

PI 22

December 4, 1992

Docket Nos. 50-373
and 50-374

DISTRIBUTION

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Docket File	NRC & Local PDRs
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BBoger	JZwolinski
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BWhitacre	OGC
CMoore	DHagan
BClayton RIII	WJones
OC/LFMB	GHill (8)
CGrimes	OPA
ACRS(10)	RStransky

Dear Mr. Kovach:

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. M80275 AND M80276)

The Commission has issued the enclosed Amendment No. 88 to Facility Operating License No. NPF-11 and Amendment No. 73 to Facility Operating License No. NPF-18 for the LaSalle County Station, Units 1 and 2, respectively. The amendments are in response to your application dated April 2, 1991, as supplemented June 2, 1992.

The approved Technical Specification amendments would eliminate the required use of the Rod Sequence Control System (RSCS), and reduce the Low Power Setpoint (LPSP) initiation for the turnoff of the Rod Worth Minimizer (RWM) from twenty (20) percent of rated power to ten (10) percent of rated power.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:

Robert J. Stransky, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 88 to NPF-11
2. Amendment No. 73 to NPF-18
3. Safety Evaluation

cc w/enclosures:
See next page

*See previous concurrence

OFC	LA:PDIII-2	*INTERN:PDIII-2	*PE:PDIII-2	PM:PDIII-2	*BC:RXB	D:PDIII-2	OGC
NAME	CMOORE	BWHITACRE:sw	RELLIOTT	RSTRANSKY	BJONES	JDYER	S.HOM
DATE	11/12/92	11/05/92	11/05/92	11/13/92	11/06/92	11/13/92	11/23/92

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Mr. Thomas J. Kovach
Commonwealth Edison Company

LaSalle County Station
Unit Nos. 1 and 2

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-373

LASALLE COUNTY STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 88
License No. NPF-11

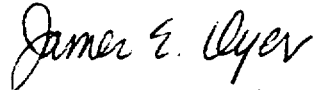
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by the Commonwealth Edison Company (the licensee), dated April 2, 1991, as supplemented June 2, 1992, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
 - C. 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 set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-11 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 88 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective upon date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James E. Dyer, Director
Project Directorate III-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 4, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 88

FACILITY OPERATING LICENSE NO. NPF-11

DOCKET NO. 50-373

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain a vertical line indicating the area of change. Pages indicated with an asterisk are provided for convenience.

<u>REMOVE</u>	<u>INSERT</u>
IV	IV
X	X
XVI	XVI
3/4 1-4	3/4 1-4
3/4 1-11	3/4 1-11
*3/4 1-12	*3/4 1-12
3/4 1-13	3/4 1-13
*3/4 1-15	*3/4 1-15
3/4 1-16	3/4 1-16
3/4 1-17	3/4 1-17
*3/4 10-1	*3/4 10-1
3/4 10-2	3/4 10-2
B 3/4 1-3	B 3/4 1-3
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REACTIVITY CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

2. If the inoperable control rod(s) is inserted:
 - a) Within 1 hour disarm the associated directional control valves* either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.
 - b) Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
3. The provisions of Specification 3.0.4 are not applicable.
- c. With more than 8 control rods inoperable, be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The scram discharge volume drain and vent valves shall be demonstrated OPERABLE by:

- a. At least once per 31 days verifying each valve to be open**, and
- b. At least once per 92 days cycling each valve through at least one complete cycle of full travel.

4.1.3.1.2 When above the low power setpoint of the RWM, all withdrawn control rods not required to have their directional control valves disarmed electrically or hydraulically shall be demonstrated OPERABLE by moving each control rod at least one notch:

- a. At least once per 7 days, and
- b. At least once per 24 hours when any control rod is immovable as a result of excessive friction or mechanical interference.

4.1.3.1.3 All control rods shall be demonstrated OPERABLE by performance of Surveillance Requirements 4.1.3.2, 4.1.3.4, 4.1.3.5, 4.1.3.6 and 4.1.3.7.

*May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

**These valves may be closed intermittently for testing under administrative control.

REACTIVITY CONTROL SYSTEM

CONTROL ROD DRIVE COUPLING

LIMITING CONDITION FOR OPERATION

3.1.3.6 All control rods shall be coupled to their drive mechanisms.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 5*.

ACTION:

- a. In OPERATIONAL CONDITION 1 and 2 with one control rod not coupled to its associated drive mechanism:
 1. Within 2 hours, either:
 - a) If permitted by the RWM, insert the control rod drive mechanism to accomplish recoupling and verify recoupling by withdrawing the control rod, and:
 - 1) Observing any indicated response of the nuclear instrumentation, and
 - 2) Demonstrating that the control rod will not go to the overtravel position.
 - b) If recoupling is not accomplished on the first attempt or, if not permitted by the RWM then until permitted by the RWM, declare the control rod inoperable and insert the control rod and disarm the associated directional control valves** either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.
 2. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
- b. In OPERATIONAL CONDITION 5* with a withdrawn control rod not coupled to its associated drive mechanism, within 2 hours, either:
 1. Insert the control rod to accomplish recoupling and verify recoupling by withdrawing the control rod and demonstrating that the control rod will not go to the overtravel position, or
 2. If recoupling is not accomplished, insert the control rod and disarm the associated directional control valves** either:
 - a) Electrically, or
 - b) Hydraulically by closing the drive water and exhaust water isolation valves.
- c. The provisions of Specification 3.0.4 are not applicable.

