Fermi 2
6400 North Dixie Hwy., Newport, MI 48166

Detroit Edison

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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Reference: Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Annual Non-Radiological Environmental Operating Report

Pursuant to Section 5.4.1 of the Environmental Protection Plan, enclosed is the 2000 Annual Non-Radiological Environmental Operating Report for Fermi 2.

Should you have any questions regarding this report, please contact Lynda Craine, General Supervisor, Environmental Health, at (734) 586-4970.

Sincerely,

Norman K. Peterson
Director – Nuclear Licensing

Enclosure

cc: M. A. Ring
M. A. Shuaibi
NRC Resident Office
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Michigan Public Service Commission

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2000 Annual Nonradiological Environmental Operating Report

Detroit Edison - Fermi 2
6400 North Dixie Highway
Newport, MI 48166

Reporting Period:

January 1, 2000 to December 31, 2000

Prepared by:

Fermi 2
Environmental Health

2000 ANNUAL NONRADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

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2000 ANNUAL NONRADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

1.0 EXECUTIVE SUMMARY

The following is a brief summary of the 2000 Annual Nonradiological Environmental Report for the Detroit Edison Enrico Fermi Unit 2 Power Plant (Fermi 2):

- No terrestrial monitoring activities were conducted, or required. Based on the findings of the terrestrial monitoring program, which was concluded in 1994, no further aerial-photographic evaluations are planned.

- Five herbicides were approved and four were utilized on site. All herbicide applications were recorded and maintained, as required by the Environmental Protection Plan (EPP).

- The site was issued a new National Pollution Discharge Elimination System (NPDES) Permit in 2000. The permit became effective on December 1, 2000. The previous permit expired in October of 1999, however, per State regulations, the site operated under the old permit until the new permit became effective. The NRC was notified of the new permit within 30 days of its issuance.

- An NPDES noncompliance occurred when total residual oxidant levels from the circulating water pond exceeded permitted discharge levels at outfall 001. This resulted when the tank level indicators for the dehalogenation tanks decreased below the span of the level indicators. Chemistry personnel are now required to monitor this system daily to prevent a recurrence.

- An NPDES noncompliance occurred when treated cooling water from the south cooling tower leaked into the overflow canal. The release was the result of degraded concrete located on the top of the south access door of the cooling tower. A temporary repair to the cooling tower was completed two days after the incident. Preventative maintenance is scheduled on both cooling towers. Environmental Health modified its procedures to evaluate nonreportable spills for the potential to degrade to a reportable event and also added additional staff.

- During the period covered by this report, there were no changes to station design that created an unreviewed environmental question, per the requirements and definitions of the EPP.

- No unusual or important environmental events, as defined by the EPP, occurred. Accordingly, no nonroutine reports were submitted.

2000 ANNUAL NONRADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

2.0 INTRODUCTION

2.1 Purpose

The purpose of this report is to provide the Nuclear Regulatory Commission (NRC), site personnel, and the public with information regarding the implementation of the Nonradiological Environmental Protection Program at the Detroit Edison Enrico Fermi Unit 2 Power Plant (Fermi 2). This report is due prior to May 1 of each year and meets the requirements specified in section 5.4.1 of the Fermi 2 Nonradiological Environmental Protection Plan (EPP), which is included in Appendix B of Facility Operating License No. NPF-43.

2.2 Environmental Protection Plan Overview

As part of the application for the nuclear power plant construction permit and operating license, extensive environmental studies were conducted to evaluate potential nonradiological environmental risks that could result from the construction and operation of Fermi 2. In August 1981, the NRC published the Final Environmental Statement (FES) for the operation of Fermi 2. The FES was developed pursuant to the guidelines of the National Environmental Policy Act of 1969 (NEPA) and Title 10 of the Code of Federal Regulations (CFR), Part 51.

The EPP was prepared, based on the potential environmental risks and monitoring requirements identified in the FES. The purpose of the EPP is to provide for the protection of environmental values during any additional construction and the continued operation of Fermi 2. The principle objectives of the EPP are as follows:

1. Verify that Fermi 2 is operated in an environmentally acceptable manner, as established by the 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.

