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January 3, 1990
NRC-89-0242

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-89-0042,
"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
May 31, 1989
 - 3) Detroit Edison Letter to NRC, NRC-88-0255,
"Proposed Technical Specification Change
(License Amendment) - Ultimate Heat Sink
(3/4.7.1.5)," dated September 30, 1988
 - 4) Detroit Edison Letter to NRC, NRC-88-0281,
"Proposed Technical Specification Change
(License Amendment) - Appendix R Alternative
Shutdown Systems," dated December 22, 1988
 - 5) 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
 - 6) Detroit Edison Letter to NRC, NRC-89-0269,
"Technical Specification Bases Change - Ultimate
Heat Sink," dated December 15, 1989

Subject: Supplement to 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)

In Reference 2, Detroit Edison submitted a proposal to modify the
Technical Specification requirements for certain Fermi 2 Service Water

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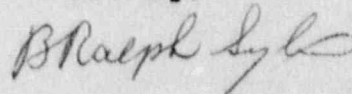
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systems. The Reference 2 submittal superseded the Reference 5 proposal on the same subject. This submittal modifies the Technical Specifications for the Emergency Equipment Cooling Water (EECW) system proposed by Reference 2. The action requirements for an inoperable EECW system subsystem have been clarified with regards to the intent to allow continued plant operation under certain specific circumstances. These specific circumstances are also modified to include verification of the status of the non-safety related cooling water system which normally cools the equipment which is cooled by EECW in emergency situations. Further, the provisions for Operational Conditions 4 and 5 are modified. These provisions have been found to be subject to interpretation in an unnecessarily restrictive manner.

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. 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 Mr. Glen Ohlemacher at (313) 586-4275.

Sincerely,



Enclosure

cc: A. B. Davis

R. W. Defayette

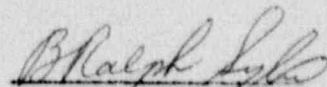
W. G. Rogers

J. F. Stang

Supervisor, Advanced Planning and Review Section,
Michigan Public Service Commission

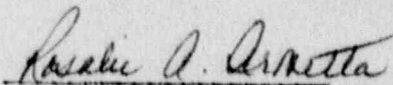
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I, B. RALPH SYLVIA, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.



B. RALPH SYLVIA
Senior Vice President

On this 3rd day of January, 1990, 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

ROSALIE A. ARMETTA
Notary Public, Monroe County, LA
My Commission Expires Jan. 11, 1992

INTRODUCTION

In Reference 2, Detroit Edison proposed revised Technical Specification requirements for the Emergency Equipment Cooling Water (EECW) system. The proposal was submitted in order to remove ambiguity in the required actions for an inoperable EECW system subsystem.

The Reference 2 proposal was written to allow a reasonable period of time for continued plant operation with one EECW system subsystem inoperable while ensuring that sufficient critical systems retained their full capability during the allowed out-of-service period. The proposal was based upon an analogous situation which exists in the case of the Emergency Diesel Generators (EDG).

Review of the Reference 2 proposal has indicated that the proposal retains some ambiguity in the action requirements. Further, the action requirements of the Reference 2 proposal are based upon the availability of the non-safety related cooling water system to provide cooling during the out-of-service period. However, the action requirements did not require assurance of this availability prior to the use of the full out-of-service period. Also, the provisions proposed for Operational Conditions 4 and 5 have been found to be subject to interpretation in an unnecessarily restrictive manner. The purpose of this submittal is to provide modified Technical Specification requirements to resolve these concerns.

EVALUATION

The Reference 2 proposal can be ambiguous in terms of the extent of the required actions in the event of the inoperability of one EECW system subsystem. The inoperable EECW system subsystem provides support to a wide range of plant equipment each of which have specific Technical Specification requirements. The Reference 2 submittal intended to provide the governing action requirement for the situation where an EECW system subsystem is inoperable. The proposed EECW action requirement is now explicit in stating that if the requisite verifications are completed then the 72 hour out-of-service time can be applied.

Detroit Edison believes that this is appropriate in light of the assurance given by the required verifications that a complete loss of the safety functions for these critical systems will not occur during the proposed out-of-service period. As detailed in Reference 2, this is analogous to the allowed out-of-service time for the inoperability of a division of EDGs.

The proposal includes an action requirement to assure that the normal non-safety related cooling water system is providing cooling to the safety related components normally supported by the inoperable EECW system subsystem before the 72 hour out-of-service time can be used. The operation of this normal cooling supply increases the probability that the safety function of equipment supported by the inoperable EECW system subsystem will actually be completed should that be required during the 72 hour out-of-service period. This new action requirement is in addition to the two action requirements which were proposed in Reference 2 to be required prior to using the 72 hour out-of-service time. The Reference 2 actions involve verification of the operability of the components cooled by the opposite division EECW subsystem and verification of the operability of the Automatic Depressurization System, when required to be operable. A two hour time period continues to be proposed to perform these actions.

