January 18, 1990

Docket No. 50-341

Mr. B. Ralph Sylvia
Senior Vice President - Nuclear
Operations
Detroit Edison Company
6400 North Dixie Highway
Newport, Michigan 48166

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JZwolinski	ACRS (10)
PShuttleworth	GPA/PA
OGC	ARM/LFMB
DHagan	EJordan

Dear Mr. Sylvia:

SUBJECT: AMENDMENT NO. 49 TO FACILITY OPERATING LICENSE NO. NPF-43: CLOSURE MECHANISMS FOR PRIMARY SECONDARY CONTAINMENT PENETRATIONS (TAC NO. 67100)

The Commission has issued the enclosed Amendment No. 49 to Facility Operating License No. NPF-43 for the Fermi-2 facility. This amendment consists of changes to the Plant Technical Specifications (TS) in response to your submittals of January 26, 1988, as supplemented by letters dated August 24, 1988 and May 31, 1989.

The amendment revises the provisions in the TS to allow that primary and secondary containment penetrations located in locked high radiation areas be verified closed each cold shutdown (if not performed within the previous 31 days) rather than every 31 days. In addition, the amendment clarifies that primary containment penetrations located in locked areas which remain high radiation areas during the cold shutdown may be verified by review of high radiation area access controls. As provided for in your submittal of May 31, 1989, these provisions are being limited to those penetrations currently located in locked high radiation areas. In addition, the licensee proposes changes to Section B 3/4 6.1.1 of the Bases of the TS.

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

Sincerely,

original signed by

John F. Stang, Project Manager
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 49 to NPF-43
2. Safety Evaluation

cc w/enclosures:
See next page

*See previous concurrence

LA/PD31:DRSP*	PM:PD31:DRSP*	PM/PD31:DRSP*	Region III*	(A)D/PD31:DRSP	OGC*
PShuttleworth	PEng	JStang		JThoma	
11/17/89	11/20/89	11/20/89	12/4/89	1/19/90	12/6/89

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PShuttleworth	PEng	JStang	TOU B. Thomas	JThoma	BMC
11/17/89	11/20/89	11/20/89	12/4/89	12/ /89	12/6/89

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Office of Nuclear Reactor Regulation

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Change To Region III 11/ /89

LA/PD31:DRSP	PM:PD31:DRSP	PM/PD31:DRSP	SPLB	(A)D/PD31:DRSP	OGC
PShuttleworth	PEng for	JStang	CMcCracken	JThoma	
for 11/17/89	11/20/89	11/20/89	11/ /89	11/ /89	12/6/89

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

January 18, 1990

Docket No. 50-341

Mr. B. Ralph Sylvia
Senior Vice President - Nuclear
Operations
Detroit Edison Company
6400 North Dixie Highway
Newport, Michigan 48166

Dear Mr. Sylvia:

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Sincerely,

John F. Stang

John F. Stang, Project Manager
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 49 to NPF-43
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. B. Ralph Sylvia
Detroit Edison Company

Fermi-2 Facility

cc:

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

DETROIT EDISON COMPANY

WOLVERINE POWER SUPPLY COOPERATIVE, INCORPORATED

DOCKET NO. 50-341

FERMI-2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 49
License No. NPF-43

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

   A. The application for amendment by the Detroit Edison Company (the licensee) dated January 26, 1988, as supplemented by letters dated August 24, 1988, and May 31, 1989 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and 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 rules and 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;

   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 attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-43 is hereby amended to read as follows:

   Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 49, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. DECo shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

John O. Thoma

John O. Thoma, Acting Director
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 18, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 49

FACILITY OPERATING LICENSE NO. NPF-43

DOCKET NO. 50-341

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain a vertical line indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE	INSERT
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xiv	xiv
xxiii*	xxiii*
xxiv	xxiv
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-	3/4 6-1a
-	3/4 6-1b
3/4 6-2*	3/4 6-2*
3/4 6-51a	3/4 6-51a
B 3/4 6-1	B 3/4 6-1
-	B 3/4 6-1a

*Overleaf page provided to maintain document completeness. No changes contained on these pages

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3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2* and 3.

ACTION:

Without PRIMARY CONTAINMENT INTEGRITY, restore PRIMARY CONTAINMENT INTEGRITY within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be demonstrated:

a. After each closing of each penetration subject to Type B testing, except the primary containment air locks, if opened following Type A or B test, by leak rate testing the seals with gas at P_a, 56.5 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Surveillance Requirement 4.6.1.2.b for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 L_a.

b. At least once per 31 days by verifying that all primary containment penetrations except those inside the containment or in locked high radiation areas (listed in Table 4.6.1.1-1) not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by locked closed valves, blank flanges, or deactivated automatic valves secured in position, except as provided in Table 3.6.3-1 of Specification 3.6.3.

