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May 6, 1980
IPN-80-46

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Operating Reactors

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Proposed Changes to Technical Specifications
on Containment Vent and Purge System and
Refueling, Fuel Handling and Storage

Dear Sir:

Enclosed for filing are three (3) signed originals and nineteen (19) copies of a document entitled, "Application for Amendment to Operating License", and attachments thereto.

This application seeks to amend Section 3.8 of Appendix A to incorporate new limiting conditions for operations for refueling, fuel handling and storage. This application also seeks to incorporate a new Section 4.13 on surveillance requirements for the containment vent and purge system.

The Authority classifies this application for amendment to the operating license as Class III, as it involves the single safety issue of refueling, fuel handling and storage operations. Enclosed is a check in the amount of $4,000 as the filing fee per 10 CFR §170.22, which the Authority pays under protest pending a final determination of the legality of the fee schedule.

In support of this application, we are enclosing forty (40) copies of the Safety Evaluation corresponding to these proposed changes to the Technical Specifications.

Very truly yours,

Paul J. Early
Vice President and
Assistant Chief Engineer-Projects

cc: attached

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BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

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

APPLICATION FOR AMENDMENT TO
OPERATING LICENSE

Pursuant to Section 50.90 of the regulations of the Nuclear Regulatory Commission (NRC), the Power Authority of the State of New York, as holder of Facility Operating License No. DPR-64, hereby applies for an Amendment to the Technical Specifications contained in Appendix A of this license.

The proposed changes to the Indian Point 3 Technical Specifications seek to amend Section 3.8 of Appendix A to incorporate new limiting conditions for operations for refueling, fuel handling and storage, and to incorporate a new Section 4.13 of Appendix A with new surveillance requirements for the containment vent and purge system. These changes were requested by the NRC in a letter dated February 27, 1980.

The proposed changes to the Technical Specifications are presented in Attachment I to this Application. The Safety Evaluation is included in Attachment II.

POWER AUTHORITY OF THE STATE
OF NEW YORK

By _____
Paul J. Early
Vice President and Assistant
Chief Engineer-Projects

Subscribed and Sworn to before
me this 6 day of May, 1980

_____
Notary Public

RUTH G. ZAPF
Notary Public, State of New York
No. 30-4663428
Qualified in Nassau County
Commission Expires March 30, 1982

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ATTACHMENT I

PROPOSED TECHNICAL SPECIFICATION

CHANGE

RELATED TO

CONTAINMENT VENT AND PURGE SYSTEM

AND

REFUELING, FUEL HANDLING AND STORAGE

POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
MAY 5, 1980

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3.8 Refueling, Fuel Handling and Storage

Applicability

Applies to operating limitations during refueling, fuel handling, storage operations, and when heavy loads are moved over the reactor when the head is removed.

Objective

To ensure that no incident could occur during refueling, fuel handling, and storage operations that would adversely affect public health and safety.

Specification

A. During handling operations, reactor vessel head removal or installation, or movement of heavy loads over the reactor vessel with the head removed, the following conditions shall be satisfied:

1. The equipment door and at least one door in each personnel air lock shall be properly closed. In addition, at least one isolation valve shall be operable or locked closed in each line penetrating the containment and which provides a direct path from containment atmosphere to the outside.

2. Radiation levels in the containment and spent fuel storage areas shall be monitored continuously.

3. The core subcritical neutron flux shall be continuously monitored by the two source range neutron monitors, each with continuous visual indication in the control room and one with audible indication in the containment available whenever core geometry is being changed. When core geometry is not being changed, at least one source range neutron flux monitor shall be in service.

4. At least one residual heat removal pump and heat exhanger shall be operating except during those core alterations in which the residual heat removal flow interferes with component positioning.

5. During reactor vessel head removal and while loading and unloading fuel in the reactor, T_{avg} shall be $\leq$140% and the minimum boron concentration sufficient to maintain the reactor subcritical by at least 10% $\Delta k/k$. The required boron concentration shall be verified by chemical analysis daily.

