

# FERMI 2 CHEMISTRY



1992 Annual Non-Radiological  
Environmental Operating Report

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Detroit  
Edison

(In accordance with Appendix B to Facility Operating License No. NPF-43)

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## REPORT

In 1992, Fermi 2 generated power for over 284 effective full power days and had an overall capacity factor of 79 percent.

The Environmental Protection Plan (EPP) provides for protection of environmental values during any additional construction and the operation of Fermi 2. The principal objectives of the EPP are as follows:

1. Verify that Fermi 2 is operated in an environmentally acceptable manner, as established by the Final Environmental Statement (FES) and environmental impact assessments.
2. Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.
3. Keep the NRC informed of the environmental effects of facility construction and operation and of actions taken to control those effects.

Environmental concerns identified in the FES which relate to water quality matters are regulated by way of Fermi's National Pollutant Discharge Elimination System (NPDES) permit. As such, water quality issues are not required to be addressed in this report.

The components of the EPP are:

1. A terrestrial monitoring program to detect long-term or sudden changes in vegetation due to operation of Fermi 2.
2. A program to establish the controlled use of herbicides on transmission rights-of-way.
3. A program to ensure that changes to Fermi's design or operation and potential tests or experiments are adequately reviewed prior to implementation to avoid adverse environmental impacts not previously evaluated. Changes in plant design, operation or the performance of tests or experiments which do not effect the environment or which are required to achieve compliance with other Federal, State or local environmental regulations, are not subject to the requirements of this EPP.
4. Routine monitoring for evidence of unusual or important environmental events.

The following describes the EPP descriptions and the current status of the programs.

### **TERRESTRIAL MONITORING**

Following startup of the Fermi 2 facility, a terrestrial monitoring program was conducted per the EPP to measure key terrestrial parameters for comparison with corresponding measurements obtained prior to startup. This study focuses on effects due to the operation of the cooling towers at Fermi 2. The EPP also requires aerial remote sensing during the first July-September period after the station has been in operation for one year. Because this type of study focuses on effects caused by the operation of the cooling towers at the Fermi 2 site, Detroit Edison's first post-operational survey was performed during the July-September 1987 period. Three of four required followup surveys were performed in 1988, 1990 and 1992. The last followup survey is required to be performed in 1994. The following discusses the results of the 1992 study.

Color infrared aerial photographs were used to delineate cover types, vegetation stress patterns, and crop land use in the 39 square-mile Fermi 2 survey area. Soil samples were collected and analyzed from areas expected to receive a wide range of cooling tower salt drift deposition on soils. These analyses provided the fourth opportunity since the plant began operation to evaluate vegetation stress that could be attributable to plant operation. In 1992, the signs of vegetation stress were distributed in such a way as to suggest no correlation with the predicted pattern of solid deposition from the cooling towers as described in the Environmental Report-Operating License Stage, Section 5.1.4.2.6. This would suggest that other explanations (i.e. localized soil water logging) appear to be more probable. Soil analyses varied little for 1992 data. No correlation between pH and conductivity values and their respective zones of deposition could be found. The pH and conductivity of the samples continue to be consistent with fertility and low ionic stress. Again, no correlation of the 1992 values with deposition zones could be found.

A copy of the 1992 REMOTE SENSING AND VEGETATION GROUND TRUTH PROGRAM report and a set of aerial photograph transparencies covering the area within a 2.5 kilometer radius around the Fermi 2 cooling towers are enclosed (Appendix 1).

#### **HERBICIDE CONTROL**

The use of herbicides at Fermi 2 must conform to the approved use of selected herbicides as registered by the Environmental Protection Agency, approved by State authorities, and applied in accordance with State requirements. Records are maintained at the site concerning herbicide use. These records include the following information: commercial and chemical names of material used; concentration of active material in formulations diluted for field use; diluting substances other than water; rates of application; method and frequency of application; location; and the date of application.

#### **DESIGN OR OPERATIONS CHANGES IMPACTING ENVIRONMENT**

Before engaging in additional construction or operational activities which might affect the environment, Fermi 2 would prepare and record an environmental evaluation of such activity. If the evaluation should indicate that the proposed activity would involve an unreviewed environmental question, Detroit Edison would provide a written evaluation of the activity and obtain prior approval from the Director, Office of Nuclear Reactor Regulation. Activities are excluded from this requirement if all measurable, non-radiological effects are confined to the on-site areas previously disturbed during site preparation and plant construction. During the period covered by this report, Fermi 2 received approval to implement the power uprate modification. An environmental impact assessment was performed and found no significant unreviewed environmental issues.

#### UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS

Any unusual occurrence or important event which indicates, or could result in, significant environmental impact causally related to plant operation is reported to the the NRC within 24 hours followed by a written report. The following are considered examples of unusual or important environmental events: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act, fish kills, and an increase in nuisance organisms or conditions.

No unusual or important environmental events occurred during the reporting period. Accordingly, no non-routine reports were submitted, however, fouling of raw water cooling systems by Zebra mussels continues to be an important industry concern. Monitoring and treatment of raw water cooling systems for Corbicula (Asiatic clams) and Zebra mussels continued in 1992. To eliminate the potential for Zebra mussel fouling, Fermi completed the installation of a continuous biocide injection system for General Service Water (GSW), which feeds the Fire Protection Systems. Fermi continues to monitor the effectiveness of the biocide treatment, and makes treatment adjustments as necessary.



Truth Program Final Report



Appendix 1

1992 Remote Sensing and Vegetation Ground Truth Program Final Report