UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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

EXEMPTION

I.

The Power Authority of the State of New York (PASNY or the licensee) is the holder of Facility Operating License No. DPR-59, which authorizes operation of the James A. FitzPatrick Nuclear Power Plant (the facility or FitzPatrick). The license provides, among other things, that the facility is subject to all the rules, regulations, and Orders of the Nuclear Regulatory Commission (the 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 III of Appendix J to 10 CFR Part 50 requires the development of a program to conduct periodic leak testing of the primary reactor containment and related systems and components, and components penetrating the primary containment pressure boundary. The interval between local leak rate tests for containment isolation valves (Type C tests) is specified by Section III.D.3 to be no greater than 2 years.

III.

By letter dated January 11, 1994, the licensee requested a schedular exemption pursuant to 10 CFR 50.12(a) from the requirements of 10 CFR Part 50, Appendix J, Section III.D.3. Specifically, the licensee requested one-time relief from the requirement to perform Type C tests (local leak rate tests) at intervals of no greater than 2 years for the shutdown cooling isolation valves (10MOV-17 and 10MOV-18). This one-time only delay, until the next refueling outage currently scheduled to begin in November 1994, was requested for the performance of these leakage tests. The licensee's request was necessitated by the extended 1991-1993 refueling outage and the length of the current operating cycle.

The shutdown cooling valves were previously tested during the last refueling outage (Reload 10/Cycle 11). This was an extended outage that began in November 1991 and ended in January 1993. The Type C tests on the subject valves were performed on May 30, 1992, for the outboard isolation valve 10MOV-17, and June 5, 1992, for the inboard isolation valve 10MOV-18. Subsequent delays in the outage resulted in these tests being performed significantly in advance of the start of the operating cycle (more than 7 months prior to the end of the outage). As a result, the 2 year test interval will be reached for these valves (May 30, 1994/June 5, 1994) 6 to 7 months prior to the next scheduled refueling outage. The exemption would permit a deferral in the performance of the Type C test of the shutdown cooling isolation valves beyond the 2-year limiting interval to the next refueling outage.

The only effective means of removing reactor core decay heat is with the shutdown cooling mode of the RHR system. This requires both of the stated isolation valves to be in the open position. The shutdown cooling mode of the RHR system must be removed from service for approximately 24 hours to perform a local leak rate test (Type C) of its isolation valves. This is the time required to tag-out the system, drain the line, perform the test, refill the line, and return the system to service. To avoid overheating the reactor coolant system with the shutdown cooling mode inoperable, one of the following two conditions must exist:

1. The reactor needs to be shutdown for several months to permit sufficient reduction in decay heat levels for use of an alternate shutdown cooling method without placing the plant in the refueling condition. The alternate cooling method with the highest heat removal capacity is the Reactor Water Cleanup system in the blowdown mode. However, the reactor must be shutdown for more than 3 months before this method can handle the decay heat load.
2. The plant needs to be in the refueling condition; i.e., reactor head removed, reactor cavity flooded up and connected to the spent fuel pool. This permits the removal of the normal shutdown cooling system from operation and testing of these valves.

A three week surveillance/maintenance outage is planned for spring 1994. However, the decay heat levels present during any outage less than several months precludes the use of the alternate cooling method without placing the plant in the refueling configuration. The exemption would preclude the need

to place the plant in the refueling configuration prior to the next scheduled refueling outage. Without the exemption, the licensee would be required to remove the drywell and reactor heads and connect the reactor cavity to the spent fuel pool solely for the purpose of testing the shutdown cooling isolation valves. Placing the plant in the refueling configuration would significantly lengthen the spring 1994 outage and would require significant resources. Furthermore, placing the plant in the refueling configuration to accommodate testing of the isolation valves would significantly increase occupational radiation exposures. For these reasons, the licensee has determined that compliance with the regulation would result in undue hardship and costs.

IV.

Section III.D.3 of Appendix J to 10 CFR Part 50 states that Type C tests shall be performed during reactor shutdowns for refueling, at an interval not to exceed 2 years. The licensee has requested a one-time exemption from the regulations.