The non-safety related cooling water system which normally supports the equipment which is supported in emergency circumstances by EECW is the Reactor Building Closed Cooling Water (RBCCW) system. The new action requirement consists of a determination that the RBCCW system is operating normally by verifying that normal system operating pressure exists. The acceptance criteria developed for the plant performance monitoring program will be used to determine the acceptability of the RBCCW system. Also, verification that a cooling flow path exists for the affected safety-related components is required. This verification is performed by examination of valve line-up and equipment tag out records. The Bases have also been revised to reflect the process.

The new ACTION requirement dealing with the status of RBCCW provides additional restrictions to assure that the 72 hour out-of-service time is applied only to cases where the degradation in the plant equipment of concern is limited to the single EECW system subsystem. This assures that the 72-hour time limit is not utilized in other circumstances which may not have been evaluated.

The two EECW system subsystems are normally two branches in the distribution of RBCCW system cooling water. In the event of an EECW initiation signal (loss of RBCCW supply pressure, loss of power to the RBCCW pumps or high drywell pressure) the RBCCW systems valves are automatically repositioned to form the two independent EECW system subsystems. The EECW pumps and heat exchangers are connected to the EECW system subsystems, the RBCCW pumps and heat exchangers are isolated from the EECW system subsystems, and the EECW pumps receive a starting signal.

There is no change to the connection of cooling water to the cooled components. The cooling water supplied by RBCCW provides the same function as that supplied by EECW. Thus, the only differences in regards to the cooling supplied to the equipment is in the pump providing the flow and in the heat sink which receives the heat from the components. Figure 1 illustrates the relationship between RBCCW and EECW.

This arrangement provides for two possible situations for an inoperable EECW system subsystem. The first is where a problem occurs associated with the EECW pumps or heat exchangers. The second is where a problem occurs in the cooling water distribution piping which carries either EECW or RBCCW cooling (depending on which is operating) to the cooled components.

The first situation will allow the proposed required action to be completed; the second situation will not. An inoperability of an EECW subsystem will be easily classified into one of these two situations and the action to assure that normal cooling to the affected safety-related components will, therefore, be easily completed in the required 2 hour time frame.

It should also be noted that the RBCCW system supports non-safety related components located in the Reactor Building. Many of these components are essential to normal power operation and, if RBCCW cooling were to be lost, the resultant loss of cooling to these essential components would cause a prompt plant shutdown. Thus, it is clear that the RBCCW system is designed to be highly reliable. The operating history of the RBCCW system at Fermi 2 has been excellent. As described above, should RBCCW fail, then EECW would automatically initiate. This would result in a Licensee Event Report (LER) under the provisions of 10CFR50.73. Detroit Edison submitted one LER due to an automatic initiation of EECW due to a component failure in the RBCCW system in July 1985. There have been no other events of this nature since the licensing of Fermi 2.

The Reference 2 proposal includes provisions for Operational Condition 4 and 5. The intent is to take the action for any equipment which is rendered inoperable by the loss of EECW cooling. Whether or not a piece of equipment should be considered inoperable depends upon the impact of the loss of EECW on the equipment's ability to perform its intended function. In Operational Conditions 4 or 5, the need for EECW cooling may depend upon the design basis scenarios which can credibly occur in these conditions. Thus, there could be no actual impact on the equipment's ability to perform its intended function with a loss of EECW cooling. For example, some EECW cooled room coolers may not be needed under accident conditions when the reactor

is at low temperatures. The equipment in these rooms thus would still be able to fully perform their intended function and would not need to be declared inoperable.

The EECW system is designed to provide cooling to equipment essential to achieving and maintaining safe shutdown conditions under postulated accident conditions. The worst-case conditions are generally those following an accident originating during power operation. There are a number of specific circumstances possible in Operational Conditions 4 and 5 for which the worst-case conditions are substantially less severe than those possible at power. Engineering evaluation of each specific circumstance may result in a determination that the equipment of concern can be considered operable.

The modified Action b for Specification 3.7.1.2 now clearly indicates that the process described above should be followed and only Action Requirements for equipment determined to be inoperable must be followed. As proposed in Reference 2, the provisions could be interpreted to require all Action Requirements for safety related equipment associated with an inoperable EECW system subsystem regardless of the actual impact upon the equipment's ability to perform its intended function in that Operational Condition. Since the change clarifies the intended process for determining operability and taking appropriate actions, Detroit Edison believes the change is acceptable.

The Bases are also proposed to be modified to describe the above process. Also, it clearly states that time requirements in any Action Requirements determined to be applicable start at the time the EECW cooling is found or made to be inoperable. This removes any ambiguity as to when the Action Requirements start and provides a conservative application of these requirements.