6. Direct communication between the control room and the refueling cavity manipulator crane shall be available whenever changes in core geometry are taking place.

7. The containment vent and purge system, including the radiation monitors which initiate isolation, shall be tested and verified to be operable within 100 hours prior to refueling operations.

8. No movement of irradiated fuel in the reactor shall be made until the reactor has been subcritical for at least 120 hours. In addition, movement of fuel in the reactor before the reactor has been subcritical for equal to or greater than 365 hours will necessitate operation of the Containment Building Vent and Purge System through the HEPA filters and charcoal adsorbers. For this case operability of the Containment Building Vent and Purge System shall be established in accordance with Section 4.13 of the Technical Specifications. In the event that more than one region of fuel (72 assemblies) is to be discharged from the reactor, those assemblies in excess of one region shall not be discharged before an interval of 400 hours has elapsed after shutdown.

9. Whenever movement of irradiated fuel is being made, the minimum water lever in the area of movement shall be maintained 23 feet over the top of irradiated fuel assemblies seated within the reactor pressure vessel.

10. Hoists or cranes utilized in handling irradiated fuel shall be dead-load tested before movement begins. The load assumed by the hoists or cranes for this test must be equal to or greater than maximum load to be assumed by the hoists or cranes during the refueling operation. A thorough visual inspection of the hoists or cranes shall be made after the dead-load test and prior to fuel handling. A test of interlocks shall also be performed.

11. The fuel storage building emergency ventilation system shall be operable whenever irradiated fuel is being handled within the fuel storage building. The emergency ventilation system may be inoperable when irradiated fuel is in the fuel storage building, provided irradiated fuel is not being handled and neither the spent fuel cask nor the cask crane are moved over the spent fuel pit during the period of inoperability.

6. The fuel storage building emergency ventilation system shall be operable whenever irradiated fuel is being handled within the fuel storage building. The emergency ventilation system may be inoperable when irradiated fuel is in the fuel storage building, provided irradiated fuel is not being handled and neither the spent fuel cask nor the cask crane are moved over the spent fuel pit during the period of inoperability.

Basis

The equipment and general procedures to be utilized during refueling, fuel handling, and storage are discussed in the FSAR. Detailed instructions, the above specified precautions, and the design of the fuel handling equipment incorporating built-in interlocks and safety features, provide assurance that no incident could occur during the refueling, fuel handling, reactor maintenance or storage operations that would result in a hazard to public health and safety.(1) Whenever changes are not being made in core geometry, one flux monitor is sufficient. This permits maintenance of the instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. The residual heat removal pump is used to maintain a uniform boron concentration.

The shutdown margin indicated will keep the core subcritical, even if all control rods were withdrawn from the core. During refueling, the reactor refueling cavity is filled with approximately 342,000 gallons of water from the refueling water storage tank with a boron concentration of 2000 ppm. A shutdown margin of 10% $\Delta k/k$ in the cold condition with all rods inserted will also maintain the core subcritical even if no control rods were inserted into the reactor.(2) Periodic checks of refueling water boron concentration and residual heat removal pump operation insure the proper shutdown margin. The requirement for direct communications allows the control room operator to inform the manipulator operator of any impending unsafe condition detected from the main control board indicators during fuel movement.

In addition to the above safeguards, interlocks are utilized during refueling to ensure safe handling. An excess weight interlock is provided on the lifting hoist to prevent movement of more than one fuel assembly at a time. The spent fuel transfer mechanism can accomodate only one fuel assembly at a time.

The 120-hour decay time following the subcritical condition and the 23 feet of water above the top of the irradiated fuel assemblies are consistent with the assumptions used in the dose calculaion for the fuel-handling accident.

The waiting time of 400 hours required following plant shutdown before unloading more than one region of fuel from the reactor assures that the maximum pool water temperature will be within design objectives as stated in the FSAR.

