

August 24, 1992

Docket No. 50-341

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Mr. William S. Orser
Senior Vice President - Nuclear
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Dear Mr. Orser:

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT -
POWER UPRATE AND INCREASE IN RELOAD FUEL ENRICHMENT - FERMI-2
(TAC NO. M82102)

Enclosed in a copy of an "Environmental Assessment and Finding of No
Significant Impact" for your information. This environmental assessment
relates to your application dated September 24, 1991 and modified January 31,
and April 30, 1992.

This environmental assessment is being forwarded to the Office of the Federal
Register for publication.

Sincerely,

Original Signed By:

Timothy G. Colburn, Sr. Project Manager
Project Directorate III-1
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Senior Vice President - Nuclear
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Sincerely,

A handwritten signature in cursive script that reads "Timothy G. Colburn".

Timothy G. Colburn, Sr. Project Manager
Project Directorate III-1
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
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Detroit Edison Company

Fermi-2 Facility

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UNITED STATES NUCLEAR REGULATORY COMMISSIONDETROIT EDISON COMPANYFERMI-2DOCKET NO. 50-341ENVIRONMENTAL ASSESSMENT AND FINDING OFNO SIGNIFICANT IMPACT

The U. S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-43 issued to the Detroit Edison Company (DECo or the licensee) for operation of the Fermi-2 facility, located in Monroe County, Michigan.

ENVIRONMENTAL ASSESSMENTIdentification of Proposed Action:

This Environmental Assessment is written in connection with the proposed core power level increase for the Fermi-2 facility in response to the licensee's application for a license amendment dated September 24, 1991 as modified January 31, and April 30, 1992. The proposed action would increase the rated core power level for Fermi-2 from the current level of 3293 megawatts thermal (Mwt) to 3430 Mwt. The Nuclear Steam Supply System (NSSS) power level would be increased accordingly. This represents an authorized power level increase of approximately 4.2 percent. This will require resetting of the safety relief valve setpoints to accommodate the slight operating pressure increase (less than 40 psi). Operating temperature will also increase slightly (less than 5°F). The result of these changes will be an approximate 5 percent increase in NSSS power level. Plant instrumentation

will be recalibrated to reflect the uprated power and core reload design will be modified to maintain the current 18-month reload cycle. This will include the use of higher enrichment fuel with extended burnup over that currently used. The licensee is planning to use fuel enrichments up to 4.8 weight percent U-235 and burnup to 49,100 megawatt days per metric ton uranium (MWD/MTU). The licensee will implement these changes during the third refueling outage currently scheduled to begin September 12, 1992.

Additionally, at the recommendation of their NSSS vendor, the licensee is restoring a Reactor Core Isolation Cooling (RCIC) bypass line which had been previously removed. No changes will be made to the basic fuel design and fuel operating limits such as maximum average planar linear heat generation rate (MAPLHGR) or minimum critical power ratio (MCPR) will still be met at uprated power.

These changes will be achieved by increasing core flow along existing flow control lines of the power/flow map thereby slightly increasing reactor vessel dome pressure. However, there will not be an increase in the maximum recirculation flow limit over the pre-uprate value.

The Need for the Proposed Action:

The action would increase the thermal output by 138 megawatts thermal (MWt) which corresponds to approximately 44 megawatts electric (MWe). This would provide additional power to the grid which supplies the licensee's service area. The changes in higher fuel enrichment and extended burnup are necessary in order to maintain the current 18-month operating cycle.

Environmental Impacts of the Proposed Action:

The effect of power uprate on radiological effluent or offsite doses, as evaluated in the Environmental Report, Operating Licensing Stages (ER/OL) and the NRC Final Environmental Statement (FES), is not significant. The original analyses were based on 104.2% (3430 MWt) of the licensed power (3293 MWt). The analyses for power uprate were performed at 102% of uprated power, resulting in a calculated increase of approximately 2% in effluents and doses, still well within 10 CFR Part 50, Appendix I, limits.

