

Joseph H. Plona
Site Vice President

6400 N. Dixie Highway, Newport, MI 48166
Tel: 734.586.5910 Fax: 734.586.4172

DTE Energy



10 CFR 50.90

September 24, 2010
NRC-10-0001

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

- References: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
- 2) Draft NRC Regulatory Issue Summary 2005-02, Revision 1,
"Clarifying the Process for Making Emergency Plan Changes"

Subject: Request for Approval of Revision to the Fermi 2 Radiological Emergency Response Preparedness Plan to Change Staff Augmentation Times

Detroit Edison is requesting NRC approval of a revision to the Fermi 2 Radiological Emergency Response Preparedness (RERP) Plan to increase the staff augmentation times for Technical Support Center-related functions from 30 to 60 minutes and for Emergency Operations Facility-related functions from 60 to 90 minutes.

Detroit Edison has reviewed the proposed changes against the requirements in 10 CFR 50.54(q), 10 CFR 50.47(b) and 10 CFR Appendix E. The review concluded that the RERP Plan would continue to meet these requirements after implementation of the proposed changes; however, since the proposed changes would increase staff augmentation times, NRC approval of these changes is required.

This request is being submitted for NRC approval as a proposed license amendment in accordance with the clarification provided in Reference 2.

Enclosure 1 provides an evaluation of the proposed changes to the RERP Plan, including an analysis of the issue of significant hazards consideration using the standards of 10 CFR 50.92. Detroit Edison has concluded that the changes proposed in this submittal do not result in a significant hazards consideration. Enclosure 2 provides markup pages of the current RERP Plan showing proposed changes. Enclosure 3 provides a comparison between NUREG-0654 Revision 1, the last NRC-approved

RERP Plan Revision (3A), the current RERP Plan Revision (38), and the proposed changes to the RERP Plan. An Environmental Assessment performed to evaluate the proposed changes is also included in Enclosure 1. The assessment concludes that the proposed changes will not have a significant effect on the quality of the human environment.

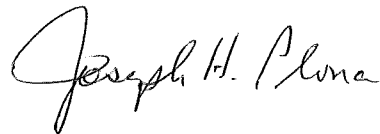
Detroit Edison requests NRC approval of this change by September 15, 2011 with an implementation time within 60 days of NRC approval.

There are no new commitments included in this document.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Michigan State Official.

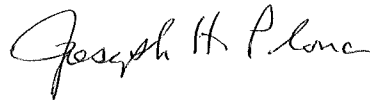
Should you have any questions or require additional information, please contact Mr. Rodney W. Johnson of my staff at (734) 586-5076.

Sincerely,

A handwritten signature in cursive script that reads "Joseph H. Plona".

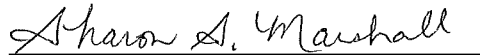
cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 4, Region III
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

I, Joseph H. Plona, 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.



Joseph H. Plona
Site Vice President
Nuclear Generation

On this 24 day of September, 2010 before me personally appeared Joseph H. Plona, being first duly sworn and says that he executed the foregoing as his free act and deed.



Notary Public

SHARON S. MARSHALL
NOTARY PUBLIC, STATE OF MI
COUNTY OF MONROE
MY COMMISSION EXPIRES Jun 14, 2013
ACTING IN COUNTY OF Monroe

**ENCLOSURE 1
TO NRC-10-0001**

EVALUATION OF THE PROPOSED LICENSE AMENDMENT

**FERMI 2 NRC DOCKET NO. 50-341
OPERATING LICENSE NO. NPF-43**

**PROPOSED LICENSE AMENDMENT TO REVISE THE FERMI 2
RADIOLOGICAL EMERGENCY RESPONSE PREPAREDNESS PLAN
STAFF AUGMENTATION TIMES**

Evaluation of the Proposed License Amendment

Subject: Proposed License Amendment to Revise the Radiological Emergency Response
Plan Staff Augmentation Times

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1.0 Description

Detroit Edison is requesting NRC approval of a proposed revision to the Fermi 2 Radiological Emergency Response Preparedness (RERP) Plan. The change will extend the number of minutes allowed from the time an emergency classification is declared to the time the Technical Support Center (TSC) and Emergency Operations Facility (EOF) are required to be activated.

2.0 Proposed Change

The proposed changes increase the Emergency Response Organization (ERO) augmentation time for two groups of responders. Specifically, the proposed revision to the Fermi 2 Emergency Plan Table B-1, "Fermi 2 Emergency Response Organization," will increase the staff augmentation times for Technical Support Center-related functions from 30 to 60 minutes and for Emergency Operations Facility-related functions from 60 to 90 minutes. RERP Plan Sections B.1.2, "Emergency Response Organization" and I.4, "Field Monitoring" are revised to reflect these changes.

The augmentation time for two "Technical Support task" responders in the Technical Support Center will not be extended as part of this proposed revision to the RERP Plan. The Technical Engineer or Nuclear Safety Advisor, and one Support Engineer who are required to report to the TSC within 60 minutes by the current RERP Plan will continue to have a 60-minute response time upon implementation of the proposed revision. Retaining the 60 minute response time for these two positions ensures that Technical Support resources are available to relieve the Shift Technical Advisor (STA) of emergency technical support duties in a timely manner.

3.0 Background

Fermi 2 RERP Plan Revision 3A was approved by the NRC in NUREG-0798, "Safety Evaluation Report Related to the Operation of Enrico Fermi Atomic Power Plant Unit 2," Supplement 5, dated March 1985. The current revision 38 of the RERP Plan includes several modifications made pursuant to the provisions of 10 CFR 50.54(q). Discussions in this submittal provide comparison of the proposed changes to the originally NRC-approved Plan (Revision 3A) and to the current Plan revision (Revision 38).

Fermi 2 has three primary onsite Emergency Response Facilities (ERFs) in addition to the Main Control Room (MCR). These are the Technical Support Center (TSC), the Operational Support Center (OSC) and the Emergency Operations Facility (EOF). During an emergency, the Shift Manager initially assumes the responsibility as Emergency Director (ED). Emergency response by on-shift staff is directed by the ED from the MCR until relieved by an augmenting staff with the subsequent activation of ERFs.

Fermi 2 utilizes four standard levels of emergency classification as described in NUREG-0654 Revision 1. Augmentation of the on-shift staff for an Unusual Event is optional and is left to the discretion of the ED. At the Alert or higher emergency classification levels, all of the onsite ERFs are activated. The associated augmenting personnel are notified to report to their assigned facilities. Fermi 2 uses the term “activated” in reference to the ERFs, indicating that the decision has been made to transfer relevant duties to the facility and activities are underway to make the facility functional. A facility is declared “functional” by its respective manager once minimum required staffing has been achieved, and other specified conditions are met such that the facility is capable of performing its assigned functions. The time from facility activation (i.e., from time of Alert or higher emergency classification) to the time the facility becomes functional is the “augmentation time” for the emergency responders.

As originally approved by NRC, Fermi 2 RERP Plan Revision 3A indicated that 30-minute and 60-minute augmentation time goals for minimum staffing positions were intended to meet the guidance of NUREG-0654 Revision 1 and NUREG-0737. These time goals were shown in Table B-1, Staffing for the Fermi 2 Emergency Response Organization (RERP Plan Table B-1 shares common design and terminology with the corresponding table in NUREG-0654 Revision 1). It was further explained in Section B.1.2, Emergency Response Organization, that the 30-minute goal was achievable during normal working hours since most of the key positions were staffed by personnel onsite; however, during off-hours, it would take an average of 60 minutes to staff key positions. At that time the TSC and OSC were activated at the Alert (or higher) emergency level, and the EOF was activated at the Site Area Emergency (or higher) level. Therefore, at times other than normal working hours, it could take up to 60 minutes after an Alert is declared before the first group of responders would be in place and functioning in the TSC and/or OSC. The second group of responders would arrive within 60 minutes after a Site Area Emergency declaration to staff the EOF.

