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September 25, 1996
NRC-96-0085

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

Reference: Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Proposed Technical Specification Change (License
Amendment) - Periodic Testing Requirement for
Thermal Overload Protective Devices

Pursuant to 10CFR50.90, Detroit Edison hereby proposes to amend Operating License NPF-43 for the Fermi 2 plant by modifying Technical Specification Surveillance Requirement 4.8.4.3.

This application proposes to delete the requirement for the periodic testing of Thermal Overload (TOL) Devices. Also, this change clarifies the situational testing requirement. This change is proposed to improve the reliability of safety related Motor Operated Valves (MOVs), increase overall plant safety, and eliminate related testing costs. In addition, the Bases of Technical Specification 3/4.8.4 is being revised to reflect the proposed changes.

The change to delete the requirement for periodic testing of TOL protective devices is being submitted as a Cost Beneficial Licensing Action. This proposal involves an increase in plant safety and will save over \$500,000 through the life of the plant, not including costs of replacement power. Cost savings are based on avoiding the costs of performing each work activity associated with the periodic testing of the TOL protective devices.

The description and evaluation of the changes are included in Attachment 1 to this letter. Attachment 2 contains the proposed Technical Specification page revisions.

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Detroit Edison requests that this amendment be approved with an implementation time period of "within 60 days."

Detroit Edison has evaluated the proposed Technical Specification change 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 Specification and concurs with the enclosed determinations. *(to be verified prior to submittal)* In accordance with 10CFR50.91, Detroit Edison is providing a copy of this letter to the State of Michigan.

No commitments are made in this letter. If you have any questions, please contact Joseph Conen at (313) 586-1960.

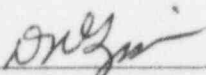
Sincerely,



Attachments

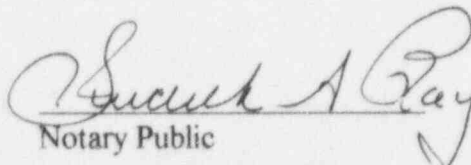
cc: A. B. Beach
A. J. Kugler
M. J. Jordan
A. Vogel
Supervisor, Electric Operators, Michigan
Public Service Commission, J. R. Padgett

I, DOUGLAS R. GIPSON, 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.



DOUGLAS R. GIPSON
Senior Vice President

On this 25th day of October, 1996 before me
personally appeared Douglas R. Gipson, being first duly sworn and says that he
executed the foregoing as his free act and deed.



Notary Public

JUDITH A. RAY
Notary Public, Wayne County, MI
My Commission Expires Apr. 4, 1998

Acting in Monroe County

ATTACHMENT 1
DESCRIPTION AND EVALUATION OF
PROPOSED TECHNICAL SPECIFICATION CHANGE TO
DELETE PERIODIC TESTING REQUIREMENT
FOR
THERMAL OVERLOAD PROTECTIVE DEVICES

INTRODUCTION

The purpose of this proposed amendment is to modify Technical Specification 4.8.4.3 to delete the requirement for periodic testing of Motor Operated Valve (MOV) thermal overload protective devices and clarify the situational testing requirement for Thermal Overload (TOL) protective devices.

The specific article to be revised is as follows:

Surveillance Requirement 4.8.4.3 is being revised. Currently, a sample of TOL protective devices are required to be periodically tested every 18 months to assure high MOV reliability. However, as discussed below, data has been collected through years of testing at Fermi 2 showing that the tests are unnecessary and do not improve reliability of MOVs. Furthermore, the test themselves are the only significant cause for TOL protective device degradation and actually cause an adverse effect to plant safety as discussed later. By no longer conducting periodic tests on the TOL protective devices, needless wear will be eliminated, thereby increasing reliability of the component and MOVs. Also, the length of online system outages would be reduced. The purpose of the proposed change is to prevent degradation of TOL protective devices, increase overall plant safety, and to diminish related testing costs.

In addition, the situational testing requirement of TOL protective devices is being clarified. The current wording could literally require that TOL protective devices be tested after any maintenance on the motor starter. However, maintenance on the motor starter does not always impact the TOL protective devices. Thus, the proposed change requires that the TOL protective devices be tested only following any maintenance that could affect their performance and upon initial installation.

Technical Specification Bases 3/4 8.4 is being revised to reflect the above changes.