   1. Valves, flanges, and deactivated automatic valves which are located inside the containment, and are locked, sealed or otherwise secured in the closed position shall be verified closed during each COLD SHUTDOWN except such verification need not be performed when the primary containment has not been deinerted since the last verification or more often than once per 92 days.

*See Special Test Exception 3.10.1.

SURVEILLANCE REQUIREMENTS (Continued)

2. Locked closed valves, flanges, and deactivated automatic valves (listed in Table 4.6.1.1-1) which are located outside the containment within locked high radiation areas shall be verified closed during each COLD SHUTDOWN if not performed within the previous 31 days.**

c. By verifying each primary containment air lock is in compliance with the requirements of Specification 3.6.1.3.

d. By verifying the suppression chamber is in compliance with the requirements of Specification 3.6.2.1.

**The TIP Flange (Penetration X-35A) may be verified by review of high radiation area access controls if the TIP Room remains a locked high radiation area during COLD SHUTDOWN.

TABLE 4.6.1.1-1

PRIMARY CONTAINMENT ISOLATION VALVES/FLANGES
LOCATED IN LOCKED HIGH RADIATIONS AREAS

PLANT IDENTIFICATION/ VALVE NUMBER	LOCATION	PENETRATION
a. 1. P34-F013 2. P34-F014	RWCU Valve Pit	X-48F
b. 1. E21-F023A 2. E21-F022A	Reactor Bldg. Second Floor	X-16B
c. 1. G33-F002 2. G33-F003	RWCU Valve Pit	X-43
d. 1. B21-F017 2. B21-F018	Steam Tunnel	X-8
e. 1. T48-F006A 2. T48-F007A	Reactor Bldg. Second Floor	X-15
f. 1. C41-F026 2. C41-F027	RWCU Valve Pit	X-42
g. 1. B21-F025A 2. B21-F025B 3. B21-F025C 4. B21-F025D 5. B21-F026A 6. B21-F026B 7. B21-F026C 8. B21-F026D	Steam Tunnel	X-7A, B, C & D
h. 1. B21-F102A 2. B21-F103A	Steam Tunnel	X-7A
i. 1. G33-F122 2. G33-F123	Steam Tunnel	X-9B
j. 1. E51-F036 2. E51-F037	Steam Tunnel	X-10
k. 1. E41-F014 2. E41-F015	Steam Tunnel	X-11
l. Penetration X-35A Blank Flange	TIP Room	X-35A

LIMITING CONDITION FOR OPERATION

3.6.1.2 Primary containment leakage rates shall be limited to:

a. An overall integrated leakage rate of less than or equal to: L_a, 0.5 percent by weight of the containment air per 24 hours at P_a, 56.5 psig.

b. A combined leakage rate of less than or equal to 0.60 L_a for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests when pressurized to P_a, 56.5 psig.

c. *Less than or equal to 100 scf per hour for all four main steam lines when tested at 25.0 psig.

d. A combined leakage rate of less than or equal to 5 gpm for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment, when tested at 1.10 P_a, 62.2 psig.

e. Less than or equal to 1 gpm times the number of valves per penetration not to exceed 3 gpm per penetration for any line penetrating containment and hydrostatically tested at 1.10 P_a, 62.2 psig.

APPLICABILITY: When PRIMARY CONTAINMENT INTEGRITY is required per Specification 3.6.1.1.

ACTION:

With:

a. The measured overall integrated primary containment leakage rate exceeding 0.75 L_a, or

b. The measured combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests exceeding 0.60 L_a, or

c. The measured leakage rate exceeding 100 scf per hour for all four main steam lines, or

d. The measured combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment exceeding 5 gpm, or

e. The leakage rate of any hydrostatically tested line penetrating primary containment exceeding 1 gpm per isolation valve times the number of containment isolation valves per penetration or greater than 3 gpm per penetration,

prior to increasing reactor coolant system temperature above 200°F, restore:

a. The overall integrated leakage rate(s) to less than or equal to 0.75 L_a, and

*Exemption to Appendix J of 10 CFR Part 50.

SURVEILLANCE REQUIREMENTS

4.6.5.1 SECONDARY CONTAINMENT INTEGRITY shall be demonstrated by:

a. Verifying at least once per 24 hours that the vacuum within the secondary containment is greater than or equal to 0.125 inch of vacuum water gauge.

b. Verifying at least once per 31 days that:

1. All secondary containment equipment hatches and pressure relief doors are closed and sealed, and both railroad bay access doors are closed and sealed.