Based on a change made to the RERP Plan in accordance with 10 CFR 50.54(q), the EOF is currently activated at the Alert (or higher) level. This change was made as a conservative measure to ensure timeliness of response to conditions requiring EOF resources (typically a Site Area Emergency or General Emergency). As a result, all onsite ERFs are now activated at the Alert (or higher) classification level.

Fermi 2 assigns ERO personnel to teams in a rotating duty such that one complete team is on-call at any given time. Fermi 2 has recently expanded the ERO by approximately 25 percent in going from three teams to four teams of duty responders. Four teams are assigned to a scheme of rotating weekly duty while a fifth team is held in reserve. Upon declaration of an Alert (or higher), the ED initiates an automated call-out of responders using the computerized Emergency Call-Out System (ECOS). During actual events all ERO personnel (4 Teams) are contacted by ECOS and are expected to report. ERO personnel are expected to promptly report to their assigned facility upon notification of an emergency at Fermi 2.

The recent increase in duty roster from three teams to four teams provides certain challenges in staffing the ERO with qualified personnel who are also capable of meeting the 30 and 60-minute

augmentation times during off hours. Furthermore, area demographic changes and recent site security improvements have impacted emergency responders transit times to staff the ERFs.

The area surrounding Fermi 2 has had significant growth in population within 10 miles of the plant. Comparing the 1980 population of 86,214 for the 10-mile Emergency Planning Zone (EPZ) as shown in RERP Plan 3A, with the population of approximately 103,343 in 2008^[AIH1], there is an increase of approximately 20 percent. This increase in the number of people living within close proximity to the site has caused traffic patterns in the area to change. As a result, commute times to the plant site from surrounding communities have increased. Studies of census data indicate that nationally, the mean commute times during the period from 1980 to 2000 increased by over 17 percent. The impact that local population growth has on response time for ERO members depends on factors that vary widely with conditions ranging from time of day, to season of year. Any increase in travel time without corresponding relaxation in facility activation time increases the perceived pressure to achieve timeliness, with a potential for reduction in driving safety for individuals responding to the emergency. However, increased driving times are not the only changes that challenge responders in meeting augmentation time goals.

Since the attacks of September 11, 2001, significant improvements have been made to the physical security of the Fermi 2 site. Among these are vehicle delay barriers outside the plant Protected Area (PA) that have been constructed in areas previously comprising the main employee parking lot. As a result, personnel must park further from the plant, typically adding minutes to their transit time to the PA. Additional security measures at the point of PA access may also add from one to several minutes of delay, depending on the time of the day and the conditions of traffic on site. The delays from security changes may impact response times to varying degrees, and apply not only to responders coming from offsite. For example, EOF personnel working in the PA may still have an additional few minutes of walking time to get to their parked vehicle in order to drive to the EOF during normal working hours.

4.0 Technical Analysis

10 CFR 50.47 (b) and 10 CFR 50 Appendix E establish emergency planning standards that require 1) adequate staffing; 2) satisfactory performance of key functional areas and critical tasks; and 3) timely augmentation of the response capability. The proposed change would increase the time for the ERO personnel to respond to their assigned duties. This necessitates a greater emphasis on the capabilities of on-shift personnel to demonstrate that no degradation or loss of function will result due to the increase in augmentation times.

Additionally, the last NRC approved RERP Plan, Revision 3A, states the following regarding staffing augmentation:

“Table B-1 shows the minimum staffing for the Fermi 2 Emergency Response Organization according to functional area, ERF, and emergency classification. Table B-1 reflects Detroit

Edison's intent to achieve the 30-minute and 60-minute augmentation times indicated in NUREG-0654 Revision 1, Table B-1 and in NUREG 0737 as a desirable goal for staffing the ERFs. The key functional areas in Table B-1 of this section can be staffed within 30 minutes of the emergency classification during normal working hours. This is possible because the majority of the key positions are staffed by personnel on-site, that is, either in the plant or at the Nuclear Operations Center (NOC). During off-hours, on the average, 60 minutes is required for staffing of key emergency response positions.

The call-out is arranged such that the personnel living closest to the plant would be called first in order to meet the 60-minute goal of NUREG-0654.”

The current revision of the RERP Plan, Revision 38, states:

“The Emergency Response Organization is predefined by the Supervisor, RERP. Assignments to various positions are specified to provide timely, unambiguous staffing. Table B-1 shows the minimum staffing for the Fermi 2 Emergency Response Organization according to functional area, ERF, and emergency classification. Table B-1 reflects Detroit Edison's intent to achieve the 30-minute and 60-minute augmentation times indicated in Table B-1 of NUREG-0654 Revision 1 and in Supplement 1 to NUREG-0737 as a desirable goal for staffing the ERFs.

It is the goal of Detroit Edison to augment Control Room staff by the Emergency Response Organization (Table B-1) in two groups of key personnel. The first group of key personnel should be in their Emergency Response Facility within 30 minutes of an Alert being declared. However, there may be some conditions where up to 60 minutes may be required. The second group of key personnel should be in place within 60 minutes of an Alert being declared.”

4.1 Improved On-Shift Staffing

As illustrated in Enclosure 3, Table 1 of this submittal, there has been an increase in on-shift staffing from that required in NRC approved RERP Plan (Revision 3A) in order to ensure adequate performance of the major RERP Plan functions and tasks. A total of 16 persons are identified for on-shift staffing which is a significant increase compared to the originally approved RERP Plan total of 11 persons, and the regulatory guidance provided by NUREG-0654 Revision 1 total of 10 persons. (Refer to the functional analysis later in this proposal for a detailed breakdown of positions and tasks.) This increase in on-site staffing over the base requirements may be considered a compensatory measure to ensure that the RERP Plan functions are adequately maintained.

4.2 Technical Advancements and Support

The following describes technological advancements since the initial NRC approval of the RERP Plan (revision 3A) resulting in increased capabilities and support of on-shift personnel:

4.2.1 3D-Monicores Computer System (3DM)

The 3DM computer is designed to periodically determine the three-dimensional power density distribution for the reactor core, and to provide printed logs that permit accurate assessment of core thermal performance. This information is typically used by the on-shift STA.

The 3DM computer provides nearly continuous monitoring of the core margins to operating limits and appropriate alarms based on established core operating limits. This aids in ensuring that the core is operating within acceptable limits at all times, especially during periods of power level changes. For ease of use, the 3DM system has direct interface with the Integrated Plant Computer System (IPCS).

4.2.2 Integrated Plant Computer System (IPCS)

In 2003, IPCS replaced multiple older and obsolete systems with a single, microcomputer-based operating platform incorporating the Safety Parameter Display System (SPDS) and the Emergency Response Information System (ERIS) as well as the following:

- 1) Process Computer System
- 2) Meteorological Data Acquisition System
- 3) Motor Bearing and Winding Temperature Monitor
- 4) Sequence of Events Recorder (SOER)
- 5) Visual Annunciator System (VAS)
- 6) General Electric Transient Analysis and Recording System

By consolidating all of these systems onto a single platform, control room personnel can quickly monitor all critical plant parameters from a single workstation. The following are some of the benefits of IPCS:

- Workstations have the capability of being programmed for automated response (such as automatically indicating a critical parameter during events that may challenge that parameter)
- The Shift Manager has improved plant monitoring capability to support ED function
- Data manipulation functions, such as plotting information graphically or recovering historical data, require fewer key strokes and are more easily performed
- The SOER function has become a “real-time” user tool by making data immediately available rather than being only available via printer after the event
- Much of the IPCS functionality can be made available to any desktop computer through the plant’s site-wide intranet

- The increased capabilities of IPCS have enhanced timeliness of monitoring and assessing plant conditions

In aggregate, these improvements support the proposed change in augmentation times by ensuring that major functions and tasks are completed more easily with less burdens on the Control Room staff.