The components of the EPP are as follows:

1. A terrestrial monitoring program to detect long-term or sudden changes in vegetation that may be attributable to the dispersion of Fermi 2 cooling tower vapor. The terrestrial monitoring program was completed in 1994, after 4 successive monitoring cycles were completed, as required.

2. A program to establish the controlled use of herbicides.

3. A program to ensure that changes to Fermi 2'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, tests or experiments which do not affect 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.

5. Any changes, renewals or stayed appeals to the Fermi 2 National Pollution Discharge Elimination System (NPDES) permit, or the State certification, must be reported to the NRC within 30 days.

2.3 Annual Report Objectives

According to Section 5.4.1 of the EPP, the required objectives of the Annual Report are as follows:

- Provide summaries and analyses of the results of environmental protection activities conducted in the following areas: unusual or important environmental events; and terrestrial monitoring, which includes aerial remote sensing and herbicide applications. Where applicable, the report should compare these activities to pre-operational studies, operational controls, observed environmental impacts, and previous nonradiological environmental monitoring reports. If harmful effects or evidence of trends towards irreversible damage to the environment are identified, provide detailed data analysis and a proposed course of action to correct the problem.

- Describe any changes to Fermi 2's design, operation, tests or experiments that were implemented without adequate review that adversely impacted, or could have adversely impacted, the environment, in accordance with Section 3.1 of the EPP.

- Describe any noncompliance with the EPP and the corrective actions taken to correct the situation.

- Describe any nonroutine reports submitted to the NRC as the result of an unusual or important environmental event, in accordance with Section 5.4.2 of the EPP.

2.4 Site Description

Fermi 2 operates a 1,217 megawatt (gross) General Electric Boiling Water Reactor 4 Nuclear Power Plant. The Fermi 2 power block is situated in the northeast quarter of a 1,120-acre site that is located approximately 8 miles east-northeast of Monroe, Michigan and 20 miles southwest of Detroit, Michigan. The site is fenced with locked or guarded gates.

Also on site is the Enrico Fermi 1 Power Plant (Fermi 1). Fermi 1 was an experimental fast breeder reactor that is presently in a SAFSTOR condition and is currently undergoing decommissioning. Subsequent to shut down, an oil-fired boiler was constructed. Operation of this boiler ceased in 1980 and it was removed from site in 1999. The Fermi 1 general service water system is still in use.

Contiguous to the site are four oil-fired combustion turbine generators, which are periodically operated during periods of high electricity demand.

The site is bounded on the north by Swan Creek, on the east by Lake Erie, on the south by Pointe Aux Peaux Road, and on the west by a private road owned by Detroit Edison. The northern and southern areas of the site are dominated by large lagoons. The western side of the site is predominately covered by several wood lots and a series of small quarry lakes. Site elevation ranges from approximately 25 feet above lake level on the western edge of the site to lake level on the eastern edge.

3.0 TERRESTRIAL MONITORING

Overview

Section 4.2.1 of the Fermi 2 EPP requires that a special surveillance program be conducted to evaluate changes to vegetative communities within a 1 kilometer radius of the cooling towers. This program involves analysis of low altitude overflights prior to harvest utilizing color infrared photography, backed up by field reconnaissance inspections to verify areas of vegetative stress and nonstress along with soil sampling and analysis. The first flights and report were required after one year of plant operation and then every alternate year for 3 successive periods.

It should be noted that the above-described studies were not conducted to assess radiological impacts to the terrestrial environment, because discharge from the cooling towers is not radiologically active. The discharge consists of water vapor containing

naturally occurring dissolved-solids at slightly higher concentrations than typical for lake water.

Activities and Controls

The final required aerial photographic events were performed in 1994 and a final terrestrial monitoring report summarizing all collected data was completed in April 1995.

The report concluded the following:

- No long-term accumulation of dissolved-solid deposition was detected in any of the soil samples collected within the survey area.
- No vegetative stress associated with cooling-tower emission was observed in any of the survey reports.
- No correlation was observed between the distribution of stressed vegetation areas and the calculated deposition of dissolved solids and other materials contained within the vaporous cooling-tower discharge.
- The absence of observed impacts attributable to the cooling towers is consistent with findings in the scientific literature.

No terrestrial monitoring activities were conducted, or required, in 2000. Based on the findings and conclusions of the above-described study, no further aerial-photographic evaluations are planned.