*At least each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

**May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

REACTIVITY CONTROL SYSTEM

SURVEILLANCE REQUIREMENTS

4.1.3.6 A control rod shall be demonstrated to be coupled to its drive mechanism by observing any indicated response of the nuclear instrumentation while withdrawing the control rod to the fully withdrawn position and then verifying that the control rod drive does not go to the overtravel position:

- a. Prior to reactor criticality after completing CORE ALTERATIONS that could have affected the control rod drive coupling integrity,
- b. Anytime the control rod is withdrawn to the "Full out" position in subsequent operation, and
- c. Following maintenance on or modification to the control rod or control rod drive system which could have affected the control rod drive coupling integrity.

REACTIVITY CONTROL SYSTEM

CONTROL ROD POSITION INDICATION

LIMITING CONDITION FOR OPERATION

3.1.3.7 The control rod position indication system shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 5*.

ACTION:

- a. In OPERATIONAL CONDITION 1 or 2 with one or more control rod position indicators inoperable, within one hour:
 1. Determine the position of the control rod by:
 - (a) Moving the control rod, by single notch movement, to a position with an OPERABLE position indicator,
 - (b) Returning the control rod, by single notch movement, to its original position, and
 - (c) Verifying no control rod drift alarm at least once per 12 hours, or
 2. Move the control rod to a position with an OPERABLE position indicator, or
 3. When THERMAL POWER is:
 - (a) Within the low power setpoint of the RWM:
 - 1) Declare the control rod inoperable,
 - 2) Verify the position and bypassing of control rods with inoperable "Full in" and/or "Full out" position indicators by a second licensed operator or other technically qualified member of the unit technical staff.
 - (b) Greater than the low power setpoint of the RWM, declare the control rod inoperable, insert the control rod and disarm the associated directional control valves** either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.
 4. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

*At least each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

**May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE STATUS.

REACTIVITY CONTROL SYSTEM

CONTROL ROD DRIVE HOUSING SUPPORT

LIMITING CONDITION FOR OPERATION

3.1.3.8 The control rod drive housing support shall be in place.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

With the control rod drive housing support not in place, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.8 The control rod drive housing support shall be verified to be in place by a visual inspection prior to startup any time it has been disassembled or when maintenance has been performed in the control rod drive housing support area.

REACTIVITY CONTROL SYSTEM

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

ROD WORTH MINIMIZER

LIMITING CONDITION FOR OPERATION

3.1.4.1 The rod worth minimizer (RWM) shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2*, when THERMAL POWER is less than or equal to 10% of RATED THERMAL POWER, the minimum allowable low power setpoint.

ACTION:

- a. With the RWM inoperable, verify control rod movement and compliance with the prescribed control rod pattern by a second licensed operator or other technically qualified member of the unit technical staff who is present at the reactor control console. Otherwise, control rod movement may be only by actuating the manual scram or placing the reactor mode switch in the Shutdown position.
- b. With an inoperable control rod(s), OPERABLE control rod movement may continue by bypassing the inoperable control rod(s) in the RWM provided that:
 1. The position and bypassing of inoperable control rods is verified by a second licensed operator or other technically qualified member of the unit technical staff, and
 2. There are not more than 3 inoperable control rods in any RWM group.
- c. The provisions of Specification 3.0.4 are not applicable, with the exception that control rod withdrawal for reactor startup shall not begin with the RWM inoperable.

SURVEILLANCE REQUIREMENTS

4.1.4.1 The RWM shall be demonstrated OPERABLE:

- a. In OPERATIONAL CONDITION 2 prior to withdrawal of control rods for the purpose of making the reactor critical, and in OPERATIONAL CONDITION 1 prior to reaching 10% of RATED THERMAL POWER when reducing THERMAL POWER, by verifying proper annunciation of the selection error of at least one out-of-sequence control rod.

*Entry into OPERATIONAL CONDITION 2 and withdrawal of selected control rods is permitted for the purpose of determining the OPERABILITY of the RWM prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.

REACTIVITY CONTROL SYSTEM

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

ROD WORTH MINIMIZER

SURVEILLANCE REQUIREMENTS (Continued)

- b. In OPERATIONAL CONDITION 2 prior to withdrawal of control rods for the purpose of making the reactor critical, by verifying the rod block function by demonstrating inability to withdraw an out-of-sequence control rod.
- c. In OPERATIONAL CONDITION 1 within one hour after RWM automatic initiation when reducing THERMAL POWER, by verifying the rod block function by demonstrating inability to withdraw an out-of-sequence control rod.
- d. By verifying the control rod patterns and sequence input to the RWM computer is correctly loaded following any loading of the program into the computer.