4.2.3 Dose Assessment

Similar to IPCS improvements described above, radiological dose assessment has benefited from technological advances that make its use simpler and less time consuming.

4.2.3.1 Previous On-Shift Dose Assessment Capabilities

Dose assessment capability in the MCR was provided by two separate methodologies. The primary was the Autodose computer program that resided exclusively on the ERIS system, and had the following characteristics:

- Results were only viewable on screen in the Main Control Room, printers were located in the TSC and EOF
- The computer program was DOS-based (non-Windows) and required multiple manual inputs to setup, which was time consuming and susceptible to input errors

At the time of the last NRC approved RERP Plan, the back-up method relied on hand calculations which were very time consuming and required significant expertise to perform. In the late 1980s, a back-up dose assessment computer program called PC/Raddose was developed. It resided on a stand-alone personal computer in the Emergency Response Facilities. All inputs had to be gathered by the user and entered manually.

4.2.3.2 Current On-Shift Dose Assessment Capabilities

The current dose assessment program resides on the Integrated Plant Computer System and is a Windows-based application called Raddose-V. The program is loaded on two IPCS terminals in the Control Room, as well as on non-IPCS network computers providing back up capability for any loss of IPCS. The following describes the dose assessment enhancements:

- Raddose-V can be loaded on any network computer (i.e. IPCS terminal to obtain data directly) or any stand-alone computer. This maintains dose assessment capability should a loss to IPCS be experienced. Furthermore, having only one dose model to use verses two separate models as previously described reduces the chances of error and improves user proficiency

- Raddose-V has an automatic mode that receives meteorological and radiation monitor data directly from IPCS and prints dose results automatically every 15 minutes. This mode requires minimal inputs for initialization, thereby enabling the user to generate dose reports with little distraction from other activities
- Raddose-V can also operate in a manual mode which allows user flexibility to perform dose calculations using optional input sources

The improvements to the dose assessment program make it easy to set up and requires minimal user interface to produce results quickly and automatically. This aspect of accident assessment is now largely automated.

The overall improvements in technology have enabled the on-shift staff to assess plant conditions quickly and efficiently, and with less distraction than before. These improvements help minimize the impact to the performance of the major tasks that may result from the proposed change in augmentation times.

4.3 Procedural Improvements

4.3.1 Emergency Operating Procedures (EOPs)

Since the original emergency plan approval, EOPs have been improved through industry initiatives. EOPs now use a symptom-based approach that demands less assessment and interpretation of plant conditions by the crew.

EOPs interface well with new technology such as IPCS. EOP curves are generated by IPCS to graphically display plant conditions relative to limits or required actions. EOPs are also formatted as flowcharts, with RERP Emergency Action Levels (EALs) “flagged” by identifiers indicating where a declaration of emergency is required.

Abnormal Operating Procedures (AOPs) also contain directional steps for when a review of the classification procedure is required to determine potential classifiable conditions. This prompts the user to identify applicable EALs.

4.3.2 Emergency Plan Implementing Procedures

In 1995, Fermi 2 updated the classification methodology to that originally published in NUMARC/NESP-007. Fermi 2 EALs incorporate the new guidance that has simplified the classification process, including the use of a single page overview matrix of EAL initiating conditions that streamlines the process of evaluating EAL against plant conditions.

4.4 Training

4.4.1 Operations Training

Training is used to strategically drive improved performance at Fermi 2. Since NRC approval of the RERP Plan under revision 3A, the Systematic Approach to Training (SAT) has resulted in developing a task list for Operations personnel. The SAT process ensures training is conducted to industry-accepted standards, and has led to accreditation of the Operations Training Programs by the National Academy for Nuclear Training.

A dynamic simulator is routinely used during Operations Training. Simulator scenarios are designed to be realistic and reflect a wide range of plant conditions, including emergency conditions. Each crew is evaluated for NRC Performance Indicators related to RERP Plan risk significant activities of emergency classification, initial notifications and PARs. During the simulator evaluated sessions the control room staff is taken from normal operations to accident conditions resulting in the declaration of at least one event which can range from an Unusual Event up to a General Emergency. The crew performs critical functions, such as classification, core damage assessment, accident mitigation, response prioritization, and communications without augmentation from additional responders.

The proficiency of the control room staff to perform these functions without additional support is assessed in every training cycle.

4.4.2 Shift Technical Advisor (STA) Training

The STA was originally trained as an advisor to the operating shift per NUREG-0737. In 1990, additional guidelines were developed by INPO for the training of STAs. This is detailed in the document INPO 90-003, Guidelines for the Training and Qualification of Shift Technical Advisors.

The INPO Guidelines describe the role of the STA and is also reflected in Operation Department Expectations procedure ODE-5, Roles and Responsibilities. The STA performs independent assessments of plant operating concerns, technical support, appropriate corrective actions, analysis of events and their effects, effectiveness of response(s) to emergent conditions, classifications of emergencies, protection of the public and any other actions related to critical safety functions and plant safety during abnormal and emergency situations. They also contribute to operations during normal plant conditions. By routine monitoring of equipment and plant operations, the STA can focus on preventative actions in order to mitigate the consequences of an accident.

4.5 Improvements Summary

The improvements to staffing, equipment, procedures, and training that have occurred since initial approval of the RERP Plan have resulted in a significant increase in the on-shift

capabilities and knowledge. Based on these improvements, it is concluded that there would be no significant degradation or loss of any functional task as a result of the proposed increase in augmentation times.

5.0 Functional Analysis

This analysis evaluates the impact of extending the augmentation times on the ability of the on-shift staff to perform the major tasks for the major functional areas of RERP Plan. The analysis demonstrates that no degradation or loss of function would occur as a result of the change.

Additional personnel have been included in the existing on-shift complement for a total on-shift staffing of 16 personnel. This represents an increase of six (6) when compared to the regulatory guidance stated in NUREG-0654 Revision 1, Table B-1 and an increase of five (5) when compared to the last NRC approved Plan, revision 3A.

The following is the result of the functional analysis performed for the areas as described in NUREG-0654 Revision 1, Table B-1.

5.1 Plant Operations and Assessment of Operational Aspects

Currently NUREG-0654 Revision 1 assumes the on-shift staff will provide these functions throughout the emergency. Compared to the original plan, the current plan has one additional Nuclear Supervising Operator (NSO) and one Nuclear Operator (NO) to support this function and to support any of the major tasks such as repair and corrective actions or operational accident assessments. Also, included in the current plan is the designation of two dedicated Damage Control and Rescue (DCR) Team members in the on-shift complement. This improves availability of Operations personnel to perform specified functions.

In accordance with the current RERP Plan, the on-shift staffing is in excess of the requirements of NUREG-0654 Revision 1 Table B-1, as well as that prescribed in the last approved RERP Plan (Revision 3A). The additional on-shift staff helps to ensure prompt response to emergency events without requiring immediate augmentation. Therefore, the proposed increase in augmentation times will not detract from the capability of on-shift personnel to support plant operations or the assessment of operational aspects at the start of an event and until the on-shift staff is properly augmented.

