Docket

20

DEC 19 1975

Distribution
Docket
NRC PDR
Local PDR
ORB Reading
OELD
OI & E (3)
KRGoller
TJCarter
JMcGough
RWReid
PDiBenedetto
RIngram
DEisenhut
SVarga
ACRS (16)
TBAbernathy
CMiles
JBuchanan

R. Silver

Docket No. 50-271

Yankee Atomic Electric Company
ATTN: Mr. Robert H. Groce
Licensing Engineer
20 Turnpike Road
Westboro, Massachusetts 05181

Gentlemen:

The Commission has requested the Federal Register to publish the enclosed Notice of Proposed Issuance of Amendment to Facility License No. DPR-28 for the Vermont Yankee Nuclear Power Station. The proposed amendment includes a change to the Technical Specifications based on our letter to you dated September 19, 1975 and your response dated October 9, 1975.

This amendment would revise the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod drive mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

A copy of our Safety Evaluation relating to this proposed action was forwarded to you with our letter dated September 19, 1975.

Sincerely,

Original signed by

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Reactor Licensing

Enclosures:
1. Federal Register Notice
2. Proposed Amendment w/Proposed Technical Specification changes

cc:
See page 2

const.

RL:AD
KRGoller
12/ /75

OFFICE		ORB4	ORB4		OELD	ORB4
SURNAME		RIngram	DiBenedetto:mt	RSilver	DSwanson	RWReid
DATE		12/ 5 /75	12/18 /75	12/19 /75	12/ 19 /75	12/19/75

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER CORPORATION

NOTICE OF PROPOSED ISSUANCE OF AMENDMENT
TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. DPR-28 issued to Vermont Yankee Nuclear Power Corporation (the licensee) for operation of the Vermont Yankee Nuclear Power Station (the facility) located near Vernon, Vermont.

The amendment would revise the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

Prior to issuance of the proposed license amendment, the Commission will have made the findings required by the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations.

By , the licensee may file a request for a hearing and any person whose interest may be affected by this proceeding may file a request for a hearing in the form of a petition for leave

OFFICE ➤						
SURNAME ➤						
DATE ➤						

to intervene with respect to the issuance of the amendment to the subject facility operating license. Petitions for leave to intervene must be filed under oath or affirmation in accordance with the provisions of Section 2.714 of 10 CFR Part 2 of the Commission's regulations. A petition for leave to intervene must set forth the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, and the petitioner's contentions with respect to the proposed licensing action. Such petitions must be filed in accordance with the provisions of this FEDERAL REGISTER notice and Section 2.714, and must be filed with the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Docketing and Service Section, by the above date. A copy of the petition and/or request for a hearing should be sent to the Executive Legal Director, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, and to Mr. John A. Ritsher, Esquire, Ropes and Gray, 225 Franklin Street, Boston, Massachusetts 02110, the attorney for the licensee.

A petition for leave to intervene must be accompanied by a supporting affidavit which identifies the specific aspect or aspects of the proceeding as to which intervention is desired and specifies with particularity the facts on which the petitioner relies as to both his interest and his contentions with regard to each aspect on which intervention is requested. Petitions stating contentions relating only to matters outside the Commission's jurisdiction will be denied.

OFFICE ➤						
SURNAME ➤						
DATE ➤						

All petitions will be acted upon by the Commission or licensing board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel. Timely petitions will be considered to determine whether a hearing should be noticed or another appropriate order issued regarding the disposition of the petitions.

In the event that a hearing is held and a person is permitted to intervene, he becomes a party to the proceeding and has a right to participate fully in the conduct of the hearing. For example, he may present evidence and examine and cross-examine witnesses.

For further details with respect to this action, see the Commission's letter to Vermont Yankee Nuclear Power Corporation dated September 19, 1975 and the attached proposed Technical Specifications and the Safety Evaluation by the Commission's staff dated September 19, 1975 and Vermont Yankee Nuclear Power Corporation letter dated October 9, 1975, which are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and tt the Brooks Memorial Library, 244 Main Street, Brattleboro, Vermont. This license amendment and the Safety Evaluation may be inspected at the above locations and a copy may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Division of Reactor Licensing.

OFFICE ➤						
SURNAME ➤						
DATE ➤						

Dated at Bethesda, Maryland, DEC 10 1975

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Reactor Licensing

OFFICE ➤						
SURNAME ➤						
DATE ➤						

VERMONT YANKEE NUCLEAR POWER CORPORATION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER STATION

PROPOSED AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.
License No. DPR-28

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations; and

   B. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B of Facility License No. DPR-28 is herehereby amended to read as follows:

   "B. Technical Specifications

   The technical Specifications contained in Appendices A and B as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No.

OFFICE ➤						
SURNAME ➤						
DATE ➤						

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing

Attachment:
Change No. to the
Technical Specifications

Date of Issuance:

OFFICE ➤						
SURNAME ➤						
DATE ➤						

ATTACHMENT TO PROPOSED LICENSE AMENDMENT

PROPOSED CHANGE TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Delete existing pages 68, 69 and 75 of the Technical Specifications and insert the attached revised pages. The changed areas on the revised pages are shown by marginal lines.

OFFICE ➤						
SURNAME ➤						
DATE ➤						

.3 CONTROL ROD SYSTEM

Applicability:

Applies to the operational status of the control rod system.

Objective:

To ensure the ability of the control rod system to control reactivity.