3/4.10 SPECIAL TEST EXCEPTIONS

3/4.10.1 PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.10.1 The provisions of Specifications 3.6.1.1, 3.6.1.3 and 3.9.1 and Table 1.2 may be suspended to permit the reactor pressure vessel closure head and the drywell head to be removed and the primary containment air lock doors to be open when the reactor mode switch is in the Startup position during low power PHYSICS TESTS with THERMAL POWER less than 1% of RATED THERMAL POWER and reactor coolant temperature less than 200°F.

APPLICABILITY: OPERATIONAL CONDITION 2, during low power PHYSICS TESTS.

ACTION:

With THERMAL POWER greater than or equal to 1% of RATED THERMAL POWER or with the reactor coolant temperature greater than or equal to 200°F, immediately place the reactor mode switch in the Shutdown position.

SURVEILLANCE REQUIREMENTS

4.10.1 The THERMAL POWER and reactor coolant temperature shall be verified to be within the limits at least once per hour during low power PHYSICS TESTS.

SPECIAL TEST EXCEPTIONS

3/4.10.2 ROD WORTH MINIMIZER

LIMITING CONDITION FOR OPERATION

3.10.2 The sequence constraints imposed on control rod groups by the Rod Worth Minimizer (RWM) per Specification 3.1.4.1 may be suspended by means of bypassing the RWM for the following tests, provided that control rod movement prescribed for this testing is verified by a second licensed operator, or other technically qualified member of the unit technical staff, who is present at the reactor control console.

- a. Shutdown margin demonstrations, Specification 4.1.1.
- b. Control rod scram, Specification 4.1.3.2.
- c. Control rod friction measurements.
- d. Startup Test Program with the THERMAL POWER less than 10% of RATED THERMAL POWER.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With the requirements of the above specification not satisfied, verify that the RWM is OPERABLE per Specification 3.1.4.1.

SURVEILLANCE REQUIREMENTS

4.10.2 When the sequence constraints imposed on control rod groups by the RWM are bypassed, verify;

- a. DELETED
- b. That movement of control rods from 75% ROD DENSITY to the RWM low power setpoint is limited to the approved control rod withdrawal sequence during scram and friction tests,
- c. That movement of control rods during shutdown margin demonstrations is limited to the prescribed sequence per Specification 3.10.3, and
- d. Conformance with this specification and test procedures by a second licensed operator or other technically qualified member of the unit technical staff.

REACTIVITY CONTROL SYSTEMS

BASES

CONTROL RODS (Continued)

In addition, the automatic CRD charging water header low pressure scram (see Table 2.2.1-1) initiates well before any accumulator loses its full capability to insert the control rod. With this added automatic scram feature, the surveillance of each individual accumulator check valve is no longer necessary to demonstrate adequate stored energy is available for normal scram action.

Control rod coupling integrity is required to ensure compliance with the analysis of the rod drop accident in the FSAR. The overtravel position feature provides the only positive means of determining that a rod is properly coupled and therefore this check must be performed prior to achieving criticality after completing CORE ALTERATIONS that could have affected the control rod drive coupling integrity. The subsequent check is performed as a backup to the initial demonstration.

In order to ensure that the control rod patterns can be followed and therefore that other parameters are within their limits, the control rod position indication system must be OPERABLE.

The control rod housing support restricts the outward movement of a control rod to less than 3 inches in the event of a housing failure. The amount of rod reactivity which could be added by this small amount of rod withdrawal is less than a normal withdrawal increment and will not contribute to any damage to the primary coolant system. The support is not required when there is no pressure to act as a driving force to rapidly eject a drive housing.

The required surveillance intervals are adequate to determine that the rods are OPERABLE and not so frequent as to cause excessive wear on the system components.

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

Control rod withdrawal and insertion sequences are established to assure that the maximum insequence individual control rod or control rod segments which are withdrawn at any time during the fuel cycle could not be worth enough to result in a peak fuel enthalpy greater than 280 cal/gm in the event of a control rod drop accident. The specified sequences are characterized by homogeneous, scattered patterns of control rod withdrawal. When THERMAL POWER is greater than 10% of RATED THERMAL POWER, there is no possible rod worth which, if dropped at the design rate of the velocity limiter, could result in a peak enthalpy of 280 cal/gm. Thus requiring the RWM to be OPERABLE when THERMAL POWER is less than or equal to 10% of RATED THERMAL POWER provides adequate control.

The RWM provide automatic supervision to assure that out-of-sequence rods will not be withdrawn or inserted.

The analysis of the rod drop accident is presented in Section 15.4.9 of the FSAR and the techniques of the analysis are presented in a topical report, Reference 1, and two supplements, References 2 and 3.

3/4.10 SPECIAL TEST EXCEPTIONS

BASES

3/4.10.1 PRIMARY CONTAINMENT INTEGRITY

The requirement for PRIMARY CONTAINMENT INTEGRITY is removed during the period when open vessel tests are being performed during the low power PHYSICS TESTS.

3/4.10.2 ROD WORTH MINIMIZER

In order to perform the tests required in the technical specifications it is necessary to bypass the sequence restraints on control rod movement. The additional surveillance requirements ensure that the specifications on heat generation rates and shutdown margin requirements are not exceeded during the period when these tests are being performed and that individual rod worths do not exceed the values assumed in the safety analysis.

3/4.10.3 SHUTDOWN MARGIN DEMONSTRATIONS

Performance of shutdown margin demonstrations with the vessel head removed requires additional restrictions in order to ensure that criticality does not occur. These additional restrictions are specified in this LCO.

3/4.10.4 RECIRCULATION LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4.10.5 OXYGEN CONCENTRATION

Relief from the oxygen concentration specifications is necessary in order to provide access to the primary containment during the initial startup and testing phase of operation. Without this access the startup and test program could be restricted and delayed.

3/4.10.6 TRAINING STARTUPS

This special test exception permits training startups to be performed with the reactor vessel depressurized at low THERMAL POWER and temperature while controlling RCS temperature with one RHR subsystem aligned in the shutdown cooling mode in order to minimize contaminated water discharge to the radioactive waste disposal system.

3/4.10.7 CONFIRMATORY FLOW INDUCED VIBRATION TEST

This special test exception permits the primary containment to be open and the RCIC system to be inoperable during performance of the required test provided that the test is performed prior to the initial criticality of the reactor and the heatup to and maintenance of HOT SHUTDOWN is not performed with nuclear heat.

SPECIAL TEST EXCEPTIONS

BASES

3/4.10.8 SUPPRESSION CHAMBER WATER TEMPERATURE

In order to obtain information on thermal mixing of the suppression chamber water during S/RV discharge, extended blowdowns are performed as part of the In-Plant SRV Test. To best understand the effects of these blowdowns, they must be performed over a maximum temperature range. In order to collect data in the region of interest, the suppression chamber shall remain OPERABLE with a pool water maximum average temperature of 110°F. Conservative calculations show that with restricted reactor power history and THERMAL POWER at less than 60% of RATED THERMAL POWER the suppression chamber water temperature does not exceed acceptable limits.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-374

LASALLE COUNTY STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 73
License No. NPF-18

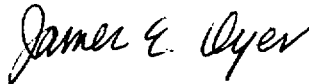
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by the Commonwealth Edison Company (the licensee), dated April 2, 1991, as supplemented June 2, 1992, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
 - C. 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 set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-18 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 73, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective upon date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James E. Dyer, Director
Project Directorate III-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 4, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 73

FACILITY OPERATING LICENSE NO. NPF-18

DOCKET NO. 50-374

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain a vertical line indicating the area of change. Pages identified by an asterisk are provided for convenience.

<u>REMOVE</u>	<u>INSERT</u>
IV	IV
X	X
XVI	XVI
3/4 1-4	3/4 1-4
3/4 1-11	3/4 1-11
*3/4 1-12	*3/4 1-12
3/4 1-13	3/4 1-13
*3/4 1-15	*3/4 1-15
3/4 1-16	3/4 1-16
3/4 1-17	3/4 1-17
*3/4 10-1	*3/4 10-1
3/4 10-2	3/4 10-2
B 3/4 1-3	B 3/4 1-3
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REACTIVITY CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

2. If the inoperable control rod(s) is inserted:
 - a) Within 1 hour disarm the associated directional control valves* either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.
 - b) Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
3. The provisions of Specification 3.0.4 are not applicable.
- c. With more than 8 control rods inoperable, be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The scram discharge volume drain and vent valves shall be demonstrated OPERABLE by:

- a. At least once per 31 days verifying each valve to be open**, and
- b. At least once per 92 days cycling each valve through at least one complete cycle of full travel.

4.1.3.1.2 When above the low power setpoint of the RWM, all withdrawn control rods not required to have their directional control valves disarmed electrically or hydraulically shall be demonstrated OPERABLE by moving each control rod at least one notch:

- a. At least once per 7 days, and
- b. At least once per 24 hours when any control rod is immovable as a result of excessive friction or mechanical interference.

4.1.3.1.3 All control rods shall be demonstrated OPERABLE by performance of Surveillance Requirements 4.1.3.2, 4.1.3.4, 4.1.3.5, 4.1.3.6, and 4.1.3.7.

*May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

**These valves may be closed intermittently for testing under administrative control.

REACTIVITY CONTROL SYSTEM

CONTROL ROD DRIVE COUPLING

LIMITING CONDITION FOR OPERATION

3.1.3.6 All control rods shall be coupled to their drive mechanisms.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 5*.