The operating configuration of the shutdown cooling isolation valves and the RHR system when the reactor coolant system is pressurized (greater than 75 psig) substantially minimizes the possibility of gross leakage through these valves. A high reactor pressure interlock, as well as plant operating procedures, assures that these isolation valves are closed whenever reactor pressure is above 75 psig. This protects the low pressure RHR system from overpressurization. The RHR system suction piping is designed for 450 psig. Gross leakage while the reactor is pressurized would be detected by high pressure on the RHR suction piping or an increase in suppression pool

inventory. Consequently, the maintenance of normal operating status of the RHR system assures the absence of gross leakage through these valves.

These valves also receive an isolation signal in the event of a plant accident (reactor vessel low water level or high drywell pressure). This assures isolation of a potential leakage path from the reactor coolant system to the reactor building. For this path to exist, leakage through both isolation valves, and a breach of the RHR system piping would need to occur simultaneously. Since the isolation valves are maintained closed with the reactor pressurized, it is improbable the leakage through the valves will increase while the plant is operating. The redundant isolation valves provide two leakage barriers which limit the pathway leakage rate to that experienced by the valve with smallest leakage rate. For these reasons, the potential for significant leakage to the reactor building by way of the shutdown cooling line is minimal.

The penetration included in the licensee's schedular exemption request represents only 6.4 percent of the total "as left" leakage at the beginning of the current operating cycle. The total "as left" minimum path leakage for all penetrations was only 0.073 La and the total "as left" minimum path leakage for the penetration addressed in the proposed exemption was only 0.0046 La. The replacement of both isolation valves with valves of improved design provides added confidence that excessive leakage will not be experienced. The inboard valve 10MOV-18 was replaced during the 1985 refueling outage and has successfully passed three out of four Type C tests performed during refueling outages since its replacement. The outboard isolation valve 10MOV-17 was

replaced with a similarly designed new valve during the last refueling outage (1992). The limited number of valve strokes these valves are subject to over any one operating cycle minimizes valve degradation due to wear. This provides reasonable assurance that the requested surveillance interval expansion will not result in the Types B and C leakage rate total exceeding the 0.6 La limit of 10 CFR Part 50, Appendix J. Therefore, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed schedular exemption.

The 2-year interval requirement for Type C testing is intended to be often enough to preclude significant deterioration between tests and long enough to permit the tests to be performed during routine plant outages. Leak rate testing of containment isolation valves during plant shutdown is preferable because of the lower radiation exposures to plant personnel. Furthermore, some containment isolation valves cannot be tested at power. For those valves that cannot be tested during power operation, or for which testing at power would yield unnecessary radiation exposure of personnel, the NRC staff believes the increase in confidence of containment integrity following a successful test is not significant enough to justify the hardships and costs associated with performing the tests within the 2-year time period.

V.

The Commission has determined that, pursuant to 10 CFR 50.12(a)(1), this exemption is authorized by law, will not present undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present justifying the exemption; namely that

application of the regulation in the particular circumstance is not necessary to achieve the underlying purpose of the rule. The underlying purpose of Section III.D.3 of Appendix J to 10 CFR Part 50 is to provide an interval short enough to prevent serious deterioration from occurring between tests and long enough to permit testing to be performed during regular plant outages. For containment isolation valves that cannot be tested at power, or for containment isolation valves where testing involves unreasonable risk to personnel and equipment, the increased confidence in containment integrity following successful testing is not significant enough to justify the hardships associated with performing the test within the 2-year interval. Specifically, any potential incremental benefit of performing the tests within the 2-year requirement would not be sufficient to offset the increased occupational radiation exposure associated with testing, the risk to plant safety associated with removing the primary method of decay heat removal from service, and the undue financial burden of placing the plant in the refueling configuration and significantly extending the length of the spring 1994 maintenance/surveillance outage. The licensee has presented information accepted by the Commission, which gives a high degree of confidence that the components affected by this exemption will not degrade to an unacceptable extent. Acceptable leakage limits are defined in Sections III.B.3(a) and III.C.3 of Appendix J to 10 CFR Part 50.

Pursuant to 10 CFR 51.32, the Commission has determined that granting the above exemption will have no significant impact on the quality of the human environment (March 16, 1994, 59 FR 12382).

This Exemption is effective upon issuance and shall expire prior to restart following the next FitzPatrick refueling outage which is currently scheduled to commence in November 1994.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon, Acting Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 18th day of March 1994

Copies of the Exemption are enclosed. The Exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by:

Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosure:
Exemption

cc w/enclosure:
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