

B. Ralph Sylvia
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January 29, 1988
NRC-88-0004

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

- References:
- 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
 - 2) Detroit Edison to NRC, "Proposed Technical Specification Change - Primary Containment Isolation Valves (3/4.6.3)," dated October 22, 1987 (NRC-87-0209)
 - 3) Detroit Edison to NRC, "Request for Temporary Exemption from General Design Criterion 56 - Primary Containment Isolation," dated October 27, 1987 (NRC-87-0211)
 - 4) NRC to Detroit Edison, "Exemption to General Design Criterion 56 of Appendix A to 10 CFR Part 50 (TAC No. 66467)," dated November 13, 1987

Subject: Proposed Technical Specification (License Amendment) Change - Primary Containment Isolation Valves (3/4.6.3)

Pursuant to 10CFR50.90, Detroit Edison Company hereby proposes to amend Operating License NPF-43 for the Fermi 2 plant by incorporating the enclosed change into Technical Specification 3/4.6.3 - Primary Containment Isolation Valves.

On October 22, 1987, Detroit Edison requested (Reference 2) a proposed Technical Specification change to add two existing automatic primary containment isolation valves for the Primary Containment Radiation Monitor (PCRM). The change was due to an oversight in incorporating into the Technical Specification a design change made prior to the issuance of the Operating License. Subsequently, Detroit Edison recognized that the PCRM isolation design should be upgraded to meet General Design Criterion (GDC) 56 and on October 27, 1987, filed a temporary exemption request (Reference 3) which was granted on November 13, 1987 (Reference 4). The proposed change results from modifications to bring the PCRM isolation design up to the standards

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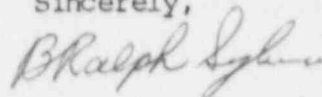
set forth in GDC 56 and supersedes the proposed changes requested in Reference 2. The current exemption permits postponement of full compliance with GDC 56 for the PCRM until startup following planned local leakrate testing in March 1988. As such, Detroit Edison requests that this proposed amendment be processed and become effective with startup following planned local leakrate testing in March 1988.

Detroit Edison has evaluated the proposed Technical Specifications against the criteria of 10CFR50.92 and determined that no significant hazards consideration is involved. The Fermi 2 Onsite Review Organization has approved and the Nuclear Safety Review Group has reviewed these proposed Technical Specification changes and concurs with the enclosed determinations.

Pursuant to 10CFR170.12(c), enclosed with this amendment is a check for one hundred fifty dollars (\$150.00). In accordance with 10CFR50.91, Detroit Edison has provided a copy of this letter to the State of Michigan.

If you have any questions, please contact Ms. Lynne S. Goodman at (313) 586-4211.

Sincerely,

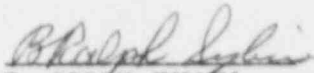


Enclosure

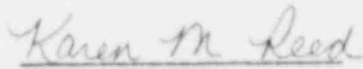
cc: A. B. Davis
E. G. Greenman
T. R. Quay
W. G. Rogers
Supervisor, Advanced Planning and Review Section,
Michigan Public Service Commission

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I, B. RALPH SYLVIA, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.


B. RALPH SYLVIA
Group Vice President

On this 29th day of January, 1988, before me personally appeared B. Ralph Sylvia, being first duly sworn and says that he executed the foregoing as his free act and deed.


Notary Public

KAREN M. REED
Notary Public, Monroe County, Mich.
My Commission Expires May 14, 1990

BACKGROUND/DISCUSSION

Technical Specification 3/4.6.3 - Primary Containment Isolation Valves, Table 3.6.3-1 is revised to denote four (4) automatic isolation valves for the Primary Containment Radiation Monitoring System (PCRMS) of the Primary Containment Atmosphere Monitoring System. The four valves (T50-F450, T50-F451, T50-F455 and T50-F456) provide automatic isolation on both high drywell pressure and low reactor vessel water level (Level 2). The proposed change results from modifications to bring the PCRMS isolation design up to the standards set forth in 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 56.