ACTION:

- a. In OPERATIONAL CONDITIONS 1 and 2 with one control rod not coupled to its associated drive mechanism:
 1. Within 2 hours, either:
 - a) If permitted by the RWM, insert the control rod drive mechanism to accomplish recoupling and verify recoupling by withdrawing the control rod, and:
 - 1) Observing any indicated response of the nuclear instrumentation, and
 - 2) Demonstrating that the control rod will not go to the overtravel position.
 - b) If recoupling is not accomplished on the first attempt or, if not permitted by the RWM then until permitted by the RWM, declare the control rod inoperable and insert the control rod and disarm the associated directional control valves** either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.
 2. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
- b. In OPERATIONAL CONDITION 5* with a withdrawn control rod not coupled to its associated drive mechanism, within 2 hours, either:
 1. Insert the control rod to accomplish recoupling and verify recoupling by withdrawing the control rod and demonstrating that the control rod will not go to the overtravel position, or
 2. If recoupling is not accomplished, insert the control rod and disarm the associated directional control valves** either:
 - a) Electrically, or
 - b) Hydraulically by closing the drive water and exhaust water isolation valves.
- c. The provisions of Specification 3.0.4 are not applicable.

*At least each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

**May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

REACTIVITY CONTROL SYSTEM

SURVEILLANCE REQUIREMENTS

4.1.3.6 A control rod shall be demonstrated to be coupled to its drive mechanism by observing any indicated response of the nuclear instrumentation while withdrawing the control rod to the fully withdrawn position and then verifying that the control rod drive does not go to the overtravel position:

- a. Prior to reactor criticality after completing CORE ALTERATIONS that could have affected the control rod drive coupling integrity,
- b. Anytime the control rod is withdrawn to the "Full out" position in subsequent operation, and
- c. Following maintenance on or modification to the control rod or control rod drive system which could have affected the control rod drive coupling integrity.

REACTIVITY CONTROL SYSTEM

CONTROL ROD POSITION INDICATION

LIMITING CONDITION FOR OPERATION

3.1.3.7 The control rod position indication system shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 5*.

ACTION:

- a. In OPERATIONAL CONDITION 1 or 2 with one or more control rod position indicators inoperable within one hour:
 1. Determine the position of the control rod by:
 - (a) Moving the control rod, by single notch movement, to a position with an OPERABLE position indicator,
 - (b) Returning the control rod, by single notch movement, to its original position, and
 - (c) Verifying no control rod drift alarm at least once per 12 hours, or
 2. Move the control rod to a position with an OPERABLE position indicator, or
 3. When THERMAL POWER is:
 - (a) Within the low power setpoint of the RWM:
 - (1) Declare the control rod inoperable,
 - (2) Verify the position and bypassing of control rod with inoperable "Full in" and/or "Full out" position indicators by a second licensed operator or other technically qualified member of the unit technical staff.
 - b) Greater than the low power setpoint of the RWM, declare the control rod inoperable, insert the control rod and disarm the associated directional control valves** either:
 - (1) Electrically, or
 - (2) Hydraulically by closing the drive water and exhaust water isolation valves.
 4. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

*At least each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

**May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

REACTIVITY CONTROL SYSTEM

CONTROL ROD DRIVE HOUSING SUPPORT

LIMITING CONDITION FOR OPERATION

3.1.3.8 The control rod drive housing support shall be in place.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

With the control rod drive housing support not in place, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.8 The control rod drive housing support shall be verified to be in place by a visual inspection prior to startup any time it has been disassembled or when maintenance has been performed in the control rod drive housing support area.

REACTIVITY CONTROL SYSTEM

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

ROD WORTH MINIMIZER

LIMITING CONDITION FOR OPERATION

3.1.4.1 The rod worth minimizer (RWM) shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2*, when THERMAL POWER is less than or equal to 10% of RATED THERMAL POWER, the minimum allowable low power setpoint.

ACTION:

- a. With the RWM inoperable, verify control rod movement and compliance with the prescribed control rod pattern by a second licensed operator or other technically qualified member of the unit technical staff who is present at the reactor control console. Otherwise, control rod movement may be only by actuating the manual scram or placing the reactor mode switch in the Shutdown position.
- b. With an inoperable control rod(s), OPERABLE control rod movement may continue by bypassing the inoperable control rod(s) in the RWM provided that:
 1. The position and bypassing of inoperable control rods is verified by a second licensed operator or other technically qualified member of the unit technical staff, and
 2. There are not more than 3 inoperable control rods in any RWM group.
- c. The provisions of Specification 3.0.4 are not applicable, with the exception that control rod withdrawal for reactor startup shall not begin with the RWM inoperable.

SURVEILLANCE REQUIREMENTS

4.1.4.1 The RWM shall be demonstrated OPERABLE:

- a. In OPERATIONAL CONDITION 2 prior to withdrawal of control rods for the purpose of making the reactor critical, and in OPERATIONAL CONDITION 1 prior to reaching 10% of RATED THERMAL POWER when reducing THERMAL POWER, by verifying proper annunciation of the selection error of at least one out-of-sequence control rod.

*Entry into OPERATIONAL CONDITION 2 and withdrawal of selected control rods is permitted for the purpose of determining the OPERABILITY of the RWM prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.

REACTIVITY CONTROL SYSTEM

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

ROD WORTH MINIMIZER

SURVEILLANCE REQUIREMENTS (Continued)

- b. In OPERATIONAL CONDITION 2 prior to withdrawal of control rods for the purpose of making the reactor critical, by verifying the rod block function by demonstrating inability to withdraw an out-of-sequence control rod.
- c. In OPERATIONAL CONDITION 1 within one hour after RWM automatic initiation when reducing THERMAL POWER, by verifying the rod block function by demonstrating inability to withdraw an out-of-sequence control rod.
- d. By verifying the control rod patterns and sequence input to the RWM computer is correctly loaded following any loading of the program into the computer.

3/4.10 SPECIAL TEST EXCEPTIONS

3/4.10.1 PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.10.1 The provisions of Specifications 3.6.1.1, 3.6.1.3 and 3.9.1 and Table 1.2 may be suspended to permit the reactor pressure vessel closure head and the drywell head to be removed and the primary containment air lock doors to be open when the reactor mode switch is in the Startup position during low power PHYSICS TESTS with THERMAL POWER less than 1% of RATED THERMAL POWER and reactor coolant temperature less than 200°F.

APPLICABILITY: OPERATIONAL CONDITION 2, during low power PHYSICS TESTS.

ACTION:

With THERMAL POWER greater than or equal to 1% of RATED THERMAL POWER or with the reactor coolant temperature greater than or equal to 200°F, immediately place the reactor mode switch in the Shutdown position.

SURVEILLANCE REQUIREMENTS

4.10.1 The THERMAL POWER and reactor coolant temperature shall be verified to be within the limits at least once per hour during low power PHYSICS TESTS.

SPECIAL TEST EXCEPTIONS

3/4.10.2 ROD WORTH MINIMIZER

LIMITING CONDITION FOR OPERATION

3.10.2 The sequence constraints imposed on control rod groups by the Rod Worth Minimizer (RWM) per Specification 3.1.4.1 may be suspended by means of bypassing the RWM for the following tests, provided that control rod movement prescribed for this testing is verified by a second licensed operator, or other technically qualified member of the unit technical staff, who is present at the reactor control console.

- a. Shutdown margin demonstrations, Specification 4.1.1.
- b. Control rod scram, Specification 4.1.3.2.
- c. Control rod friction measurements.
- d. Startup Test Program with the THERMAL POWER less than 10% of RATED THERMAL POWER.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With the requirements of the above specification not satisfied, verify that the RWM is OPERABLE per Specification 3.1.4.1.

SURVEILLANCE REQUIREMENTS

4.10.2 When the sequence constraints imposed on control rod groups by the RWM are bypassed, verify;

- a. DELETED
- b. That movement of control rods from 75% ROD DENSITY to the RWM low power setpoint is limited to the approved control rod withdrawal sequence during scram and friction tests,
- c. That movement of control rods during shutdown margin demonstrations is limited to the prescribed sequence per Specification 3.10.3, and
- d. Conformance with this specification and test procedures by a second licensed operator or other technically qualified member of the unit technical staff.

REACTIVITY CONTROL SYSTEMS

BASES

CONTROL RODS (Continued)

In addition, the automatic CRD charging water header low pressure scram (see Table 2.2.1-1) initiates well before any accumulator loses its full capability to insert the control rod. With this added automatic scram feature, the surveillance of each individual accumulator check valve is no longer necessary to demonstrate adequate stored energy is available for normal scram action.

Control rod coupling integrity is required to ensure compliance with the analysis of the rod drop accident in the FSAR. The overtravel position feature provides the only positive means of determining that a rod is properly coupled and therefore this check must be performed prior to achieving criticality after completing CORE ALTERATIONS that could have affected the control rod drive coupling integrity. The subsequent check is performed as a backup to the initial demonstration.

In order to ensure that the control rod patterns can be followed and therefore that other parameters are within their limits, the control rod position indication system must be OPERABLE.

The control rod housing support restricts the outward movement of a control rod to less than 3 inches in the event of a housing failure. The amount of rod reactivity which could be added by this small amount of rod withdrawal is less than a normal withdrawal increment and will not contribute to any damage to the primary coolant system. The support is not required when there is no pressure to act as a driving force to rapidly eject a drive housing.

The required surveillance intervals are adequate to determine that the rods are OPERABLE and not so frequent as to cause excessive wear on the system components.

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

Control rod withdrawal and insertion sequences are established to assure that the maximum insequence individual control rod or control rod segments which are withdrawn at any time during the fuel cycle could not be worth enough to result in a peak fuel enthalpy greater than 280 cal/gm in the event of a control rod drop accident. The specified sequences are characterized by homogeneous, scattered patterns of control rod withdrawal. When THERMAL POWER is greater than 10% of RATED THERMAL POWER, there is no possible rod worth which, if dropped at the design rate of the velocity limiter, could result in a peak enthalpy of 280 cal/gm. Thus requiring the RWM to be OPERABLE when THERMAL POWER is less than or equal to 10% of RATED THERMAL POWER provides adequate control.