The requirement for the fuel storage building emergency ventilation system to be operable is established in accordance with standard testing requirements to assure that the system will function to reduce the offsite dose to within acceptable limits in the event of a fuel-handling accident. The system is actuated upon receipt of a signal from the area high activity alarm or by a manually-operated switch. The system is tested prior to fuel handling and is in a standby basis.

When fuel in the reactor is moved before the reactor has been subcritical for at least 365 hours, the limitations on the containment vent and purge system ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorbers prior to discharge to the atmosphere.

The minimum spent fuel pit boron concentration and the 90-day restriction of the movement of the spent fuel cask to allow the irradiated fuel to decay were specified in order to minimize the consequences of an unlikely sideways cask drop.

When the spent fuel cask is being placed in or removed from its position in the spent fuel pit, mechanical stops incorporated in the bridge rails make it impossible for the bridge of the crane to travel further north than a point directly over the spot reserved for the cask in the pit. Thus, it will be possible to handle the spent fuel cask with the 40-ton hook and to move new fuel to the new fuel elevator with a 5-ton hook, but it will be impossible to carry any objective over the spent fuel storage area with either the 40 or 5-ton hook of the fuel storage building carne.

4.13 Containment Vent and Purge System

Applicability

This specification applies to the surveillance requirements of the containment vent and purge system when reactor fuel is anticipated to be moved before the reactor has been subcritical for at least 365 hours.

Objective

To verify the operability of the containment vent and purge system when reactor fuel is anticipated to be moved before the reactor has been subcritical for at least 365 hours.

Specification

If fuel movement is to take place before the reactor has been subcritical for at least 365 hours, the containment vent and purge system shall be demonstrated operable as follows:

a. Within 18 months prior to fuel movement:

   1. Verify that the charcoal adsorbers remove $\geq$99% of halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the ventilation system at the operating flow rate $\pm$ 10%.

   2. Verifying that the HEPA filter banks remove $\geq$99% of the DOP when they are tested in-place while operating the ventilation system at the operating flow rate $\pm$ 10%.

b. Within 18 months prior to fuel movement and after every 720 hours of system operation, subject a representative sample of carbon from the charcoal adsorbers to a laboratory analysis and verify within 31 days a removal efficiency of $\geq$90% for radioactive methyl iodine at an operating air flow velocity $\pm$20% per test 5.b in Table 2 of Regulatory Guide 1.52, March 1978.

Basis

The operability of this system and the resulting iodine removal capacity are consistent with accident analyses. The reprsentative carbon sample will be two inches in diameter with a length equal to the thickness of the bed.

ATTACHMENT II

SAFETY EVALUATION

RELATED TO

CONTAINMENT VENT AND PURGE SYSTEM

AND

REFUELING, FUEL HANDLING AND STORAGE

POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT 3 NUCLEAR POWER PLANT
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Section I - Description of Modification

The operating limitations for Refueling, Fuel Handling and Storage are being changed to require that during refueling operations., the containment vent and purge system shall be exhausting through HEPA filters and charcoal adsorbers when irradiated fuel has decayed less than (365) hours. Surveillance requirements to verify the operability of the containment vent and purge system are also being added.

The operating limitation for Refueling, Fuel Handling and Storage are also being changed to require additional precautions for the control of heavy loads over the reactor when the head is removed, during the other than refueling operations.

Section II - Purpose of Modification

The purpose of these modifications is to (1) ensure that the potential consequences of a fuel handling accident inside containment are appropriately within the guidelines of 10 CFR Part 100, and (2) prevent lifting of heavy loads over the reactor when the head is removed for other than refueling operations so as not to damage the reactor core.

Section III - Impact of the Change

These modifications will not alter the conclusions reached in the FSAR and SER accident analyses.

Section IV - Implementation of the Modification

The modifications as proposed will not impact the ALARA or Fire Protection Program at IP3.

Section V - Conclusion

The incorporation of these modifications: a) will not increase the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report; and c) will not reduce the margin of safety as defined in the basis for any Technical Specification, and d) does not constitute an unreviewed safety question.

Section VI - References

(a) IP3 FSAR

(b) IP3 SER