A slight increase in occupational radiation exposures may occur due to the slight increase in radiation levels in some areas of the plant, primarily due to increased activation products. The licensee used conservative assumptions; the design radiation source increase is proportional to the increase in power. Even with this assumption, neither individual nor cumulative occupational radiation exposure will be significantly increased. The expected increase would not be more than four to five percent of the current occupational exposure.

The non-radiological environmental impacts of the proposed power uprate were reviewed based on the information submitted in the ER/OL, the FES, and the requirements of the Environmental Protection Plan (EPP), Section 3.0 (Appendix B to the Operating License). Based on this review, it was concluded that the proposed uprate will not have significant impacts on the non-radiological effluent or releases and the plant will be operated in a manner as established by the FES. Existing Federal, State, and local regulatory permits presently in effect will not need to be modified as a result of power uprate.

There will not be any significant change in the types or amounts of any effluents that may be released offsite as a result of power uprate which have not already been evaluated in the FES or any significant increase in individual or cumulative occupational radiation exposure.

The Commission has completed its evaluation of the use of higher enriched fuel and extended burnup which would be necessary to support the proposed action.

The environmental consideration associated with reactor operation with higher enrichment and extended irradiation have been previously evaluated by the NRC staff for enrichment, up to 5.0 weight percent U-235 and burnup of up to 60,000 MWD/MTU (53 FR 60340 dated February 29, 1988).

The staff has concluded that such changes would not adversely affect plant safety. The proposed changes have no adverse effect on the probability of any accident. The higher enrichment, with fuel burnup to 60,000 MWD/MTU, may slightly change the mix of fission products that might be released in the event of a serious accident, but such changes would not significantly affect the consequences of serious accidents. No changes are being made in the types or amounts of any radiological effluent that may be release offsite. There is no significant increase in the allowable individual or cumulative occupational radiation exposure.

With regard to potential non-radiological impacts of reactor operations with higher enrichment and extended irradiation, the proposed changes to the Technical Specifications (TS) involve systems located within the restricted area are defined in 10 CFR Part 20. They do not affect non-radiological plant effluents and have no environmental impact.

The environmental impacts of transportation resulting from the use of higher enrichment fuel and extended irradiation were published and discussed in the staff assessment entitled, "NRC Assessment of the Environmental Effects of Transportation Resulting from Extended Fuel Enrichment and Irradiation," dated July 7, 1988, and published in the Federal Register on August 11, 1988 (FR 53 303555) as corrected August 24, 1988 (53 FR 32322), in connection with the Shearon Harris Nuclear Power Plant, Unit 1, Environmental Assessment and Finding of No Significant Impact. As indicated therein, the environmental cost contribution of the proposed increase in the fuel enrichment and irradiation limits are either unchanged or may, in fact, be reduced from those summarized in Table S-4 as set forth in 10 CFR 51.52(c). These findings are applicable to the proposed change for Fermi-2.

Therefore, the Commission concludes that there is no significant radiological or non-radiological environmental impacts associated with the proposed amendment.

Alternative to the Proposed Action:

Since the Commission concluded that there are no significant environmental effects that would result from the proposed action, any other alternatives would have equal or greater environmental impacts and need not be evaluated.

The principal alternative would be to deny the requested amendments. This would not reduce the environmental impacts of plant operations and would result in reduced operational flexibility.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the Final Environmental Statement dated July 1972 related to operation of the Fermi-2 facility.

Agencies and Persons Consulted:

The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

FINDING OF NO SIGNIFICANT IMPACT

Accordingly, the Commission has determined not to prepared an environmental impact statement for the proposed license amendment.

Based upon the foregoing environmental assessment, we conclude that the proposed action will not have a significant effect on the quality of the human environment.

For further details with request to this action, see the application for amendment dated September 24, 1991 as modified January 31 and April 30, 1992, which is available for public inspection at the Commission's Public Document Room, 2120 L Street, N.W., Washington, D.C. and at the Monroe County Public Library, 3700 South Custer Road, Monroe, Michigan 48166.

Dated at Rockville, Maryland, this 24th day of August 1992.

FOR THE NUCLEAR REGULATORY COMMISSION



Ledyard B. Marsh, Director
Project Directorate III-1
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation