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Nuclear  
Operations

August 5, 1988  
NRC-88-0173

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 Letter to NRC, NRC-87-0244,  
"Proposed Technical Specification Change (License  
Amendment) - Emergency Equipment Cooling Water  
System (3/4.7.1.2), Emergency Equipment Service  
Water System (3/4.7.1.3), and Ultimate Heat Sink  
(3/4.7.1.5)", dated March 10, 1988

Subject: Proposed Technical Specification Change (License  
Amendment) - Noninterruptible Control Air System

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 the Plant Technical Specifications. The proposed change adds a new Specification, numbered 3/4.7.10, for the Noninterruptible Control Air System. A proposed Basis is also included.

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 the proposed Technical Specifications and concurs with the enclosed determinations.

Pursuant to 10CFR170.12(c) enclosed with this amendment request 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.

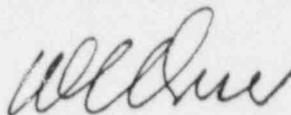
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If you have any questions, please contact Mr. Glen D. Ohlemacher at  
(313) 586-4275.

Sincerely,

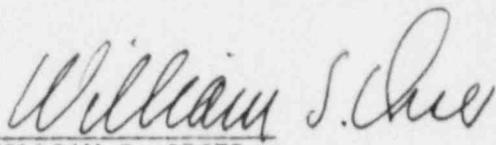


Enclosure

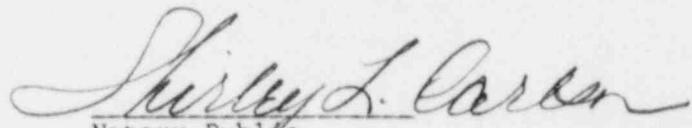
cc: A. B. Davis  
R. C. Knop  
T. R. Quay  
W. G. Rogers  
Supervisor, Advanced Planning and Review Section,  
Michigan Public Service Commission

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I, WILLIAM S. ORSER, 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.

  
WILLIAM S. ORSER  
Vice President Nuclear Operations

On this 5<sup>th</sup> day of August, 1988, before me personally appeared William S. Orser, being first duly sworn and says that he executed the foregoing as his free act and deed.

  
Notary Public  
SHIRLEY L. CARLSON  
Notary Public, Wayne County, MI  
My Commission Expires Jan. 26, 1991

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## BACKGROUND/DISCUSSION

The Fermi 2 station and control air systems provide the plant with a reliable source of clean, dry, oil-free compressed air for plant operation. These systems are the source of compressed air for use in routine maintenance operations, in equipment process cycles such as demineralizer backwashing, and as an instrument and control media.

The station air system normally provides control air at 100 psig for operation and control of various plant systems that are safety related as well as those that are nonsafety related. The control air distribution system is divided into two distinct parts: interruptible and noninterruptible. Noninterruptible control air (Noninterruptible Air Supply or NIAS) supplies through two separate distribution systems (Divisions I and II) equipment in the Standby Gas Treatment System (SGTS), Control Center Air Conditioning System (CCACS), Main Steam Isolation Valve Leakage Control System (MSIVLCS), Primary Containment Atmospheric Monitoring System (PCAMS), Emergency Equipment Cooling Water System (EECWS), Primary Containment Pneumatic Supply System, Torus to Secondary Containment vacuum breaker testability feature, and Torus to Secondary Containment vacuum breaker isolation valves. In addition, Division I NIAS provides control air for the primary containment isolation valves on the drywell equipment and floor drain sump pump discharge lines, Suppression Chamber narrow range level indicating and alarm instrumentation isolation valves, and a backup supply for Division I nitrogen pneumatic supply to the Primary Containment. Division II NIAS supplies, in addition, air operated valves in the High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems. All other control air users are connected to the Interruptible Control Air distribution system that is supplied separately from the station air system. A simplified diagram is attached.

During normal plant operation, the source of noninterruptible and interruptible control air is through interconnections between the station and control air systems. Compressed air from the station air system is supplied through one of these interconnections to the Division I and II noninterruptible control air compressor discharge headers. The air then flows from each header through its divisional 100 percent-capacity filter and dryer. After leaving the filter/dryer, the noninterruptible control air flows to its divisional control air receiver from which it eventually flows to its point of use through its divisional noninterruptible control air distribution system.

Initiation of the Control Air System Compressor operation and isolation of the Control Air System occurs automatically on detection

of low control air header pressure (85 psig and 75 psig, respectively) and loss of offsite power. In addition, both Control Air Compressors start on a Loss of Coolant Accident (LOCA) signal. The LOCA signal comes from either high drywell pressure or level 2 low reactor water level. Normally, the intertie between the Station Air System and Control Air System is open and the Control Air Compressors are not running.

Loss of NIAS to the RCIC, HPCI, EECW and the Primary Containment Pneumatic Supply Systems, does not affect their OPERABILITY. The remaining systems and components which are supplied NIAS become inoperable upon loss of NIAS.

When Division I of control air is lost to the isolation valves on the drywell equipment and floor drain sump pump discharge lines these valves fail to the isolated position. Manual action to provide an alternative motive force to open these isolation valves is required to monitor Reactor Coolant System (RCS) leakage by monitoring Primary Containment sump flow rate per Specification 4.4.3.2.1.b. The isolation valves would be opened, and the ACTION provisions of Specification 3.6.3 entered, for intermittent short time periods necessary to pump the Primary Containment sumps. If RCS leakage monitoring surveillance requirements can not be met appropriate ACTION will be taken per Specification 3.4.3.2.

Recently Detroit Edison received a Notice of Violation and Civil Penalty due to problems in interpretation as to the required actions for an inoperable Control Air Compressor. Further, the Fermi 2 Control Air System design includes redundancy not normally found in divisional systems in that all control air requirements can be supplied by either division's air compressor. Detroit Edison therefore is proposing new Technical Specifications (attached) for the Noninterruptible Control Air system in order to prevent further interpretation problems and properly account for the unique system design at Fermi 2.

#### PROPOSED TECHNICAL SPECIFICATION

The proposed Limiting Condition for Operation (LCO) for the Noninterruptible Control Air System is:

Two independent Noninterruptible Control Air (NIAS) system subsystems shall be OPERABLE with each subsystem:

- a. Consisting of one OPERABLE Control Air Compressor, associated Dehydration and Filter Units, Air Receiver Tank, and associated control instrumentation.

- b. Capable of automatic isolation from nonsafety grade air systems.

This LCO defines the number of NIAS system subsystems required to be OPERABLE. For each subsystem, the required components are explicitly listed. Since each subsystem is normally connected to a nonsafety grade air system, the requirement of automatic isolation capability is explicitly given.

The LCO is proposed to be APPLICABLE in all OPERATIONAL CONDITIONS and when irradiated fuel is being handled in the secondary containment, during CORE ALTERATIONS, and during operations with a potential for draining the reactor vessel (OPERATIONAL CONDITION \*). This APPLICABILITY is consistent with the required APPLICABILITY of components which utilize the NIAS.

The ACTION requirements are stated separately for OPERATIONAL CONDITIONS 1, 2 and 3 and other OPERATIONAL CONDITIONS. In OPERATIONAL CONDITIONS 1, 2, and 3, the ACTION requirements are:

- 1) With one NIAS system subsystem inoperable due to an inoperable Control Air Compressor, associated Dehydration or Filter Unit, or associated control instrumentation, cross-tie the NIAS system subsystem to the OPERABLE NIAS system subsystem within one hour. Restore the inoperable NIAS system subsystem to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- 2) With one NIAS system subsystem otherwise inoperable:
  - a. Verify that the NIAS system subsystems are not cross-tied within one hour.
  - b. Declare the affected Accident Monitoring Instrumentation (Drywell Hydrogen and Oxygen concentration, Drywell pressure, and Suppression Chamber pressure and water level), Primary Containment Atmosphere Gaseous Radioactivity monitor (Division I only), MSIV Leakage Control System subsystem, Torus to Secondary Containment vacuum breaker isolation valve, Standby Gas Treatment System subsystem, and Control Room Emergency Filtration System components inoperable and take the ACTIONS required by Specification 3.3.7.5, 3.6.2.1, 3.4.3.1, 3.6.1.4, 3.6.3, 3.6.5.3, and 3.7.2.

- 3) With both NIAS system subsystems inoperable be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

Action 1 applies to situations where it is possible to continue to supply control air to an inoperable subsystem from the opposite subsystem. In these cases, the single control air compressor has sufficient capacity to supply all the required uses in both divisions. Since each supplied component has its normal nonsafety grade air supply and a single safety grade air supply, Detroit Edison believes that the supplied components themselves should be considered OPERABLE.

However, it must be recognized that a loss of redundancy in the safety grade air supply would exist. If a loss of normal air supply occurs combined with a loss of certain single components of the safety grade backup air supply, then both divisions of the affected safety systems would become inoperable. Detroit Edison proposes a 30 day allowable outage time for this loss of redundancy due to the small risk of the above events occurring. A study performed by Detroit Edison using the PRA methodology has shown that cross-tying the NIAS subsystems poses a smaller risk to plant safety than operation with no safety grade back up control air for one division.

Action 2 covers the situation where the NIAS system subsystems must not be cross-tied. In this case, the ACTIONS specified in the Technical Specifications for the resulting inoperability of the supported systems are applied. The Primary Containment Atmosphere Gaseous Radioactivity monitor is supported by only the Division I NIAS system subsystem; accordingly, a notation to this effect is included.

Action 3 requires a prompt plant shutdown if both NIAS system subsystems are inoperable. This is consistent with the required ACTION from the resulting inoperabilities.

In OPERATIONAL CONDITIONS 4, 5, OR \* a similar philosophy is applied:

- 1) With one NIAS system subsystem inoperable due to an inoperable Control Air Compressor, associated Dehydration or Filter Unit, or control instrumentation, cross-tie the NIAS system subsystem to the OPERABLE NIAS system subsystem within one hour.
- 2) Otherwise, declare the Standby Gas Treatment subsystem(s) and Control Room Emergency Filtration System component(s) inoperable and take the ACTIONS required by Specifications 3.6.5.3 and 3.7.2.

An unlimited period of time is proposed with the NIAS system subsystems cross-tied since, with the plant shutdown, the risk to plant safety is lessened. This provision also allows for extended maintenance on one division's control air components.

The following Surveillance Requirements are proposed:

The Noninterruptible Control Air System shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that the cross-tie valves and each valve (manual, power-operated or automatic) required for proper operation of the Control Air Compressors, Filter and Dehydration Units, and associated control instrumentation, that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. At least once per 18 months by verifying that each automatic valve which isolates the NIAS system subsystem from nonsafety grade air systems actuates to its isolation position on each of the following automatic actuation test signals:
  1. Station air supply low pressure
  2. NIAS control air header low pressure
  3. Loss of offsite power
- c. At least once per 18 months by verifying the control air compressor capacity is greater than or equal to 100 scfm.
- d. At least once per 18 months by verifying that each Control Air Compressor automatically starts on each of the following automatic actuation test signals:
  1. NIAS control air header low pressure
  2. Loss of Coolant Accident (Drywell Pressure-High and/or Reactor Vessel Level-Low Level 2)
  3. Emergency Diesel Generator load sequencer following loss of power

These requirements ensure that system alignment is maintained and important aspects of system operation are functionally tested every 18 months. Detroit Edison believes that these Surveillance Requirements

provide adequate assurance of proper system performance and are consistent with other Specifications for systems which fulfill a similar function.

In reference 2, Detroit Edison requested changes to Technical Specifications for Fermi 2 cooling water systems. The NIAS Control Air Compressors are cooled by Emergency Equipment Cooling Water (EECW). The addition of these proposed Specifications entails modification of the reference 2 proposal in that the Control Air Compressors become inoperable when EECW is lost. Therefore, Specification 3.7.10 must be added to the list of Specifications in Specification 3.7.1.2 for which ACTION is required in the event of an inoperable EECW system subsystem. Page changes for Technical Specifications, both as presently existing and as proposed to be modified in reference 2, are attached. In addition, proposed bases for the new Specification are attached.

#### 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.

The proposed change to include Technical Specifications provisions for the Noninterruptible Control Air System (NIAS) do not:

- 1) Involve a significant increase in the probability or consequence of an accident previously evaluated. The new explicit requirements were previously implied through the effect of the NIAS upon the OPERABILITY of equipment included in Technical Specifications. The new Specification also provides new out-of-service times for modes of operation which are described in the Fermi 2 safety analysis, but are not adequately addressed by the concept of OPERABILITY. Further, the new out-of-service times are based upon compensating design features present at Fermi 2. Thus the probability or consequence of any previously evaluated accident is unchanged since the proposed changes either do not represent actual changes in requirements or are based upon compensatory design features.
- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated. The change does not

modify plant design or operation and therefore creates no new accident modes.

- 3) Involve a significant reduction in a margin of safety. As discussed in 1) above, the new specification either provides explicit requirements which were previously implied or provides requirements to cover modes of operation previously not specifically addressed. Where the proposal restates explicitly previously implicit requirements, the margin of safety is unchanged since the actual requirement is unchanged. The Fermi 2 Noninterruptible Control Air System has unique design features in that the two subsystems can be cross-tied, and all required air uses can be supplied by a single air compressor. Studies using the Probabilistic Risk Assessment methodology have shown that operation with the two systems cross-tied present less risk than operation with no safety-grade control air for one division. Recognizing these unique features in Technical Specifications by specifying an appropriate allowable out-of-service time does not represent a reduction in the margin of safety.

Based on 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. The proposed changes do 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 that 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.