The Fermi 2 Primary Containment Atmosphere Monitoring System (PCAMS) includes a PCRMS configured in parallel with the Drywell Hydrogen/Oxygen Sampling System. Both systems normally operate during reactor operation and sample the drywell atmosphere from five zones through containment penetrations. The initial isolation design for the PCRMS and the Drywell Hydrogen/Oxygen Sampling System is described in Section 6.2.4 of the Fermi 2 Updated Final Safety Analysis Report. Containment isolation requirements of GDC 56 were achieved using a single remote manual isolation valve and a closed piping system outside the containment, instead of one automatic isolation valve inside and one automatic isolation valve outside containment. The original design intent was that the PCRMS would operate following a loss-of-coolant accident (LOCA) and that the PCRMS would be in compliance with the closed system requirements approved as an alternative to GDC 56.

In January 1984, Detroit Edison determined that the PCRMS did not meet the closed system design requirements for a containment design pressure of 56 psig. Seismic and material certifications provided by the PCRMS vendor also were found to be deficient. Two actions were taken by Detroit Edison as a result of these findings: (1) the PCRMS was re-classified as non-essential following a LOCA and, as such, should be isolated automatically upon receipt of a LOCA signal (the Drywell Hydrogen/Oxygen Sampling system retained its essential classification); and (2) one automatic isolation valve and one local manual valve were added to each of two branch lines of the PCRMS to provide isolation of the re-classified non-essential PCRMS. The automatic isolation valve was designed to close on a high drywell pressure signal from the Reactor Protection System. Following this modification, the configuration provided two barriers in the event of a LOCA, one barrier consisting of the automatic isolation valve and the second barrier consisting of the remote manual isolation valve.

During an October 1987 maintenance servicing of the PCRMS, valves T50-F450 and T50-F451 were used to isolate the inlet and return lines of the system from the primary containment. This isolation procedure was reviewed by Fermi 2 operations personnel and questioned since these valves were not indicated as containment isolation valves in either the plant procedures or Technical Specifications. The PCRMS uses the penetration of the essential Drywell Hydrogen/Oxygen Sampling System by tapping off between the remote isolation valves and the panel. The valves used to isolate the PCRMS are located in these tap-off lines (see Figure 1).

In response to the questions raised by the operations personnel, Detroit Edison submitted a Technical Specification change request on October 22, 1987, to add the above two valves into Table 3.6.3-1. At this point in time, however, it was discovered that the use of one single automatic isolation valve per line, as a barrier for a non-essential system (such as the current PCRMS isolation design), was not an acceptable alternative to the requirements of GDC 56. Thus, on October 27, 1987, Detroit Edison requested a temporary exemption from the requirements of GDC 56 to allow for sufficient lead time necessary to complete the modifications necessary to bring the PCRMS isolation design back into compliance. The current exemption, granted on November 13, 1987, permitted postponement of full compliance with GDC 56, for the PCRMS, until startup following planned local leak rate testing in March 1988.

As stated in GDC 56, two isolation valves -- one inside and one outside the containment -- are required in lines that penetrate the primary containment and connect directly to the containment atmosphere. However, GDC 56 allows for alternatives to these explicit isolation requirements where the acceptable basis for each alternative is defined. The proposed modification will meet the intent and requirements of GDC 56.

The proposed design modification provides automatic isolation to the non-essential PCRMS from the essential PCAMS, thus maintaining PCAMS as a closed loop system outside containment. This results in PCRMS having two redundant and divisional automatic isolation valves on the inlet line and two redundant and divisional automatic isolation valves on the outlet line of the system. The subject isolation valves (as shown in Figure 1) consist of the existing Division I (T50-F450 and T50-F451) valves and the addition of Division II (T50-F455 and T50-F456) valves. These inlet and outlet lines for PCRMS are connected to Division I of PCAMS. The PCAMS is a closed loop system outside containment and is an extension of primary containment. Therefore, PCRMS lines can be considered as lines which penetrate primary containment.

GDC 56 states that isolation valves outside containment shall be located as close to the containment as possible. The location of the isolation valves for the PCRMS lines are designed to be as close to primary containment as possible, i.e. as close to the PCAMS loop as possible.

GDC 56 also requires that isolation valves outside containment will, upon loss of actuating power, automatically isolate in a position that provides the greatest safety. As stated above, the proposed design change for PCRMS will result in two redundant and divisional automatic isolation valves on the PCRMS inlet and outlet lines. These valves "fail close" assuring integrity of the extended containment. Each isolation valve meets the design criteria established in UFSAR Section 6.2.4.2.1, and will be part of the leak rate test program.

The electrical actuator power for these valves will be derived from redundant portions of the Reactor Protection System. Two of these PCRMS valves (one inlet and one outlet) will be air operated. The air supply utilized will be from the interruptible air system. The automatic control logic for each division will provide a diverse valve trip/closure signal resulting from high drywell pressure and low reactor vessel water level (Level 2). Additionally, each valve will require manual operator action to reopen, providing that the logic permissive exists. This is consistent with the guidance of NUREG-0737 which states that there should be diversity in the parameters sensed for the initiation of containment isolation, and that resetting the isolation signal will not result in automatic reopening of the containment isolation valves without deliberate operation action.

The addition of control room valve position indication and control for the new Division II valves is included in the proposed design modification. The impacts from the proposed change, associated with the control room, will result in changes to both simulator and associated operator training courses.

TECHNICAL SPECIFICATION CHANGES

The Fermi 2 Technical Specifications should be modified to include two new PCRMS automatic isolation valves (T50-F455 and T50-F456) in Table 3.6.3-1 (see proposed page changes). These valves are pilot solenoid air operated ball valves which incorporate the diversified automatic high drywell pressure and Level 2 isolation signals. The valves are proposed as Group 17 automatic isolation valves which require associated maximum isolation time of 60 seconds. This isolation time is based upon the guidelines established in Section 6.2.4 of the Standard Review Plan (NUREG-0800).

Additionally, the Fermi 2 Technical Specifications should be modified to include two PCRMS automatic isolation valves (T50-F450 and T50-F451) which had been previously installed. The design modification performed in January 1984 (discussed above), should have been reflected in Table 6.2.2, "Summary of Primary Containment Penetrations and Associated Isolation Valves," of the Final Safety Analysis Report (FSAR) to show valves T50-F450 and T50-F451 as isolation valves associated with containment penetrations X-48 a-e and X-215. The Fermi 2 Technical Specifications for primary containment isolation valves were developed primarily on the basis of FSAR Table 6.2-2. Reviews were made to ensure the adequacy of these documents; however, the valves were omitted from Technical Specification Table 3.6.3-1. This proposed amendment corrects this oversight. These valves are solenoid operated spring-to-close valves which will be modified to incorporate the diversified automatic high drywell pressure and Level 2 isolation signals. The valves are proposed as Group 17 automatic isolation valves which require associated maximum isolation time of 60 seconds. This isolation time is based upon the guidelines established in Section 6.2.4 of the Standard Review Plan (NUREG-0800).

SIGNIFICANT HAZARDS CONSIDERATION

In accordance with 10CFR50.92, Detroit Edison has made a determination that the proposed amendment involves no significant hazards considerations. To make this determination, Detroit Edison must establish that operation in accordance with the proposed amendment would not: 1) involve a significant increase in the probability or consequences of an accident previously evaluated, or 2) create the possibility of a new or different kind of accident from any accident previously evaluated, or, 3) involve a significant reduction in a margin of safety.

- 1) The proposed change to incorporate the four PCRMS automatic isolation valves into Table 3.6.3-1 does not involve a significant increase in the probability or consequences of an accident previously evaluated. This change involves a modification that upgrades the PCRMS isolation design to the standards set forth in 10 CFR Part 50, Appendix A, General Design Criterion (GDC 56). The modification will, in fact, decrease the consequences of an accident previously evaluated as the modification provides two redundant and divisional automatic isolation valves on the inlet line and two redundant and divisional automatic isolation valves on the outlet line of the PCRMS. The automatic control logic for each division provides a diverse valve trip/closure signal resulting from high drywell pressure and low reactor water level (Level 2).

The previous design was an unacceptable alternative to meet the requirements of GDC 56. The modification upgrades the PCRAMS isolation design to the standards set forth in GDC 56 and corrects an error in denoting the existing valves. As such, the proposed changes are like Examples (i) and (ii) of amendments that are considered not likely to involve a significant hazards consideration (51 FR 7751 dated March 6, 1986).

- 2) The proposed change to incorporate the four PCRAMS automatic isolation valves into Table 3.6.3-1 does not create the possibility of a new or different kind of accident from any accident previously evaluated. As discussed in 1) above, these changes are changes that constitute additional limitations to ensure adequate primary containment isolation that are not presently included in the Technical Specifications. These changes do not result or create any new accident modes.
- 3) The proposed changes to incorporate the four PCRAMS automatic isolation valves into Table 3.6.3-1 does not involve a significant reduction in a margin of safety. In fact, the margin of safety has been increased by the additional limitations to ensure adequate primary containment isolation.

Based upon the above reasoning, Detroit Edison has determined that the proposed amendment does not involve a significant hazards consideration.

ENVIRONMENTAL IMPACT

Detroit Edison has reviewed the proposed Technical Specification changes against the criteria of 10CFR51.22 for environmental considerations. As shown above, the proposed change does not involve a significant hazards consideration, nor significantly change the types or significantly increase the amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, Detroit Edison concludes the proposed Technical Specifications do meet the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

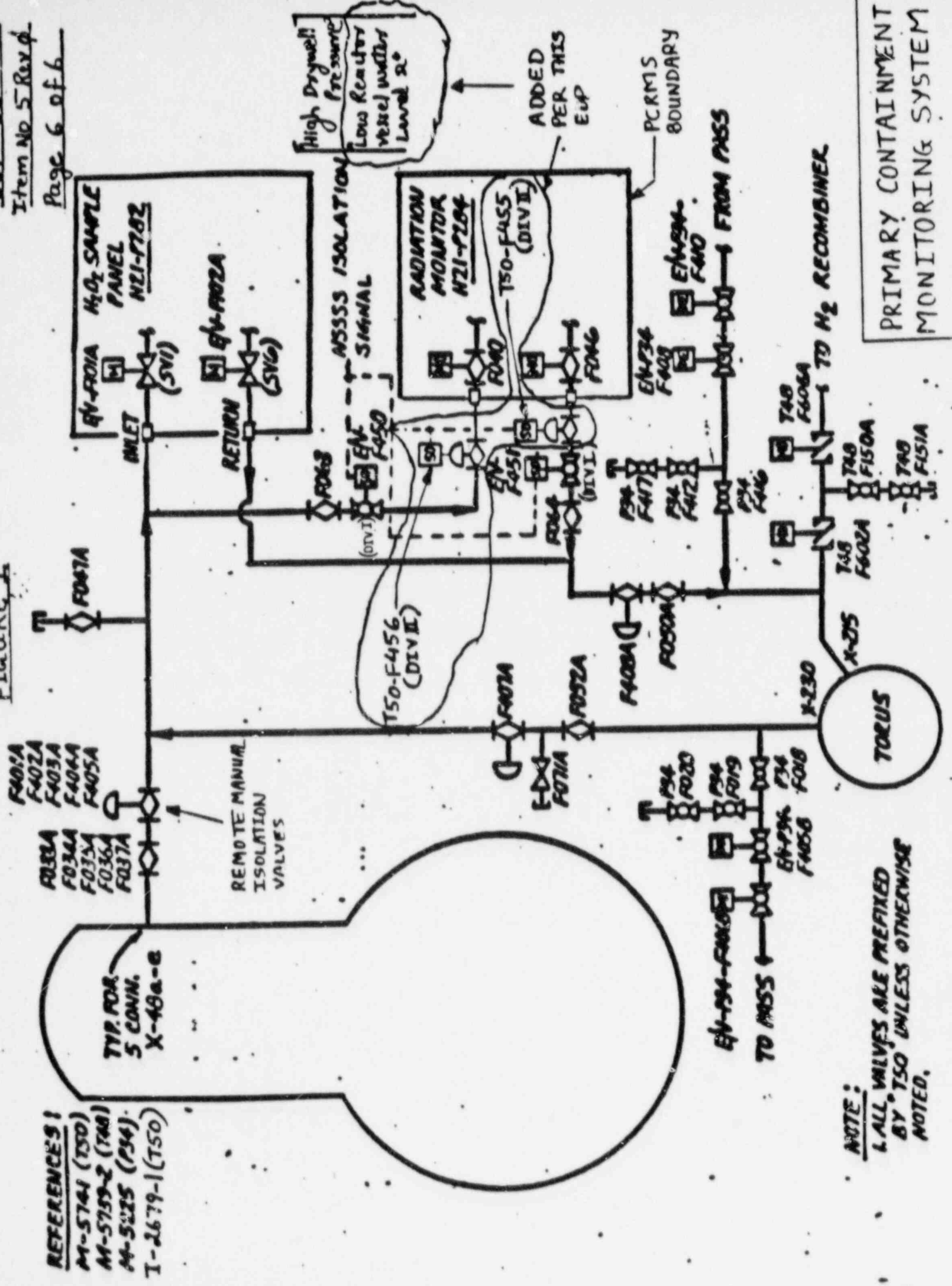
CONCLUSION

Based on the evaluations above: (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 proposed amendments will not be inimical to the common defense and security or to the health and safety of the public.

The change requested herein results from modifications to bring the PCFMS isolation design up to the standards set forth in GDC 56. The change has been determined not to involve a Significant hazards Consideration as it meets Examples (i) and (ii) of amendments that are considered not likely to involve Significant Hazards Considerations (51 FR 7751).

FIGURE 1

FIGURE I



- REFERENCES I
- M-5741 (T50)
 - M-5759-2 (T40)
 - M-5225 (P34)
 - I-2679-1 (T50)

NOTE:
 ALL VALVES ARE PREFIXED
 BY T50 UNLESS OTHERWISE
 NOTED.

PRIMARY CONTAINMENT
 MONITORING SYSTEM

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TECHNICAL SPECIFICATION PAGE CHANGE

TABLE 3.6.3-1 (Continued)
PRIMARY CONTAINMENT ISOLATION VALVES

<u>VALVE FUNCTION AND NUMBER</u>	<u>MAXIMUM ISOLATION TIME (Seconds)</u>
A. <u>Automatic Isolation Valves</u> ^(a) (Continued)	
14. <u>Group 14 - Drywell and Suppression Pool Ventilation System (Continued)</u>	
Suppression Pool N ₂ and Air Purge Inlet Isolation Valves	
T48-F404	5
T48-F405	5
T48-F409	5
15. <u>Group 15 - Traversing In-core Probe (TIP) System</u>	
Tip System Ball Valves C51-F002 A, B, C, D and E	NA
16. <u>Group 16 - Nitrogen Inerting System</u>	
N ₂ Pressure Control Isolation Valves	
Inboard: T48-F455	60
Outboard: T48-F453	60
T48-F454	60
T48-F456	60
T48-F457	60
T48-F458	60
17. <u>Group 17 - Recirculation Pump System and Primary Containment Radiation Monitoring System</u>	
Recirculation Pumps Seal Purge Isolation Valves	
Inboard: B31-F014A	5
B31-F014B	5
Outboard: B31-F016A	5
B31-F016B	5
18. <u>Group 18 - Primary Containment Pneumatic Supply System</u>	
N ₂ to Drywell Isolation Valves	
Inboard: T49-F601	60
T49-F602	60
Outboard: T49-F465	60
T49-F468	60

FERMI - UNIT 2

3/4 6-27

Amendment No. 10

INSERT A