EVALUATION

TOL protective devices are used to protect the motors on MOVs from overload conditions, up to stall condition (locked rotor currents). If a foreign object is lodged in the MOV or there is some other event that prevents the closing of the valve, the motor will be subjected to increasing heat due to the high current. The TOL protective devices break the circuit at a certain trip setpoint, thus terminating the current and protecting the motor. This is accomplished by a heater inside the TOL protective device that uses the current to heat a bi-metallic element. At a certain temperature, the bi-metallic element will bend enough due to the heat to open control contacts, stopping current flow to the motor through de-energizing of the starter contactor.

Under normal conditions, safety related MOV TOL protective devices are not exposed to any significant amount of heat or current. This is due to infrequent operation of the motor and relatively low normal current levels. However, the periodic TOL testing submits the TOL protective devices to prolonged exposure to high heat and current; both are above the conditions normally experienced. The testing itself has an adverse effect on the TOL protective devices and is the only significant source of degradation as confirmed by maintenance history. Continuing to periodically subject the TOL protective devices to the tests could decrease their reliability. Besides the degradation of the components and decreasing reliability, the testing presents other adverse effects to plant safety.

In addition to degrading the TOL protective devices, another safety concern is that the testing requires the MOV to be removed from service for approximately eleven hours or more. Often, a single MOV removed from service will render an entire safety system/division inoperable. Typically, 40 MOVs are tested each operating cycle.

The periodic testing also creates a potential hazard to plant personnel. Due to the use of test ovens, temporary electrical connections, and the high amperages involved in the testing, there is a risk of burns and electric shock to personnel.

NRC Regulatory Guide 1.106, Revision 1, published in March of 1977 expressed concern related to the implementation of TOL protective devices. The concern was that industries would take conservative methods to protect the motor instead of completing the safety function of the MOV. Since there was little test experience at the time, there was a concern that the trip setpoints may drift over time. More specifically, the TOL protective devices could trip prematurely. The valve stroke would be incomplete and the intended safety function would not be finished. The periodic testing requirement was initiated to make certain that the trip setpoints would not drift over time causing premature trips. This regulatory guide was to ensure the safety and reliability of MOVs.

Although the periodic testing was beneficial by confirming that there is no non-conservative setpoint drift over time, it has been demonstrated that periodic testing of the TOL protective devices utilized at Fermi 2 no longer provides benefit. The periodic testing does not ensure or improve the reliability of MOVs, and it is no longer necessary. Fermi 2 has been testing the TOL protective devices in accordance with NRC Regulatory Guide 1.106, and through the course of over 300 test evolutions, there have been only two instances of failure. In these instances, the failures were a result of trip times that were approximately ten percent above the maximum allowed. The trip times that were above the maximum allowed criteria were in the conservative direction from a standpoint of plant safety because although this offers less protection for the MOV motor, the valve will have already completed

its stroke, finishing its intended safety function. Other than the two tests in which the trip times were greater than the acceptance criteria, maintenance history shows that there were no degradation or failures of TOL devices other than those which were attributable to testing. A recent problem involving MOV thermal overloads was documented in plant Deviation Event Report (DER) 95-0926. The cause of the problem was excessive heat from the TOL testing process had caused the TOL relay casings to crack. Additionally, in over nine years of plant operations, there has been no instance of a safety related MOV failure due to degradation or failure of TOL devices.

A survey of four other plants that have been periodically testing TOL protective devices provided similar supporting data.

Also, per Technical Specification (TS) Bases 3/4 8.4, the operability requirements for the thermal overload protection ensure TOL protection will not prevent safety related valves from performing their function. The TS purpose is not to ensure that the safety related valves have thermal overload protection.

While MOV TOL devices have actuated to perform their function, there have been no failures or degradation of TOL devices causing failure of a safety related MOV. The testing proposed to be eliminated can only detect problems with TOL devices, not problems with MOVs leading to actuation of the TOL.

Continued reliability of MOVs is demonstrated per the Fermi 2 Inservice Testing Program for Generic Letter 89-10 valves. This program contains testing to demonstrate satisfactory performance of Generic Letter 89-10 globe and gate MOVs on a periodic basis.