The RWM provide automatic supervision to assure that out-of-sequence rods will not be withdrawn or inserted.

The analysis of the rod drop accident is presented in Section 15.4.9 of the FSAR and the techniques of the analysis are presented in a topical report, Reference 1, and two supplements, References 2 and 3.

REACTIVITY CONTROL SYSTEMS

BASES

3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

The standby liquid control system provides a backup capability for bringing the reactor from full power to a cold, Xenon-free shutdown, assuming that the withdrawn control rods remain fixed in the rated power pattern. To meet this objective it is necessary to inject a quantity of boron which produces a concentration of 660 ppm in the reactor core in approximately 50 to 125 minutes. A normal quantity of 4587 gallons net of solution having a 13.4% sodium pentaborate concentration is required to meet a shutdown requirement of 3%. There is an additional allowance of 25% in the reactor core to account for imperfect mixing. The time requirement was selected to override the reactivity insertion rate due to cooldown following the Xenon poison peak and the required pumping rate is 41.2 gpm. The minimum storage volume of the solution is established to allow for the portion below the pump suction that cannot be inserted and the filling of other piping systems connected to the reactor vessel.

The temperature requirement on the sodium pentaborate solution is necessary to maintain the solubility of the solution as it was initially mixed to the appropriate concentration. Checking the volume of fluid and the temperature once each 24 hours assures that the solution is available for injection.

With redundant pumps and explosive injection valves and with a highly reliable control rod scram system, operation of the reactor is permitted to continue for short periods of time with the system inoperable or for longer periods of time with one of the redundant components inoperable.

Surveillance requirements are established on a frequency that assures a high reliability of the system. Once the solution is established, boron concentration will not vary unless more boron or water is added, thus a check on the temperature and volume once each 24 hours assures that the solution is available for use.

Replacement of the explosive charges in the valves at regular intervals will assure that these valves will not fail because of deterioration of the charges.

1. C. J. Paone, R. C. Stirn and J. A. Woolley, "Rod Drop Accident Analysis for Large BWR's," G. E. Topical Report NEDO-10527, March 1972
2. C. J. Paone, R. C. Stirn and R. M. Young, Supplement 1 to NEDO-10527, July 1972
3. J. M. Haun, C. J. Paone and R. C. Stirn, Addendum 2, "Exposed Cores," Supplement 2 to NEDO-10527, January 1973

3/4.10 SPECIAL TEST EXCEPTIONS

BASES

3/4.10.1 PRIMARY CONTAINMENT INTEGRITY

The requirement for PRIMARY CONTAINMENT INTEGRITY is removed during the period when open vessel tests are being performed during the low power PHYSICS TESTS.

3/4.10.2 ROD WORTH MINIMIZER

In order to perform the tests required in the technical specifications it is necessary to bypass the sequence restraints on control rod movement. The additional surveillance requirements ensure that the specifications on heat generation rates and shutdown margin requirements are not exceeded during the period when these tests are being performed and that individual rod worths do not exceed the values assumed in the safety analysis.

3/4.10.3 SHUTDOWN MARGIN DEMONSTRATIONS

Performance of shutdown margin demonstrations with the vessel head removed requires additional restrictions in order to ensure that criticality does not occur. These additional restrictions are specified in this LCO.

3/4.10.4 RECIRCULATION LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4.10.5 OXYGEN CONCENTRATION

Relief from the oxygen concentration specifications is necessary in order to provide access to the primary containment during the initial startup and testing phase of operation. Without this access the startup and test program could be restricted and delayed.

3/4.10.6 TRAINING STARTUPS

This special test exception permits training startups to be performed with the reactor vessel depressurized at low THERMAL POWER and temperature while controlling RCS temperature with one RHR subsystem aligned in the shutdown cooling mode in order to minimize contaminated water discharge to the radioactive waste disposal system.

3/4.10.7 CONFIRMATORY FLOW INDUCED VIBRATION TEST

This special test exception permits the primary containment to be open and the RCIC system to be inoperable during performance of the required test provided that the test is performed prior to the initial criticality of the reactor and the heatup to and maintenance of HOT SHUTDOWN is not performed with nuclear heat.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 88 TO FACILITY OPERATING LICENSE NO. NPF-11 AND
AMENDMENT NO. 73 TO FACILITY OPERATING LICENSE NO. NPF-18
COMMONWEALTH EDISON COMPANY
LASALLE COUNTY STATION, UNITS 1 AND 2
DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

By letter dated April 2, 1991, as supplemented June 2, 1992, Commonwealth Edison Company (CECo) requested an amendment to Facility Operating License Nos. NPF-11 and NPF-18 for the LaSalle County Station, Units 1 and 2. The proposed amendment requested the following changes: 1) the elimination of the required use of the Rod Sequence Control System (RSCS), and 2) the reduction of the Low Power Setpoint (LPSP) initiation for the turnoff of the Rod Worth Minimizer (RWM) from twenty (20) percent of rated power to ten (10) percent of rated power. The June 2, 1992, submittal provided additional clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 DISCUSSION

The Rod Sequence Control System restricts rod movement to minimize the individual worth of control rods to lessen the consequences of a Rod Drop Accident (RDA). Control rod movement is restricted through the use of rod select, insert, and withdraw blocks. The RSCS is a hardwired, redundant backup to the RWM. The rod sequence control system is independent of the rod worth minimizer in terms of inputs and outputs, but the two systems are compatible. The RSCS is designed to monitor and block, when necessary, operator control rod selection, withdrawal, and insertion actions. The RSCS thereby assists in preventing significant control rod pattern errors that could lead to dropping a control rod having a high reactivity worth.