5.2 Emergency Direction and Control

NUREG-0654 Revision 1 guidance indicates that the Shift Manager assumes this function as a collateral duty, where responsibility for overall direction of facility response may be transferred when all centers are fully manned.

According to revision 3A of the RERP Plan, the Shift Manager would assume the duties of ED and would be responsible for all the emergency response efforts until relieved by the ED in the TSC within 30 minutes of an Alert (up to 60 minutes during off hours). The TSC ED would assume duties related to overall response, as well as all off-site responsibilities including Protective Action Recommendations (PARs) and emergency notifications until relieved of those functions by the Emergency Officer (EO) in the EOF.

In the current RERP Plan, the TSC ED has been added to RERP Plan Table B-1 to reflect the actual practice described in the text of the plan as described above.

With the proposed changes, the Shift Manager/ED is relieved within 60 minutes by the ED in the TSC who then assumes overall control of the response efforts. As described earlier, the advances in technology, training and procedures adequately compensate for any additional burden imposed on the Shift Manager by the retention of the ED function for a total of up to 60 minutes.

Also with the proposed changes, the EO would arrive within 90 minutes to relieve the TSC ED of off-site responsibilities including PARs and emergency notifications. The EOF is activated at an Alert level to ensure a rapid mobilization of EOF personnel, including the EO. There is minimal potential impact to the TSC ED because the EO provides timely relief to the ED by assuming the offsite responsibilities.

5.3 Notification and Communications

NUREG-0654 Revision 1 requires one Communicator to be assigned on-shift. Revisions 3A and 38 of the Fermi 2 RERP Plan each specify one Communicator to perform this task. In 1991, all operations personnel (licensed and non-licensed operators) were trained for the task of performing emergency notifications. At the start of each shift one Nuclear Operator is designated as the Shift Communicator, should an emergency arise. There are no proposed changes to this position. As a result of the proposed change, this task would remain with the operating crew for up to 60 minutes until relieved by personnel responding in the first level of augmentation. Based on the additional operations personnel added to the on-shift staffing and the training to qualify each Nuclear Operator as a Communicator, there would be no undue burden on the Control Room staff or impact on the notification function from an increase in initial augmentation time.

5.4 Radiological Accident Assessment and Support of Operational Accident Assessment

The function of on-site radiological assessment is to review radiological conditions on-site using data from available instrumentation, assess the impact of changing radiological conditions on emergency classification, assist in accident assessment based upon those changing radiological conditions, and recommend appropriate on-site protective measures.

Classification is performed by the Shift Manager using Fermi 2 Implementing procedure EP-101, Classification of Emergencies, which uses readily available and easily recognized plant

instrumentation to determine the appropriate emergency classification. Off-site and on-site surveys provide additional sources of information, such as direct radiation measurements that could be directly applied to emergency classification. The on-shift Radiation Protection (RP) Technician takes direction from the Control Room to provide radiological assessment support until the OSC is activated.

The Control Room Supervisor uses flowcharts of symptom-based emergency operating procedures (EOPs) which minimize the need for specific accident assessment. The operating crew performs actions based on symptoms that are described in the EOPs, not based upon specific accident assessment.

Similarly, the Shift Manager/ED uses flowcharts in RERP Plan implementing procedure EP-530, Assembly and Accountability and Onsite Protective Actions, which prescribes the decision making processes by which on-site protective measures are directed. The information needed to accomplish this is simple and allows for rapid decision making using readily available information by the Shift Manager/ED.

Therefore, the proposed change to the ERO augmentation time continues to meet the intent of the requirements of Appendix E to 10 CFR Part 50 and the standards of 10 CFR 50.47(b).

This Functional Area includes three tasks: EOF Director, Off-Site Dose Assessment and Chemistry/Radiochemistry, and Off-site, On-Site (out of plant) and In-Plant Surveys and Radiation Protection.

5.4.1 EOF Director (or Emergency Officer)

The EOF Director (or Emergency Officer), is not assigned to the on-shift complement. The EO currently arrives within 60 minutes of an Alert and relieves the ED of overall emergency management as well as all off-site responsibilities including Protective Action Recommendations (PARs) and emergency notifications.

Under this proposal, the Shift Manager/ED is relieved within 60 minutes by the Emergency Director in the TSC who then assumes overall control of the response efforts. The EO arrives and relieves the ED of overall emergency management and off-site responsibilities including PARs, dose assessment and emergency notifications. The EOF is currently activated at an Alert to ensure a rapid mobilization of EOF personnel, including the EO.

The proposed change presents minimal impact to the TSC ED when compared to the last NRC approved RERP Plan (Revision 3A), because the EO still provides timely relief to the ED from the duties and responsibilities for offsite functions.

5.4.2 Off-Site Dose Assessment and Chemistry/Radiochemistry

NUREG-0654 Revision 1 requires one person on-shift to perform this function, which is currently assigned to the on-shift Chemistry Technician. A review of the EOPs, AOPs, RERP Plan, and the situational requirements procedure used by Chemistry for off-normal plant conditions identifies only one requirement to be completed within the time frame where the Chemistry Technician would be required to perform dose assessment. That requirement is to observe and monitor readings in the MCR, which is also the location where the Chemistry Technician will perform dose assessment. As such, both activities could easily be performed by the same technician.

No other requirements overlap with the dose assessment function under conditions where dose assessment would be required.

The proposed first level of augmentation by the Radiation Protection Advisor (within 60 minutes) will relieve the Chemistry Technician and assume dose assessment. The TSC would retain this task until relieved by the EOF. There is no loss of function or impact on the timing for performing either of the tasks of dose assessment or required radiochemistry sampling by the proposed extension in augmentation times.

5.4.3 Off-Site and On-Site Survey, In-Plant Surveys, and Radiation Protection

NUREG-0654 Revision 1 identifies only one on-shift “HP Technician” who is responsible for performing in-plant surveys. This is normally performed in support of DCR Teams sent in to the field. It further identifies two RP Technicians for the RP task but indicates that they “may be provided by shift personnel assigned other functions.”

In revision 3A of the RERP Plan only one RP Technician was assigned to the tasks for in-plant and on-site surveys. The current revision identifies two RP Technicians on-shift to support this function.

Regarding in-plant surveys; personnel accessing the radiologically restricted areas (RRA) at Fermi 2 are required by procedure to obtain electronic alarming dosimetry (EAD) prior to entry. The same EAD is also used as a “key” to unlock turnstiles to gain access to the RRA. Radiation work permits (RWPs) establish the necessary preset warnings/alarms associated with the EAD. Specific emergency RWPs have been developed for use during a declared emergency, which automatically provide the EAD with emergency dose and dose rate alarms. This assures that the teams dispatched to the in-plant areas to perform any function during a declared emergency will be afforded ample warning/alarm prior to exceeding their allowed dose or dose rate. Also, damage control teams are briefed regarding radiological conditions prior to being dispatched. Thus, under emergency conditions, personnel responding to emergencies in a high radiation area will be knowledgeable of dose rates in the area, and radiation protection personnel may not be required to accompany all teams into the plant

areas. EADs can also be programmed at the OSC by RP personnel as needed prior to team dispatch.

On-site, out of plant field teams and off-site field teams are typically used to verify the status of a potential release, but are not relied upon for timely indication. Installed effluent radiation monitors and in-plant radiation monitors would be able to detect any radioactive release quickly and accurately. The enhanced technology provided by the IPCS computer system and the dose assessment model provides reliable visual indication of any radioactive plume and its calculated direction. Quantification of a radioactive release is determined by dose assessment which is performed on-shift. Dose calculations determine the radiological impacts of a release, as well as areas of concern which is used to develop offsite Protective Action Recommendations or onsite protective actions. The dose assessment program can also provide a rapid estimate of core damage based on in-plant radiation monitor readings.

Although off-site survey data is available after the emergency response facilities are activated, monitoring of installed plant radiological instrumentation is sufficient for the first 90 minutes of an accident. Onsite, out of plant surveys can be used for verification of release or downwind monitoring as needed. Offsite survey data may be used to validate dose assessment.

With improved installed instrumentation, dose calculation model, IPCS computer modeling, and the increase of on-shift staffing, there is no more than minimal impact to the performance of these tasks as a result of the proposed changes to augmentation times.

5.5 Plant System Engineering, Repair and Corrective Actions

This Functional Area includes two tasks: Technical Support; and Repair and Corrective Actions.

5.5.1 Technical Support

The current RERP Plan identifies the STA as the on-shift person assigned this task. Augmentation to support the STA is provided by the Technical Engineer or Nuclear Safety Advisor and one Support Engineer (two additional responders) in the second group of TSC augmentation within 60 minutes of an Alert. In revision 3A, the STA was supported in this task by the first level of augmentation within 30 minutes of an Alert, with additional augmentation by the Technical Engineer or Nuclear Safety Advisor and one Support Engineer within 60 minutes of a Site Area Emergency. The proposed change will continue to provide technical support augmentation to the STA within 60 minutes of an Alert as specified in the current RERP Plan. Therefore, the proposed change does not affect this function.

5.5.2 Repair and Corrective Actions

NUREG-0654 Revision 1, Table B-1 specifies the functional area of "Repair and Corrective Actions," is to be fulfilled on shift by a total of two personnel who also "may be provided by

shift personnel assigned other functions.” It further identifies that the “position title or expertise” for the “repair and corrective actions” task could be filled by Mechanical Maintenance / Radwaste Operator, Electrical Maintenance or I&C Technician.

In revision 3A of the RERP Plan, two personnel were identified to be on-shift for the major functional area of “corrective actions and repair.” A “Nuclear Assistant Shift Supervisor” (NASS) and an I&C Technician were listed for the major tasks of “plant operation, accident mitigation, corrective actions and damage assessment.”

The NASS (currently, the Control Room Supervisor (CRS)) is responsible for plant operation and accident mitigation as part of the Control Room Staff under the functional area “Plant Operations and Assessment of Operational Aspects.” The remaining task of “corrective actions and damage assessment” was assigned to the on-shift I&C Technician.

In the current revision of the RERP Plan, the I&C Technician has been replaced with a qualified damage control personnel, since the task originally assigned to I&C was no longer required.

Under the current plan, two on-shift DCR Team personnel are assigned the task of Repair and Corrective Actions with no other responsibilities. Dedicated DCR Team members are available to respond for the tasks of damage assessment and corrective actions. This allows for a timely response to implement damage assessments which permits the ED to develop a comprehensive repair strategy once engineering support is available to assist. This also allows for a more timely response for assessing damage in the plant and performing immediate repairs, if needed.

Due to the time needed to stabilize the plant and assess the event, the initial phase of accidents is not expected to involve a significant need for maintenance personnel. Once plant status is understood and the plant is in a stable condition, attention can be focused on corrective maintenance that may be needed to restore plant capabilities.

Typically the initial stages of “corrective actions” will be minor or of limited scope, such as:

- Mechanical – Identification and operation of faulty valves, clogged filters, packing and seal adjustments, or troubleshooting.
- Electrical – Identification and correction of tripped breakers and overloads, and hands off troubleshooting.
- I&C – Identification and correction of controller and set point adjustment, calibration, or hands off troubleshooting.

Until the reactor is stabilized and the causal agents identified, actual repairs or realignment of plant equipment would not require large scale maintenance support. On-shift personnel are

capable of performing initial maintenance activities until augmenting personnel arrive. Therefore, the proposed changes to augmentation times will not adversely affect the ability of the on-shift personnel to manage the initial stages of any emergency.

5.6 Protective Actions (In-Plant)

NUREG-0654 Revision 1 specifies two personnel on-shift who “may be provided by shift personnel assigned other functions.” The Major Tasks specified are:

- access control,
- HP Coverage for repair, corrective actions, search and rescue, first aid, and firefighting,
- personnel monitoring, and
- dosimetry

In Revision 3A, this functional area was included as part of the Functional Area of Radiological Assessment and Protective Actions and Support of Operational Accident Assessment. As described previously, one HP Technician was assigned on-shift and responsible for the completion of these tasks including in-plant, on-site surveys.

The current plan requires two RP Technicians on shift to perform the RP functions, i.e., they ensure the access controls, personnel monitoring and dosimetry issue are completed in accordance with established procedures for response teams.

Nuclear (non-licensed) Operators are qualified as Self-Monitors. Self-Monitors can also support these tasks. Self-Monitors are trained in the use of Geiger Mueller and ion chamber radiation meters and contamination handling and survey techniques including count rate instruments used in the field. Training includes proper use of survey equipment and the use of survey maps.

Nuclear Operators are typically assigned to the Damage Control and Rescue Teams dispatched prior to the first level of augmented personnel. Normally the initial response phase involves search and rescue operations or manual manipulation of equipment. If used as Self-Monitors, the operators would be briefed on expected radiological conditions and would be provided survey instruments to monitor radiological conditions in the appropriate area(s). The results they generate are captured during debriefs.

Area Radiation Monitors (ARMs) are also used and reviewed prior to dispatch of personnel into the plant. Fermi 2 has multiple ARMs throughout the plant. The ARMs are located in areas where:

- Personnel perform regular duties in areas where radiation is present. These duties are performed once a day or more frequently.

- Personnel perform infrequent duties, but where there is a high probability that significant changes in radiation levels could occur.
- Personnel perform infrequent duties, or where there is a low probability that significant changes in radiation levels could occur, but where surveillance is desired.

As described previously, personnel accessing the radiologically restricted areas (RRA) at Fermi 2 are required by procedure to obtain electronic alarming dosimetry (EAD) prior to entry. The same EAD is also used as a “key” to unlock turnstiles to gain access to the RRA. Radiation work permits (RWPs) establish the necessary preset warnings/alarms associated with the EAD. Specific emergency RWPs have also been developed for use during a declared emergency, which automatically provide the EAD with emergency dose and dose rate alarms. This ensures that the person dispatched to the in-plant areas to perform any function during a declared emergency will be afforded ample warning/alarm prior to exceeding his/her allowed dose or dose rate. Also, damage control teams are briefed prior to dispatch regarding radiological conditions. Thus, personnel responding to emergencies in a high radiation area will be knowledgeable of dose rates in the area without the need to send Radiation Personnel into the plant with the teams.

The flexibility offered by Nuclear Operators as Self-Monitors, the availability of ARM instrumentation (including availability of data via IPCS in the OSC), the use of self-issued electronic alarming dosimetry, and the increase in on-shift staffing of RP Technicians ensure that the tasks under the Radiation Protection functional area are maintained and not impacted.

5.7 Fire Fighting

There are no proposed changes to this area. The on-shift Fire Brigade is assigned this task throughout the emergency with off-site support provided by local fire departments.

5.8 Rescue Operations and First Aid

Per NUREG-0654 Revision 1 and the RERP Plan, this function is provided on-shift by two personnel and “may be provided by shift personnel assigned other functions.” There are no additional personnel augmented for this task. Local off-site support provides for any additional assistance. There are no proposed changes to this area; therefore, there is no impact represented by the change in augmentation times.

5.9 Site Access Controls and Personnel Accountability

There are no proposed changes to this area. This function is part of the Security Contingency Plan and is staffed accordingly.

6.0 Summary of Technical and Functional Analyses:

As discussed above, the proposed change continues to support all of the functional areas of the Emergency Plan; continues to ensure the protection of the health and safety of the public and site personnel; and will not present a significant burden to the on-shift personnel.

Although the ERO staffing augmentation time is being relaxed, the emergency response functions identified in the RERP Plan will continue to be performed by on-shift staff until relieved by augmented ERO responders and would not result in a reduction of the capability of the ERO to effectively respond to the emergency.

Overall, the proposed extension in augmentation staffing time is supported by the following:

- Increase in on-shift staffing to a level of 16 personnel which reflects an increase of six as compared to NUREG-0654 Revision 1, and an increase of five as compared the last NRC approved RERP Plan (revision 3A).
- Reclassification of two “Technical Support task” responders in the TSC, from the second group of responders (currently 60-minute) to the first group of responders (currently 30-minute) such that there is no net change from current augmentation time for that task.
- Enhanced IPCS system that alleviates the need for additional personnel for monitoring plant conditions.
- Automatic dose calculations with minimal additional user actions other than initial setup which allows for rapid quantification of core damage and a greater ease of use.
- Improved dose assessment modeling that provides visual plume modeling/tracking.
- Other technological improvements such as the enhanced core monitoring system (3D monicore).
- Improved training in all areas of emergency response based on improved understanding provided by operating experience, updated industry guidance and the application of the systematic approach to training (SAT process) to ensure tasks qualification excellence.
- Improved EOP structure which provides a more timely and effective response to events as they unfold.
- RERP implementing procedures; the incorporation of the NUMARC/NESP classification guidance has simplified classifications and improved accuracy.

- The last NRC approved RERP Plan (revision 3A) and the current RERP Plan each identify the possibility that 60 minutes may be required for key positions to respond for an Alert (or higher emergency) during off-hours.

7.0 Regulatory Safety Analysis

7.1 No Significant Hazards Consideration

In accordance with 10 CFR 50.92, Detroit Edison has made a determination that the proposed amendment involves no significant hazards consideration. The proposed change to extend the time requirements for the Emergency Response Organization (ERO) to augment the on-shift staff does not involve a significant hazards consideration for the following reasons:

1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed extension of staff augmentation times has no effect on normal plant operation or on any accident initiator. The change affects the response to radiological emergencies under the Fermi 2 Radiological Emergency Response Preparedness (RERP) Plan. The ability of the emergency response organization to respond adequately to radiological emergencies has been evaluated. Improvements have been made to equipment, procedures, and training since initial approval of the Fermi 2 Emergency Plan that have resulted in a significant increase in the on-shift capabilities and knowledge such there would be no degradation or loss of Emergency Plan function as a result of the proposed change. A functional analysis was also performed on the effect of the proposed change on the timeliness of performing major tasks for the major functional areas of RERP Plan. The analysis concluded that extension of staff augmentation times would not significantly affect the ability to perform the required tasks. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change affects the required response times for supplementing onsite personnel in response to a Radiological emergency. It has been evaluated and determined not to significantly affect the ability to perform that function. It has no effect on the plant design or on the normal operation of the plant and does not affect how the plant is physically operated under emergency conditions. The extension of staff augmentation times in the RERP plan does not affect the plant Operating, Abnormal Operating, or Emergency Operating procedures which are performed by plant staff during all plant conditions. Therefore, since the proposed change does not affect the design or method of

operation of the plant, it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed change does not involve a significant reduction in the margin of safety.

The proposed change does not affect plant design or method of operation. 10 CFR 50.47 (b) and 10 CFR 50 Appendix E establish emergency planning standards that require adequate staffing, satisfactory performance of key functional areas and critical tasks; and timely augmentation of the response capability. Since the initial NRC approval of the Emergency Plan, there have been improvements in the technology used to support the RERP functions and in the capabilities of onsite personnel. A functional analysis was performed on the effect of the proposed change on the timeliness of performing major tasks for the functional areas of RERP Plan. The analysis concluded that an increase in staff augmentation times would not significantly affect the ability to perform the required RERP tasks. Thus, the proposed change has been determined not to adversely affect the ability to meet the emergency planning standards as described in 10 CFR 50.47 (b) and 10 CFR 50 Appendix E. Therefore, the proposed change will not involve a significant reduction in a margin of safety.

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

7.2 Applicable Regulatory Requirements

The regulatory requirements and guidance involving ERO staffing and augmentation are as follows:

10CFR50.47(b)(1) states, "Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis."

10CFR50.47(b)(2) states, "On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified."

NRC Regulatory Guide 1.101, revision 4, section C states in part "The criteria and recommendations in Revision 1 of NUREG-0654/FEMA-REP-1, 'Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (November 1980),' are methods acceptable to the NRC staff for complying with the standards in 10 CFR 50.47 that must be met in onsite and offsite emergency response plans.

These criteria provide a basis for NRC licensees and State and local governments to develop acceptable radiological emergency plans and improve emergency preparedness."

NUREG 0654/FEMA-REP-1, Revision 1, Section II.B.5 states, "Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1.

10 CFR 50 Appendix E, Item IV, Section A, 'Organization,' requires that "the organization for coping with radiological emergencies be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and the means for notification of such individuals in the event of an emergency." It continues to state in section C, 'Activation of Emergency Organization,' that "the entire spectrum of emergency conditions that involve the alerting or activating of progressively large segments of the total emergency organization shall be described."

In addition, the proposed changes to augmentation times are consistent with the proposed rule-making that includes proposed changes to the original guidance of NUREG-0654 Revision 1, Table B-1. These are captured in the Federal Register Volume 74, No. 94 dated May 18, 2009.

The latest Draft Regulatory Guide DG-1237, Section 2, states "The following emergency plan changes should be submitted to the NRC for prior review and approval under 10 CFR 50.4, regardless of any licensee evaluation pertaining to reduction in effectiveness. The staff has determined, based on experience in reviewing such changes, that the scope of these changes and the potential for the changes to affect the staff's reasonable assurance findings warrant prior staff review. Changes similar to those listed below that do not meet the specified thresholds (e.g., relocation of a technical support center to another location within the protected area) must still be evaluated pursuant to 10 CFR 50.54(q) and, if determined to be a reduction in effectiveness, submitted for prior staff review through a license amendment application:

- a. Changes to the emergency plans that increase the activation time of licensee ERFs, or a change in how the activation time is measured (e.g., when the activation period starts and when it ends), either of which results in a delay in those facilities' provision of meaningful support to the control room consistent with the facilities' assigned functions and responsibilities."

8.0 Environmental Assessment

In accordance with 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessments," and 10 CFR 51.35, "Finding of no significant impact," the following information is provided in support of an environmental assessment and finding of no significant impact for the proposed change.

The proposed change increases the Emergency Plan staff augmentation times from 30 and 60 minutes to 60 and 90 minutes. Specifically, the proposed change requests a revision to the Fermi 2 Emergency Plan Table B-1, "Fermi 2 Emergency Response Organization," to increase the staff augmentation times for Technical Support Center-related functions from 30 to 60 minutes, and for Emergency Operations Facility-related functions from 60 to 90 minutes.

The proposed change is needed to address concerns for the safety of ERO personnel when responding to the site due to the increase in population and redistribution within the ten-mile Emergency Planning Zone (EPZ). When considering that two lane roads comprise the majority of highways within the EPZ, this has created increased traffic congestion and increased traffic control delays. Consequently, personnel that respond to the site have encountered more delays than when the plant was first licensed. Additional delays may occur in the future based on continued population growth.

The change will not involve the use of resources not previously considered in the Final Environmental Statement for Fermi 2. The proposed change will not significantly increase the probability or consequences of accidents. No changes are being made in the types or quantities of any radiological effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure.

Improvements have been made to equipment, procedures, and training since initial approval of the Fermi 2 Emergency Plan that have resulted in a significant increase in the on-shift capabilities and knowledge such there would be no degradation or loss of Emergency Plan function as a result of the proposed change. A functional analysis was also performed on the effect of the proposed change on the timeliness of performing major tasks for the major functional areas of RERP Plan. The analysis concluded that extension of staff augmentation times would not significantly affect the ability to perform the required tasks. Therefore, there are no significant radiological environmental impacts associated with the proposed change.

The proposed change does not affect non-radiological plant effluents and has no other environmental impact. There is no physical change to the plant or facilities. Therefore, there are no significant non-radiological impacts associated with the proposed action.

The environmental impacts of the Emergency Plan before and after the proposed change are similar. Based on the assessment presented above, the proposed change will not have a significant effect on the quality of the human environment.

9.0 Summary

In summary, Fermi 2 is requesting approval to revise augmentation times for Alert and higher emergency classifications, to 60 minutes and 90 minutes from the classification time for the two groups of emergency responders. These changes are requested to increase the pool of people eligible to be assigned to ERO positions, and to improve safety for responders driving from offsite locations. An increased number of ERO teams, as well as increased drive times resulting from changing demographics, have combined to diminish the pool of eligible people available to fill ERO positions. The requested increase in augmentation times will address these issues and result in a more effective emergency plan.

As indicated in Supplement 5 to NUREG-0798, Safety Evaluation Report related to the Operation of Fermi 2, NRC originally approved staffing augmentation times that included up to 60 minutes from an Alert (during off-hours) for the first group of responders, and 60 minutes from a Site Area Emergency for the second group. Therefore, the aspects of the proposed change are minimal. The capability of the on-shift staff to implement RERP Plan requirements for up to 60 minutes has previously been determined to be adequate as indicated by approval of revision 3A of the Plan. The 90 minute augmentation time for the EOF from the time an Alert is declared would provide additional EOF staff in most cases over the 60 minute augmentation from a Site Area Emergency. The only exception is for potential “fast-breaking” Site Area Emergency or General Emergency events.

The objective to achieve appropriate levels of staffing in a timely manner in response to any emergency is unchanged. The proposed change would still provide a timely response when staffing augmentation is required. The change would also provide flexibility in staffing the ERO and increased safety of ERO responders.

Advances in technology, training, and procedures since the plan was originally approved by NRC have contributed to an improved state of readiness that provides adequate emergency response even with extended facility activation times.

**ENCLOSURE 2
TO NRC-10-0001**

MARKED-UP EMERGENCY PLAN PAGES

Affected Pages:

RERP Plan Pages B-1, B-3, I-5

**FERMI 2 NRC DOCKET NO. 50-341
OPERATING LICENSE NO. NPF-43**

**PROPOSED LICENSE AMENDMENT TO REVISE THE FERMI 2
RADIOLOGICAL EMERGENCY RESPONSE PREPAREDNESS PLAN
PERSONNEL AUGMENTATION TIMES**

B. EMERGENCY RESPONSE ORGANIZATION

B.1 Nuclear Generation Organization

- B.1.1 **Normal Organization** - The Nuclear Generation Organization includes operating, technical and administrative support, engineering, and management personnel.

Figure B-1 is a chart showing the functional levels and detailing the plant and technical support organizations. The Nuclear Generation Organization is onsite during normal working hours Monday through Friday, excluding holidays. Plant Operations, Radiation Protection, Chemistry, and Security personnel are onsite on a 24-hour basis including holidays. The minimum shift complement is specified in Technical Specifications Section 5.2.2.

- B.1.2 **Emergency Response Organization** - In the event of an emergency at Fermi 2, the Emergency Response Organization is activated. The normal complement of shift personnel is augmented according to the emergency classification. The Nuclear Generation Organization provides the majority of the personnel required to staff the organization. Additional Detroit Edison personnel are called upon to provide specific expertise as required.

During an emergency, the Emergency Response Organization is located in the Control Room and the three Emergency Response Facilities (ERFs) described in Section H of this plan: Operational Support Center (OSC); Technical Support Center (TSC); and Emergency Operations Facility (EOF). It is Detroit Edison's intent to activate the ERFs based on the emergency classification. Figures B-2 through B-5 show the Emergency Response Organization in the Control Room, OSC, TSC and EOF.

The Emergency Response Organization is predefined by the Supervisor, RERP. Assignments to various positions are specified to provide timely, unambiguous staffing. Table B-1 shows the minimum staffing for the Fermi 2 Emergency Response Organization according to functional

area, ERF, and emergency classification. Table B-1 reflects Detroit Edison's intent to achieve the 30 60-minute and 60 90-minute augmentation times. indicated in Table B-1 of NUREG-0654/FEMA REP-1 and in Supplement 1 to NUREG-0737 as a desirable goal for staffing the ERFs.

It is the goal of Detroit Edison to augment Control Room staff by the Emergency Response Organization (Table B-1) in two groups of key personnel. The first group of key personnel

should be in their Emergency Response Facility within 30 60 minutes of an Alert being declared. However, there may be some conditions where up to 60 minutes may be required. The second group of key personnel should be in place within 60 90 minutes of being declared.

**TABLE B-1
STAFFING FOR FERMI 2
EMERGENCY RESPONSE ORGANIZATION**

Major Functional Area	Major Tasks	Locations	Emergency Response Organizational Title	On Shift	Alert (or higher) +30 60 min	Alert (or higher) +60 90 min
Plant Operations and Assessment of Operational Aspects	Plant Operations and Assessment, Accident Mitigation, Corrective Actions, Damage Assessment	CR	Control Room Supervisor	1		
		CR	Nuclear Supervising Operator	3		
		CR	Non-Licensed Operator	5		
Emergency Direction and Control		CR	Emergency Director	1		
		TSC	Emergency Director		1	
Notification/Communication	Notify ERO, State, Local and Federal Authorities, Maintain Communications	CR	Communicator	1*		
		TSC	Communicator		1	
		EOF	Communicator			2
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Officer	EOF	Emergency Officer			1
	Offsite Dose Assessment	CR/OSC	Chemistry Technician	1*		
		TSC	Radiation Protection Advisor		1	
		EOF	Radiation Protection Coordinator			1
	Offsite Surveys	OSC/EOF	RET Sampler or RP Technician		2	2
	Onsite (out of plant) Surveys	OSC	RET Sampler or RP Technician		1	1
	In plant Surveys	OSC	RP Technicians	2	1	1
Chemistry/Radiochemistry	OSC	Chemistry Technician	1			
Plant System Engineering, Repair and Corrective Actions	Technical Support	CR	Shift Technical Advisor	1		
		TSC	Technical Engineer or Nuclear Safety Advisor		1	+
		TSC	Support Engineer		1	+
		OSC	OSC Coordinator		1	
	Repair and Corrective Actions	OSC	Damage Control and Rescue Team Members	2	2	3
OSC						
Protective Actions (In Plant)	Radiation Protection: 1. Access Control 2. HP coverage for repair, corrective actions, search and rescue, first-aid and fire-fighting 3. Personnel monitoring 4. Dosimetry	OSC	RP Technicians	2*	2	2
Fire Fighting		OSC	Fire Brigade	UFSAR		
Rescue Operations and First Aid		OSC	Damage Control and Rescue Teams	2*		
Site Access Control and Personnel Accountability	Security and Personnel Accountability	Per Security Plan	Nuclear Security Force	Per Security Plan		
			Total	16	12-14	15-13

* May be provided by shift personnel assigned other functions and not included in the total.

c. User Input of the Nuclide Mix

If knowledge of the radionuclide mix and release rates is available from post-accident sample analyses or any other source, it can be entered manually by the user.