Specification:

A. Reactivity Limitations

1. Reactivity margin - core loading

The core loading shall be limited to that which can be made subcritical in the most reactive condition during the operating cycle with the highest worth, operable control rod in its fully withdrawn position and all other operable rods inserted.

2. Reactivity margin - inoperable control rods

Control rod drives which cannot be moved with control rod drive pressure shall be considered inoperable. If a partially or fully withdrawn control rod drive cannot be moved with drive or scram pressure, the reactor shall be brought to a shutdown condition within 48 hours unless investigation demonstrates that the cause of the failure is not due to a failed control rod drive mechanism collet housing. The control rod directional control valves for inoperable control rods shall be disarmed electrically except for control rods which are inoperable because of scram times

4.3 CONTROL ROD SYSTEM

Applicability:

Applies to the surveillance requirements of the control rod system.

Objective:

To verify the ability of the control rod system to control reactivity.

Specification:

A. Reactivity Limitations

1. Reactivity margin - core loading

Control rods shall be withdrawn following a refueling outage when core alterations were performed to demonstrate a shutdown margin of 0.25 per cent Δk at any time in the subsequent fuel cycle with the highest worth operable control rod fully withdrawn and all other operable rods inserted.

2. Reactivity margin - inoperable control rods

Each partially or fully withdrawn operable control rod shall be exercised one notch at least once each week. This test shall be performed at least once per 24 hours in the event power operation is continuing with two or more inoperable control rods or in the event power operation is continuing with one fully or partially withdrawn rod which cannot be moved and for which control rod drive mechanism damage has not been ruled out. The surveillance need not be

3.3 LIMITING CONDITIONS FOR OPERATION	4.3 SURVEILLANCE REQUIREMENTS

greater than those specified in Specification 3.3.C. In no case shall the number of inoperable rods which are not fully inserted be greater than six during power operation.

Control Rods

1. Each control rod shall be either coupled to its drive or placed in the inserted position and its directional valves disarmed electrically. When removing up to one control rod drive per quadrant for inspection and the reactor is in the refueling mode, this requirement does not apply.

completed within 24 hours if the number of inoperable rods has been reduced to less than two and if it has been demonstrated that control rod drive mechanism collet housing failure is not the cause of an immovable control rod.

B. Control Rods

1. The coupling integrity shall be verified:

   (a) When a rod is withdrawn the first time subsequent to each refueling outage or after maintenance, observe discernable response of the nuclear instrumentation; however, for initial rods when response is not discernable, subsequent exercising of these rods after the reactor is critical shall be performed to verify instrumentation response; and

   (b) When a rod is fully withdrawn, observe that the rod does not go to the over-travel position. Prior to startup following a refueling outage, each rod shall be fully withdrawn continuously to observe that the rate of withdrawal is proper and that the rod does not go to the over-travel position. Following uncoupling, each control rod drive and blade shall be tested to verify positive coupling and the results of each test shall be recorded. This test shall consist of checking the operability of the over-travel indicator circuit prior to coupling by withdrawing the drive and observing the over-travel light. The drive and blade shall then be immediately coupled and fully withdrawn. The position and over-travel lights shall be observed.

Reactivity Limitations

1. Reactivity margin - core loading

The core reactivity limitation is a restriction to be applied principally to the design of new fuel which may be loaded in the core or into a particular refueling pattern. Satisfaction of the limitation can only be demonstrated at the time of loading and must be such that it will apply to the entire subsequent fuel cycle. At each refueling the reactivity of the core loading will be limited so the core can be made subcritical by at least R + 0.25% Δk with the highest worth control rod fully withdrawn and all others inserted.. The value of R in %Δk is the amount by which the core reactivity, at any time in the operating cycle, is calculated to be greater than at the time of the check. R must be a positive quantity or zero.

The 0.25% Δk in the expression, R + 0.25% Δk, is provided as a finite, demonstrable, sub-criticality margin. This margin is demonstrated by full withdrawal of the highest worth rod and partial withdrawl of an adjacent rod to a position calculated to insert at least R + 0.25% Δk in reactivity. Observatin of sub-criticality in this condition assures sub-criticality with not only the highest worth rod fully withdrawn but at least a R + 0.25% Δk margin. The value of R shall include the potential shutdown margin loss assuming full B_4C settling in all inverted poison tubes present in the core.

2. Reactivity margin - inoperable control rods

Specification 3.3.A.2 requires that a rod be taken out of service if it cannot be moved with drive pressure. If a rod is disarmed electrically, its position shall be consistent with the shutdown reactivity limitation stated in Specification 3.3.A.1. This assures that the core can be shutdown at all times with the remaining control rods, assuming the highest worth, operable control rod does rod insert. An allowable pattern for control rods valved out of service will be available to the reactor operator. The number of rods permitted to be inoperable could be many more than the six allowed by the Specification, particularly late in the operation cycle; however, the occurrence of more than six could be indicative of a generic control rod drive problem and the reactor will be shut down. Also if damage within the control rod drive mechanism and in particular, cracks in drive internal housings, cannot be ruled out, then a generic problem affecting a number of drives cannot be ruled out. Circumferential cracks resulting from stress assisted intergranular corrosion have occurred in the collet housing of drives at several BWRs. This type of cracking could occur in a number of drives and if the cracks propagated until severance of the collet housing occurred, scram could be prevented in the affected rods. Limiting the period of operation with a potentially severed collet housing and requiring increased surveillance after detecting one stuck rod will assure that the reactor will not be operated with a large number of rods with failed collet housings.