemented.

FINDING OF NO SIGNIFICANT IMPACT

Based upon the foregoing environmental assessment, the NRC staff concludes that this action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed exemption.

For further details with respect to this action, see the letter from GPUN, Request for Exemption from 10 CFR 70.24, dated May 21, 1987. This document is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, N.W. Washington D.C. 20555, and at the local public document room located at the State Library of

Pennsylvania, Government Publications Section, Education Building, Commonwealth and Walnut Streets, Harrisburg, Pennsylvania 17126.

Dated at Rockville, Maryland this 8th day of June 1992.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "Seymour H. Weiss". The signature is written in a cursive style with a prominent initial "S".

Seymour H. Weiss, Director
Non-Power Reactors, Decommissioning and
Environmental Project Directorate
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation