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Nuclear
Operations

January 31, 1991
NRC-91-0015

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, "Response to Diagnostic Evaluation Team Report," NRC-89-0004, dated January 17, 1989
 - 3) Detroit Edison letter to NRC, "Revision of Milestone Date for Improvement of Simulator Fidelity," NRC-89-0079, dated March 23, 1989
 - 4) Detroit Edison letter to NRC, "Update of Simulator Upgrade Project Schedule," NRC-90-0186, dated December 28, 1990

Subject: Exemption Request Regarding Simulator Certification Schedule Requirements of 10 CFR 55.45

The purpose of this letter is to request an exemption from the requirements of 10 CFR 55.45, paragraphs (b)(2)(iii) and (b)(2)(iv). These paragraphs provide a schedule for facility licensees to implement the requirements for a plant referenced simulation facility. These requirements were promulgated in the Code of Federal Regulations in a revision to 10 CFR 55, "Operator Licenses," which became effective May 26, 1987.

Paragraph (b)(2)(iii) requires licensees to submit not later than 46 months after the effective date of the rule (March 26, 1991) a certification for use of the simulation facility to the NRC on Form NRC-474, "Simulation Facility Certification." Detroit Edison is requesting a one time exemption from the requirement of this regulation to allow us to submit the simulation certification to the NRC by September 30, 1991.

The one time exception would provide an additional 6 months to complete the simulator upgrade project Detroit Edison undertook to comply with the provisions of the revised 10 CFR 55 rule.

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Paragraph (b)(2)(iv) requires licensees to administer the facility portion of an operating test on a certified simulation facility after May 26, 1991. Currently, the NRC is scheduled to administer operator license examinations at Fermi in August and December 1991. Because the simulator will not be certified until September 30, 1991, Detroit Edison cannot comply with this provision of the rule for the August 1991 operator examination and requests a one time exemption from the regulation. We intend instead to have the August 1991 examination administered on the existing simulation facility. The December 1991 examination would be able to use the certified simulation facility, however. It should be noted that although it will not be certified, the existing simulator is essentially a plant referenced simulator, which has been used for operator training since 1984.

Generic Letter 90-08, "Simulation Facility Exemptions" was reviewed for guidance and to determine specific requirements in preparing this exemption request. As noted in the Generic Letter, the provisions the NRC specifies for granting an exemption are addressed in 10 CFR 50.12, "Specific Exemptions." Paragraph (a)(2)(v) of this rule allows the NRC to grant an exemption if the exemption would provide only temporary relief from the regulation and the licensee has made good faith efforts to comply with the regulation. The first part of this provision is met on the basis that the exemption request is only a temporary relief from the regulation since Detroit Edison intends to submit the certification Form NRC-474 by September 30, 1991. Additionally, once the certification has been submitted, operator tests would be performed on only the certified simulation facility. In regard to the second part of this provision, Detroit Edison believes that it has made good faith efforts to comply with the regulation. As noted above, Detroit Edison undertook a major project to upgrade the existing Fermi 2 simulator to meet the new requirements of 10 CFR 55.

The simulator upgrade project consists of using the existing simulator control room panels and adding new computer hardware and software to drive the simulation, and a new instructor's station. All new control/logic models and dynamic process models for the plant systems that are simulated had to be developed as part of the upgrade project. Combustion Engineering (later purchased by ABB) was awarded the contract to provide the computer hardware and software, the instructor's station, and the dynamic process models. The control/logic models were developed by Detroit Edison. ABB is also responsible for integrating the dynamic process and control/logic models on the simulator computer.

In its January 1989 response to an NRC Diagnostic Evaluation Team report (Reference 2), Detroit Edison took the opportunity to discuss some of the more important elements of the simulator upgrade project and to provide a schedule of the major milestones associated with the project.

The first milestone was to issue the procurement specification for the upgrade project. A procurement specification was written and sent to perspective bidders in December 1988, and contract award was scheduled to occur by March 1989. Seven vendors submitted proposals. Because of the number and diversity of the proposals received, the evaluation and selection of a vendor exceeded the time allocated and final awarding of a contract was not made until mid-June 1989 with CE acceptance of the contract occurring on June 30, 1989. The NRC was informed of this milestone change in Reference 3. At that time, Detroit Edison did not consider the delay in selecting a vendor a major setback in achieving certification. The schedule showed the project could be completed on time. A dedicated group of 15 people was established to perform the onsite work, including project management, control/logic modeling, and certification documentation preparation.

After the contract was awarded, the next significant milestones identified in Reference 2 occurred in 1990. These involved completing the development of the dynamic process models and the control/logic models, and hardware and software integration. The dynamic process and control/logic model development milestones were completed on time in September 1990. Hardware and software integration (or model merge) is the process of loading the dynamic process and control/logic models onto the simulator computer. The process began in October 1990 per the original schedule and was to be completed in December 1990. It was during this time several technical problems emerged that affected the schedule. When the resolution of the technical problems was not forthcoming, an in-depth review of the project was done. The results of this review indicated that the final project milestones of simulator performance testing and certification would not be completed in time to support submittal of simulator certification to the NRC by the March 26, 1991 deadline. A letter informing the NRC of this fact was sent in December 1990 (Reference 4). A detailed review of remaining work scope including determination of a high confidence schedule, has since been completed.

The revised project schedule indicates that simulator model merge will be completed by March 15, 1991 and that simulator certification testing will be completed by August 22, 1991. The schedule allows about 4 weeks after certification testing to compile and finalize documentation, and to prepare and submit simulator certification. The use of the simulator for licensed operator training and other training programs has also been factored into the revised schedule.

The resolution of the technical problems identified in late 1990 has not been completed but has been factored into the revised schedule. One technical problem involves the inability to achieve steady state full power conditions on the simulator. ABB has been evaluating this problem and believes it may be rooted in the parameters used for the dynamic process model calculations for the steam cycle systems. Once

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this was recognized as the most likely cause of the problem, it was necessary for ABB to update the dynamic process models for the steam cycle systems. This effort is underway. Achievement of the full power steady state milestone is now expected in February, 3 months later than originally scheduled.

Another problem involves the response time of some of the panel input/output devices. For example, when the control switch for a pump is turned on there is a status light on the switch that changes from green to red to indicate the pump is running. There is a small but perceptible delay in the change from the green to red light on the simulator. The delay is noticeably longer than what occurs in the plant and needs to be corrected.

The resolution of these and other technical problems is delaying completion of the project beyond the March 26, 1991 certification date, resulting in the need for a temporary exemption.

Detroit Edison believes that granting of the exemption request will not present undue risk to the public health and safety and is consistent with the common defense and security. As outlined in the regulation, the primary purpose for the simulation facility is to provide a plant referenced simulator for administering the operating test to applicants for operator and senior operator licenses. Only the August 1991 examinations will be conducted on other than the certified simulator, all subsequent examinations will be performed on the certified simulator.

The existing simulation facility has been used for operator training since 1984. NRC Region III inspectors have conducted operating tests on the simulator during this same period and are aware of its capabilities. The operator requalification program, of which the existing simulator is an integral part, has been accredited by INPO since 1985.

Detroit Edison intends to continue to use the existing simulation facility for the operator requalification program until the upgraded simulator is available for training use. Because the operator requalification program is based on a "systems approach to training" as discussed in 10 CFR 55.59(c), it is Detroit Edison's understanding that use of the existing simulator during this period would continue to meet NRC requirements for the operator requalification program.

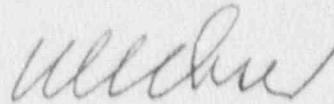
Detroit Edison requests approval of this exemption request prior to March 26, 1991. The Nuclear Regulatory Commission recognized in the supplementary information published along with the Final Rule that unique circumstances may arise on a plant specific basis that causes some deviation from the certification time established in the rule. Detroit Edison has made good faith efforts to comply with the rule, but due to the problems described in this letter cannot meet the

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certification date. Therefore, Detroit Edison requests a temporary exemption from 10 CFR 55.45, paragraphs (b)(2)(iii) and (b)(2)(iv) until September 30, 1991.

If you have any questions regarding this request or need additional information, please contact Mr. Lewis P. Bregni at (313) 586-4072.

Sincerely,



cc: A. B. Davis
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