Attached are the modified Technical Specification requirements for both the EECW system (Specification 3/4.7.1.2) and the Emergency Equipment Service Water System (Specification 3/4.7.1.3). The Reference 2 proposal also includes changes for Specification 3/4.7.1.5, Ultimate Heat Sink. The changes to 3/4.7.1.5 continue to be necessary only if approval of the Reference 3 proposal has not occurred before this proposal is approved. The attached Technical Specifications also include provisions, which are contained in a ** footnote for action a. of Specification 3.7.1.2, regarding Appendix R alternate shutdown systems that are needed only if approval of the Reference 4 proposal precedes this proposal. If the Reference 4 proposal is approved after this proposal, then these provisions should be incorporated at that time. Reference 6 proposed a change to the same Technical Specifications Bases section as proposed to be changed

in this submittal. The Reference 6 change is independent of this proposal and should not be deleted or modified by the incorporation of the Bases material proposed in this submittal.

SIGNIFICANT HAZARDS CONSIDERATION

Detroit Edison has reviewed the No Significant Hazards Consideration analysis contained in the Reference 2 proposal and has determined that it remains applicable to the proposal as-modified herein.

DISCUSSION

As stated above, this proposal is written to clearly indicate that the actions provided for an inoperable EECW system subsystem are the governing action requirements and other action requirements are not intended to be taken. This is because the actions provided are those which take into account the full impact of the inoperable EECW system subsystem. Continued plant operation is only allowed under limited circumstances where it is justified; otherwise, an immediate plant shutdown is required.

As described in Reference 2, application of other action requirements will generally require an immediate plant shutdown without regard for the need for such a shutdown or the impact of the requirement for these shutdowns on the overall safety of the plant.

EECW and EESW system subsystems and Ultimate Heat Sink components must be made inoperable at times during plant operation in order to meet regulatory requirements and other commitments. For example:

- o The EECW and EESW pumps must be tested in accordance with the Pump and Valve Inservice Test Program required by 10CFR50.55a and Specification 4.0.5. The required frequency is at least once per 92 days. Performance of the EECW tests currently requires that the safety function of the system be disabled to establish controlled conditions for the test.
- o Many components in these systems require preventive maintenance (PM) on a regular basis. Most of these PM tasks have been categorized as "Category A" tasks since they affect the ability of a safety-related system to perform its safety function. Detroit Edison has committed to perform these tasks or justify their deferral by engineering evaluation. Some of the PM tasks are also required to maintain the Environmental Qualification (EQ) of the components. These EQ tasks are required to meet the requirements of 10CFR50.49. The periodicity of these tasks range from 13 weeks to 5 years. These periodicities are based upon vendor information or other defined basis and represent the most appropriate interval for optimum operation of the systems in question.

The tasks generally require the subsystem affected to be inoperable. The next scheduled period where an EECW subsystem is to be made inoperable to perform these important PM tasks is scheduled for January, 1990. The PM program is scheduled to require 4 periods of inoperability of each EECW subsystem each year.

- o The EECW and EESW systems and Ultimate Heat Sink consist of numerous components which are essential to the operability of these systems. There is a high probability that during a typical operating cycle that minor corrective maintenance will be needed on these systems. This activity will also generally result in inoperability of the system involved.

As described above, the application of other action requirements in this situation would require frequent plant shutdowns and startups. These transients are unnecessary and, in themselves, contrary to the goal of safe and reliable operation of Fermi 2.

A reasonable out-of-service time should be allowed under conditions where the ability to reach cold shutdown during design basis events is maintained with the equipment available. Generally, the loss of redundancy is acceptable for a limited out-of-service time.

In this case, the impact of the loss of EECW cooling is limited to one of the two divisions of safety related equipment. The unaffected division of equipment as well as the Automatic Depressurization System (when required to be operable) are promptly verified to be operable. This equipment is sufficient to attain cold shutdown under design basis conditions without equipment failures. Additional actions to assure RBCCW is providing its normal cooling function increase the probability the affected division will be able to also respond during the proposed out-of-service time period. RBCCW provides the same function as EECW; however, it will not be available under some circumstances where EECW will be available. In summary, the proposed out-of-service time is necessary for safe reliable operation and is consistent with situations for which out-of-service times are generally provided.

In specifying an out-of-service time, comparison to existing allowed out-of-service times is appropriate. Also, the intent of the current EECW Technical Specifications should be considered. Detroit Edison has proposed a 72 hour out-of-service time because both considerations indicate that this is appropriate.

As fully described in Reference 2, the EECW configuration is closely analogous to that of the EDGs. The EDG Technical Specification allows an out-of-service time of 72 hours. The current EECW related Technical Specifications allow 72 hours prior to entering other action statements. Therefore, Detroit Edison believes that 72 hours

represents the normal out-of-service time appropriate for an inoperable EECW system subsystem.

This proposal implements an evaluation of the impact of the inoperability of an EECW system subsystem based upon the specific cooling water equipment configuration which exists at Fermi 2. The cooling water equipment configurations vary widely throughout the nuclear industry; therefore, the results of this evaluation are not applicable at facilities other than Fermi 2. In light of this evaluation and the additional information provided herein and in Reference 2, Detroit Edison believes that this proposal both assures the health and safety of the public and allows for the safe reliable operation of Fermi 2.