2. Modes of Operation

Raddose-V has the capability to operate in an automatic or manual mode. In automatic mode, once the user selects an accident type and source type, current meteorological and radiation monitoring data is automatically obtained from the IPCS. If data is not available from IPCS, the user can enter data manually. Further, Raddose-V has the capability to calculate dose and dose rates based on several other data options. They are:

Back Calculation Using Field Dose Rates
Isotopic Sample Analyses
Direct Entry (of release rates)
Monitor Override (worse case Design Base Analyses)

I.3.2 **Liquid Releases** - The primary method for determining doses from the liquid pathway involves the analysis of a sample for isotopic content and a calculation using the Offsite Dose Calculation Manual (ODCM).

I.3.3 **Long Term Dose Assessment** - For long term analysis, field monitoring data can be used to calculate the dose to the population.

I.4 Field Monitoring

The Radiological Emergency Teams (RETs) perform field monitoring within the plume exposure pathway. These teams are trained to conduct field surveys, obtain air samples, and collect environmental samples. At the onset of an emergency with potential for actual radiological releases in excess of ODCM limits, RET members can be dispatched to field positions. Each team is provided with air-sampling equipment, personnel dosimetry, radiological survey instruments, procedures, and radios (see Section H). From two to four team members are available and can be dispatched within 30 60 and 60 90 minutes respectively of an alert or higher emergency declaration.

The RETs are deployed in a manner that provides preliminary estimates of plume location and exposure rates. Established sampling and monitoring locations, based on prevailing wind directions, may be utilized. The information collected is forwarded to the TSC or EOF when activated. When activated, the EOF assumes responsibility for the direction of environmental assessment activities. The EOF laboratory may be used for the receipt and qualitative analysis of all environmental sample media.

If necessary, supplemental teams trained in field survey and monitoring techniques can be called out or may be requested through the mutual assistance agreements. They are also equipped with appropriate monitoring and sampling equipment. When the EOF is functional, the Radiation Protection Coordinator directs the activities of the offsite RETs. Data from the supplemental field monitoring team(s) is reported to the EOF.

**ENCLOSURE 3
TO NRC-10-0001**

EMERGENCY PLAN REVISION COMPARISON

**FERMI 2 NRC DOCKET NO. 50-341
OPERATING LICENSE NO. NPF-43**

**PROPOSED LICENSE AMENDMENT TO REVISE THE FERMI 2
RADIOLOGICAL EMERGENCY RESPONSE PREPAREDNESS PLAN
PERSONNEL AUGMENTATION TIMES**

EMERGENCY PLAN REVISION COMPARISON

The following tables can be used to compare the staffing requirements from the guidance of NUREG-0654 Revision 1, Table B-1, the staffing requirements from the last NRC-approved Fermi 2 RERP Plan - Revision 3A, the current Fermi 2 RERP Plan - Revision 38, and the proposed revision to the staffing levels and augmentation times.

List of Acronyms:

DCRT – Damage Control and Rescue Team
RPA – Radiation Protection Advisor
GMJ – General Maintenance Journeyman
SNE – Station Nuclear Engineer
I & C – Instrument and Controls
STA – Shift Technical Advisor
HP – Health Physics
NO – Nuclear Operator
NSA – Nuclear Safety Advisor
RET – Radiological Emergency Team
RP – Radiation Protection
OSC – Operational Support Center

TABLE 1 - On-shift Staffing		NUREG-0654 Revision 1	RERP Plan Rev. 3A	RERP Plan Rev. 38	Proposed Levels
Plant Operations and Assessment of Operational Aspects	Nuclear Assistant Shift Supervisor/ Control Room Supervisor	1	1*	1	1
	Nuclear Supervising Operators	2	2*	3	3
	Non-licensed Operators/ Nuclear Operators	2	4*	5	5
Emergency Direction and Control	Emergency Director/ Nuclear Shift Supervisor/Shift Manager	1	1	1	1
Notifications/Communications	Communicator	1	1*	1*	1*
Dose Assessment	Chemistry Technician	0	0	1*	1*
Onsite and In-Plant Surveys	HP/RP Technicians/RET Samplers	1	1*	2	2
Radiochemistry	Chemistry Technician	1	1* (Radwaste Operator)	1	1
Technical Support and Analysis	STA	1	1*	1	1
Repair and Corrective Actions	DCRT Members - NOs, - GMJ (Mechanical or Electrical), or - I & C Technicians	2*	2*	2	2
Protective Actions/Radiation Protection (in-plant)	RP Technicians	2*	0	2*	2*
Rescue and First Aid	DCRT Members	2*	2*	2*	2*
Total		10	11**	16	16

*may be provided by shift personnel assigned other functions and are not included in the total.

**Revision 3A states that the minimum on-shift staffing is 11. NOTE: No on-shift personnel are designated for offsite surveys.

Fire Fighting is provided by the on-shift Fire Brigade as described in the UFSAR.

TABLE 2 - First Level of Augmentation/Additional Staffing

		NUREG-0654 Revision 1 30 Min.	RERP Plan Rev. 3A 30 Min.	RERP Plan Rev. 38 30 Min.	RERP Plan Proposed 60 Min.
Emergency Direction and Control	Emergency Director	0	0	1	1
Notifications/Communications	Communicator	1	1	1	1
Dose Assessment	RPA	1 (Senior RP)	0	1	1
Offsite Surveys	RET Samplers/RP Technicians	2	2	2	2
Onsite and In-Plant Surveys	RET Samplers/RP Technicians	2	2	2	2
Radiochemistry	Chemistry Technicians	0	0	0	0
Technical Support and Analysis	Core Thermal Hydraulic/Reactor Eng.	1	1	0	0
Technical Support and Analysis	Technical Engineer or NSA	0	0	0	1
	Engineer	0	0	0	1
Repair and Corrective Actions	DCRT members	2	2	2	2
	OSC Coordinator		1	1	1
Protective Actions/Radiation Protection (in-plant)	RP Technicians	2	2	2	2
Total		11	11	12	14

Note: There are no additional personnel identified to respond for “Plant Operations and Assessment of Operational Aspects.”

Note: Local support provides for Rescue Operations and First Aid at this level of augmentation.

TABLE 3 – Second Level of Augmentation/Additional Staffing		NUREG-0654 Revision 1 60 Min.	RERP Plan Rev. 3A 60 Min.	RERP Plan Rev. 38 60 Min.	Proposed 90 Min.
Emergency Officer		1	1	1	1
Notifications/Communications	Communicator	2	2	2	2
Dose Assessment	RPA/Senior HP Personnel	0	1	1	1
Offsite Surveys	RET Samplers	2	2	2	2
Onsite and In-Plant Surveys	RP Technicians	2	3	2	2
Radiochemistry	Chemistry Technician	1	0	0	0
Technical Support and Analysis	Technical Eng./NSA Support Engineer	0	1	1	0
		2	2	1	0
Repair and Corrective Action	DCRT Members	3	3	3	3
Protective Actions/Radiation Protection (in-plant)	RP Technicians	2	0	2	2
Total		15	15	15	13

Note: There are no additional personnel identified to respond for “Plant Operations and Assessment of Operational Aspects.”

Note: Local support provides for Rescue Operations and First Aid at this level of augmentation.