In addition to increasing overall plant safety, the proposed change would also save unnecessary costs associated with the periodic testing. For example, the work hours of the scheduled MOV maintenance activities would be reduced, which would reduce maintenance cost. The need for specific scheduling work and the time needed for Operations personnel in the Control Room to approve the performance of the surveillance would be eliminated. The administrative workload would be reduced. The cost and bulk of archival of surveillance packages would be eliminated.

To summarize, this submittal proposes to delete the requirement for periodic testing of the TOL protective devices. This change is proposed on the basis of 1) the increase of plant safety due to the elimination for the need to remove safety related equipment from service to test TOL devices 2) the decrease in safety hazards to plant personnel 3) the increase in TOL protective device reliability due to the elimination of TOL protective device degradation, 4) the documented history showing no

benefits or increased MOV reliability as a result of periodic testing, and 5) the reduction in costs associated with testing.

The surveillance requirement for the situational testing of the TOL protective devices is also being clarified. Testing will be conducted after any maintenance that could affect the performance of the TOL protective devices and upon initial installation. Maintenance on the motor starter may not always have an impact on the TOL protective devices. The proposed change is to ensure that the TOL protective devices are tested only when necessary.

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 amendment will delete the surveillance requirement for periodic testing of TOL protective devices and clarify the circumstances when TOL testing will be conducted.

1. The proposed change does not involve a significant increase in the probability or consequences of an accident. The deletion of the requirement for testing of the TOL protective devices lessens degradation to the components which can improve MOV reliability. Based on historical data through the years of testing, there is no significant drifting of the trip setpoints of the TOL protective devices. The probability of an accident would not increase since terminating the periodic testing or clarifying the situational testing requirements cannot cause equipment to operate inadvertently and so cannot cause an accident. The periodic testing of the TOL protective devices can temporarily render MOVs inoperable due to the removal of the components from service and can cause safety systems/divisions to become unavailable. The deletion of the periodic testing requirement would increase the availability of safety systems insuring that they would be able to respond to accident conditions. The consequences of an accident will not increase since eliminating the periodic testing and clarifying the situational testing requirements will improve reliability of safety-related MOVs to respond to an accident and will not increase the failure rate of equipment. The clarification of the situational testing ensures that the test will be conducted after any maintenance that could affect the performance of the TOL protective devices. Thus, the proposed change increases reliability of the MOVs and increases plant safety. Therefore this change will not result in a significant increase in the probability or consequences of an accident.

2. The proposed change does not create the possibility of a new or different accident from any previously evaluated. The TOL protective devices are not an accident initiator, they only protect equipment provided to mitigate the consequences of an accident. For this reason, no new or different type of accident is created by this change.
3. The proposed change does not involve a significant reduction in a margin of safety. The trip setpoints of the TOL protective devices depend upon both the current and the length of time the current is applied. The trip setpoints for TOL protective devices are much higher than conditions normally experienced during an MOV stroke and are meant to protect the motor from stall and overload conditions. The difference between the current of the trip setpoints and the normal conditions is great enough that a premature trip of the TOL protective device is highly unlikely, even at degraded voltages. The TOL protective device protects the motor from the stall conditions. Not conducting the periodic testing of the TOL protective devices would not cause the MOVs to fail, nor would the performance of the MOVs be adversely affected. Throughout the life of the plant, there has never been an instance of a safety related MOV failure due to degradation or failure of TOL protective devices. Further, based on maintenance history, the elimination of the periodic testing would eliminate any significant potential degradation of the TOL protective devices, thereby increasing their reliability. Finally, with the removal of the periodic testing of the TOL protective devices, fewer MOVs would have to be removed from service for testing. Since necessary components would no longer be inoperable due to the periodic testing, there would be an increase of availability time of safety systems/divisions. Deletion of the periodic testing could reduce the durations of online system outages. Clarifying the situational testing requirements would better define when the testing of the TOL protective devices is necessary which would ensure operability. The testing would be based on installation or any maintenance that could affect the TOL protective device. For these reasons, the proposed change does not involve a significant reduction in the margin of safety.

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 increase the amounts of effluents that may be released offsite, nor increase individual or cumulative occupational radiation exposures. Based on the foregoing, Detroit Edison concludes that the proposed Technical Specifications meet the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirements 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 the proposed amendment will not be inimical to the common defense and security or the health and safety of the public.

Detroit Edison requests that the proposed license amendment be effective within 60 days of approval by the Commission.