2. At least one door in each access to the secondary containment is closed.

3. All secondary containment penetrations except for Steam Tunnel Blowout Panels not capable of being closed by OPERABLE secondary containment automatic isolation dampers/valves and required to be closed during accident conditions are closed by valves, blank flanges, or deactivated automatic dampers/valves secured in the closed position.

c. Verifying Steam Tunnel Blowout Panels are closed during each COLD SHUTDOWN if not performed within the previous 31 days.

d. At least once per 18 months:

1. Verifying that one standby gas treatment subsystem will draw down the secondary containment to greater than or equal to 0.25 inch of vacuum water gauge in less than or equal to 567 seconds at a flow rate not exceeding 3800 cfm, and

2. Operating one standby gas treatment subsystem for 1 hour and maintaining greater than or equal to 0.25 inch of vacuum water gauge in the secondary containment at a flow rate not exceeding 3000 cfm.

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 PRIMARY CONTAINMENT INTEGRITY

PRIMARY CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the safety analyses. This restriction, in conjunction with the leakage rate limitation, will limit the SITE BOUNDARY radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

PRIMARY CONTAINMENT INTEGRITY is demonstrated by leak rate testing and by verifying that all primary containment penetrations not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by locked valves, blank flanges or deactivated automatic valves secured in the closed position. For test, vent and drain connections which are part of the containment boundary, a threaded pipe cap with acceptable sealant in addition to the containment isolation valve(s) provides protection equivalent to a blank flange.

3/4.6.1.2 PRIMARY CONTAINMENT LEAKAGE

The limitations on primary containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the safety analyses at the peak accident pressure of 56.5 psig, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L_a during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

Operating experience with the main steam line isolation valves has indicated that degradation has occasionally occurred in the leak tightness of the valves; therefore the special requirement for testing these valves.

The surveillance testing for measuring leakage rates is consistent with the requirements of Appendix J of 10 CFR Part 50 with the exception of exemptions granted for main steam isolation valve leak testing and testing the airlocks after each opening and analyzing the Type A test data.

Appendix J to 10 CFR Part 50, Paragraph III.A.3, requires that all Type A tests be conducted in accordance with the provisions of N45.4-1972, "Leakage-Rate Testing of Containment Structures for Nuclear Reactors." N45.4-1972 requires that Type A test data be analyzed using point-to-point or total time analytical techniques. Specification 4.6.1.2a. requires use of the mass plot analytical technique. The mass plot method is considered the better analytical technique, since it yields a confidence interval which is a small fraction of the calculated leak rate; and the interval decreases as more data sets are added to the calculation. The total time and point-to-point techniques may give confidence intervals, which are large fractions of the calculated leak rate, and the intervals may increase as more data sets are added.

The mass plot method is endorsed by ANSI/ANS 56.8-1981 (Containment System Leakage Requirements) which superseded N45.4-1972.

3/4.6.1.3 PRIMARY CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the primary containment air locks are required to meet the restrictions on PRIMARY CONTAINMENT INTEGRITY and the primary containment leakage rate given in Specifications 3.6.1.1 and

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 49 TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

WOLVERINE POWER SUPPLY COOPERATIVE, INCORPORATED

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated January 26, 1988, as supplemented by letters dated August 24, 1988 and May 31, 1989, the Detroit Edison Company (DECo or the licensee) requested amendment to the Technical Specifications (TSs) appended to Facility Operating License No. NPF-43 for Fermi-2. The proposed amendment would allow primary and secondary containment penetrations located in locked high radiation areas be verified closed each Cold Shutdown (if not performed within the previous 31 days) rather than every 31 days. Also the proposed change clarified that primary containment penetrations located in locked areas, which remain high radiation areas during the Cold Shutdown, may be verified by review of high radiation area access controls. In addition, the proposed change also modified Bases Section 3/4 6.1.1.

The initial determination of No Significant Hazards Considerations was published in the Federal Register on May 4, 1988 (53 FR 15910). Subsequently, DECo modified their application by letter dated May 31, 1989. The revision to the application restricted the verification of penetrations in high radiation areas to only those penetrations listed in the proposed TS Table 4.6.1.1-1. New penetrations prior to being added to the table would require regulatory review. Since the actual original proposed TS change is not modified by the revision to the application, the initial determination of No Significant Hazards Consideration is still applicable.

2.0 EVALUATION

a. Technical Specification 4.6.1.1.b

Technical Specification (TS) 4.6.1.1.b, surveillance requirement of primary containment penetrations, requires that primary containment integrity be demonstrated by verifying at least once per 31 days that all penetrations not capable of being closed by operable containment automatic isolation valves, and required to be closed during accident conditions, are closed by locked valves, blank flanges, or deactivated automatic valves secured in position except as provided in TS 3.6.3. The TS also notes that valves, flanges, and deactivated automatic valves which

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are located inside containment and are locked, sealed or otherwise secured in the closed position need only to be verified during each cold shutdown, but not more often than once per 92 days.

