

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of

DUQUESNE LIGHT COMPANY  
OHIO EDISON COMPANY  
PENNSYLVANIA POWER COMPANY  
(Beaver Valley Power Station,  
Unit No. 1)

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Docket No. 50-334

EXEMPTION

I.

Duquesne Light Company (DLC), Ohio Edison Company (OEC), and Pennsylvania Power Company (PPC), the licensees, are holders of Facility Operating License No. DPR-66, which authorizes operation of the Beaver Valley Power Station, Unit No. 1 (BVPS-1). The license provides that the licensee is subject to all rules, regulations, and orders of the 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 Beaver County, Pennsylvania.

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(2) of 10 CFR 70.24 specifies detection and sensitivity requirements that these monitors must meet. 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 BVPS-1 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's technical staff has evaluated the

possibility of an inadvertent criticality of the nuclear fuel at BVPS-1 and has determined that such an accident is unlikely to occur if the licensee meets the following seven criteria:

1. Only 1 pressurized water reactor fuel assembly is allowed out of a shipping cask or storage rack at one time.
2. With the fresh fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water, the maximum k-effective shall not exceed 0.95, at a 95% probability, 95% confidence level.
3. With the fresh fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with moderator at the (low) density corresponding to optimum moderation, the maximum k-effective shall not exceed 0.98, at a 95% probability, 95% confidence level.
4. With the spent fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water, the maximum k-effective shall not exceed 0.95, at a 95% probability, 95% confidence level.
5. The quantity of other forms of special nuclear material, such as sources, detectors, etc., that are stored on site is small enough to preclude achieving a critical mass.
6. Radiation monitors, as required by General Design Criterion 63, 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 weight percent.

By letter dated December 18, 1996, as supplemented April 10 and June 11, 1997, DLC requested an exemption from 10 CFR 70.24. In this exemption request, DLC addressed the seven criteria given above. The Commission's technical staff has reviewed DLC's submittal and has determined that BVPS-1 meets the criteria for prevention of inadvertent criticality; therefore, the staff has determined that an inadvertent criticality in special nuclear materials handling or storage areas at BVPS-1 is highly unlikely.

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. Although the staff has determined that an inadvertent criticality even is highly unlikely, the licensee has radiation monitors, as required by General Design Criterion 63 (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 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 following exemption:

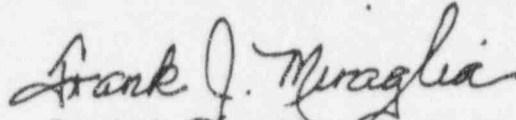
DLC, OEC, and PPC are exempt from the requirements of 10 CFR 70.24 for BVPS-1.

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 (62 FR 34320).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 26th day of June 1997.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script that reads "Frank J. Miraglia".

Frank J. Miraglia, Acting Director  
Office of Nuclear Reactor Regulation