A significant rod pattern error is one of several abnormal events, all of which must occur coincidentally to have an RDA that might exceed fuel energy density limits. The RSCS was designed only for mitigation of a RDA and is active only during low power operations (currently less than 20 percent power), when an RDA could be significant. A similar pattern control function is also performed by the RWM, which is a computer controlled system.

On August 15, 1986 (Reference 1), the BWR Owners' Group, in cooperation with the General Electric Company, proposed Amendment 17 to GESTAR II (Reference 2) which would: 1) eliminate the requirement for the RSCS while retaining the

RWM to provide backup to the operator for control rod pattern control, and 2) reduce the RWM low power setpoint from 20 percent of rated power to 10 percent of rated power.

The NRC staff review concluded that the proposed changes were acceptable, and approved Amendment 17, but imposed several additional requirements which would be necessary to implement the changes. The additional requirements were:

1. The Technical Specifications should include provisions for minimizing reactor operations with the RWM system inoperable.
2. The occasional necessary use of a second operator replacement should be strengthened by a utility review of relevant procedures, related forms, and quality control to assure that the second operator provides an effective and truly independent monitoring process. A discussion of this review should accompany the request for RSCS removal.
3. Rod pattern used should at least be equivalent to banked position withdrawal sequence (BPWS) patterns.

3.0 EVALUATION

Commonwealth Edison Company has proposed several changes to Technical Specifications 3/4.1, 3/4.10 and the associated Bases. There are four categories to accomplish these changes and to meet the requirements discussed above. These changes are:

1. Elimination of the RSCS requirements.
2. Reduction of the RWM setpoint to 10 percent.
3. Increased administrative control of RWM operability (intended to result in decreased use of the second operator as a substitute for the RWM), and implementation of BPWS. The licensee has also discussed the procedures for second operator actions when required, to ensure independent monitoring of the control rod patterns.
4. Administrative changes improving clarity and overall organization, and relocation of text.

With respect to items 1) and 2) above, the NRC staff review and basis for approval of the removal of the RSCS and lowering of RWM setpoint, as proposed by the licensee, is provided in References 1 and 2. The proposed changes fall within the scope of that staff review and approval. The present staff review of the proposed TS changes that implement these operational changes concludes that they are appropriate, clearly stated and are acceptable.

In an effort to improve the RWM system, LaSalle installed a new system: an Enhanced Rod Worth Minimizer (EHRWM). The new system has many improvements over the old RWM system, such as increased reliability, easier maintenance,

faster scanning speed, and a color graphic CRT which operates by a touch screen.

With regard to item 3) above, to assure that the second operator provides an effective and independent verification during the infrequent occasions when the EHRWM is inoperable, a review of applicable station procedures was performed and revised guidelines developed. The revised guidelines will provide a directive for second verification forcing the operator to request permission before moving the rod, followed by the second verifier granting permission. Likewise, completion of the move will be announced by the operator and acknowledged by the second verifier. This will ensure a complete independent check of rod movements. Also, as required, the revised TS prescribes the use of rod patterns equivalent to the BPWS patterns to maintain low control rod reactivity worths. The new EHRWM system enforces BPWS constraints at all times. The staff has reviewed the proposed changes to the TS and find them to be consistent with the intent of the staff's safety evaluation approving Amendment 17 to GESTAR II and find the changes acceptable.

The administrative changes relating to item 4) above, which are applicable to TS 3/4.1, 3/4.10 and the Bases, are primarily corrections of wording and improvements in clarity or format. The changes include the removal of section 3/4.1.4 (Rod Sequence Control System) and replacement of RSCS with RWM within the text. The changes and reviews are in accordance with the staff requirements of Reference 3 and are acceptable, and the proposed changes to the TS and Bases appropriately implement the changes.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (56 FR 27038). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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7.0 REFERENCES

1. Letter with enclosures from T. A. Pickens, BWR Owners' Group to G. Lainas, NRC, "Amendment 17 to GE Licensing Topical Report NEDE-24011-P-A," dated August 15, 1986.
2. "General Electric Standard Application for Reactor Fuel" (GESTAR II), NEDE-24011-P-A-9, September 1988.
3. Letter from A. Thadani, NRC, to J. Charnley, General Electric, "Acceptance for Referencing of Licensing Topical Report NEDE-24011-P-A, Revision 8, Amendment 17," dated December 27, 1987.