The licensee proposed to change TS 4.6.1.1.b by requiring that for such penetrations the valves located outside the containment in locked high radiation areas be verified closed during each cold shutdown, but not more often than once per 31 days. For penetrations in locked areas which remain high radiation areas during cold shutdown the licensee proposes verification by review of high radiation area access controls. In their January 26, 1988 letter, the licensee did not identify: 1) the penetrations for which the change was being proposed, 2) the mechanisms in place to control access to those penetrations, and 3) how the loss of isolation would be detected in the event it occurs.

By letter dated August 24, 1988, the licensee listed the affected penetrations (15); the valves involved (28); and the locked high radiation areas (4) where the valves or flanges are located (reactor water cleanup valve pit, reactor building second floor, steam tunnel, and TIP room). The containment penetrations for which relief is being sought consist of 3/4" vents, drains, or test connections, all of which are in accessible areas when the plant is in the cold shutdown. The only penetration located in an area which may remain a high radiation area after unit shutdown consist of a blank flange (Penetration X-35A) in the TIP room. In the August 24, 1988 letter the licensee also described the administrative access controls utilized (Radiation Work Permit plus Key Controls) to prevent unauthorized entry into these four areas. In addition, the licensee stated that if any of the isolation devices are tampered with, the following systems or station practices would detect the abnormal condition:

1) Actuation of one of the plant's numerous leak detection for fire detection systems caused by sensing excess flow in process piping systems, sensing pressure and temperature changes in primary containment, monitoring temperature in areas containing equipment and piping systems, or monitoring activity of drain sumps.

2) Actuation of area radiation or continuous air monitors.

3) Abnormal systems function or response (e.g., increase in nitrogen usage, abnormal flow rate deviations, unexpected liquid storage tank level decreases or increases, etc.)

4) Some locked high radiation areas are normally checked daily at the door for abnormal conditions, e.g., steam, leaks, high temperatures, unusual noises, etc. The on-duty Nuclear Shift Supervisor (NSS) may alter these checks of high radiation areas based on Health Physics and/or ALARA concerns. Daily operator hours through open areas of the plant can also detect steam leakage from some areas due to communication between plant spaces.

Staff review of the licensee's August 24, 1988 submittal determined that the proposed TSs change was acceptable only if the specific isolation devices affected by the proposed TSs are listed in the TSs. The staff was concerned that the existing list of affected isolation devices, as transmitted by the August 24, 1988 letter could increase in number and in the size of the isolation devices (e.g., valve diameter) during the life of the plant without receiving regulatory review. By letter dated May 31, 1989, the licensee proposed a specific table listing all applicable penetrations. With the inclusion into the TS of the table of isolation devices located in locked high radiation areas, the proposed TSs will specifically address the existing plant configuration and radiological conditions.

The TS Index has been modified to address the inclusion of the proposed Table 4.6.1.1-1.

The staff has reviewed the information submitted by the licensee in their August 24, 1988, and May 31, 1989 letter and has determined that it is extremely unlikely that primary containment integrity would be violated as a result of the extension in the surveillance requirements requested by the licensee. At the same time such an extension will reduce the cumulative occupational radiation exposure of plant personnel. The staff finds the licensee's proposal acceptable as modified.

b. Technical Specification 4.6.5.1

Technical Specification 4.6.5.1, surveillance requirement of secondary containment integrity, requires that all secondary containment penetrations not capable of being closed by operable secondary containment isolation dampers/valves, and required to be closed during accident conditions, be verified closed by valves blank flanges, or deactivated automatic dampers/valves secured in the closed position at least once per 31 days. The licensee proposes to change TS 4.6.5.1 by exempting the secondary containment penetrations located in locked high radiation areas from the 31 day surveillance requirement. The licensee proposes to check such penetrations during each COLD SHUTDOWN, but not more often than 31 days. In their letter of August 24, 1988, the licensee identified the blowout panels for the steam tunnel as the penetrations for which relief was being sought. After reviewing the information provided in the August 24, 1988 letter, the staff has determined that it is extremely unlikely the secondary containment integrity would be violated as a result of the licensee's request, given the bulkiness of blowout panels and the licensee's administrative controls in place to prevent unauthorized entry into the high radiation areas. The licensee's proposed TS language has been modified to apply only to the blowout panels in the steam tunnel to avoid future interpretation problems. The staff finds the licensee's proposal acceptable, as modified.

c. Bases Section 3/4 6.1.1

The licensee in the May 31, 1989 letter proposed a change to Bases Section 3/4 6.1.1 to clarify the plant configuration for test, vent and drain (TVD) connections which are part of the primary containment boundary. For TVD which are part of the primary containment boundary, a threaded pipe cap, in addition to the containment isolation valve(s), provides protection equivalent to a blank flange. This configuration is described in UFSAR Section 6.2.4.4.3. and represents doubled barrier protection. The staff finds the proposed change to the Bases acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in 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 changes in surveillance requirements. We have determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents which 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets 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 this amendment.

4.0 CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: January 18, 1990