4.0 HERBICIDE MONITORING

Overview

Section 4.2.2 of the Fermi 2 EPP requires that herbicide use meet the following conditions:

1. Herbicides used must be registered by the United States Environmental Protection Agency (EPA) and utilized in accordance with EPA-approved use instructions.
2. Herbicides used must be approved by State authorities and applied in accordance with state instructions.
3. Records of on-site herbicide use must be maintained for a period of 5 years and contain the following information: commercial and chemical names of herbicide 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; date of application.

Activities and Controls

Herbicide use on-site is managed according to Section 2.6 of the Chemistry and Environmental Monitoring Conduct Manual, Chapter 6 (MCE06). In accordance with this procedure, all herbicides used on site in 2000 were pre-approved per the Herbicide Application Request Form, which meets the requirements of items 1 and 2 listed above. Once a herbicide is approved, the registered pesticide applicator must fill out a Herbicide Application Record for each application which meets the criteria specified in item 3 listed above.

In 2000, five different herbicides were approved and four were utilized on-site. All herbicide applications were recorded and maintained, as required.

5.0 AQUATIC MONITORING

Overview

According to Section 2.1 of the EPP, the NRC will rely on the Michigan Department of Environmental Quality (MDEQ) for the protection of the aquatic environment from nonradiological operational impacts via the National Pollution Discharge Elimination System (NPDES) permit. NPDES permits are issued in accordance with provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq), Michigan Act 451, P.A. of 1994, as amended, Part 31, and Michigan Executive Orders 1991-31, 1995-4 and 1995-18.

Activities and Controls

Fermi 2's Chemistry Department closely monitors effluent characteristics per the NPDES requirements. Effluent discharge data are summarized in monthly Discharge Monitoring Reports, which are then submitted to the MDEQ.

New NPDES Permit Effective December 1, 2000

Application for re-issuance of the site's NPDES permit was submitted in March of 1999. The old permit expired in October of 1999, however, per State regulations, the site operated under the provisions of the old permit until the new permit became effective on December 1, 2000. The new permit was issued to the site on September 15, 2000 and the NRC was notified of the issuance of the new permit on October 12, 2000, as required by the EPP.

No Changes to NPDES Permit

No changes or stayed appeals to the Fermi 2 NPDES Permit occurred in 2000.

Two NPDES Noncompliances in 2000

Two NPDES noncompliances occurred in 2000. Details of these events are described below.

Cooling Water Spill to Overflow Canal

An overland treated cooling water spill occurred on March 15, 2000, from the south cooling tower to the overflow canal. The release was discovered at 1150 hours and was the result of degraded concrete located on the top of the south access door of the cooling tower. The release was estimated at approximately 5 gallons per minute.

Immediate corrective actions included stopping the flow of cooling water to the overflow canal by constructing temporary earthen dams, which were completed at approximately 1345 hours on March 15, 2000. An inspection by environmental health personnel at 0630 hours on March 16, 2000 confirmed that the earthen berms remained effective in isolating the overflow canal from the cooling tower water.

A temporary repair to the cooling tower was completed by site personnel on March 17, 2000, at approximately 1500 hours. Completion of the temporary repair was communicated to Matt Campbell of the MDEQ at 0855 hours on March 20, 2000.

Additional corrective actions included the following:

- Environmental procedure MCE06 and spill reporting form MCE06008 were modified to include instruction to evaluate if a nonreportable spill has the potential to degrade into a reportable event, and if so, to initiate actions to evaluate that potential.

- Radiation Protection Management evaluated the adequacy of resources available to the Environmental Health group and determined that additional staffing was required to improve implementation of the program. An additional permanent environmental engineer position was approved by Senior Management and filled in January 2001.

A list of needed upgrades to both north and south cooling towers was developed and the upgrades were approved for implementation in the upcoming refuel outage scheduled for October 2001. In addition, preventative maintenance events were created, which are to be preformed each refuel outage on both north and south cooling towers.

Total Residual Oxidant Discharge Limit Exceeded At Outfall 001

On April 4, 2000, at 2128 hours, it was observed that the tank level indicators for the circulating water dehalogenation tanks were below the span of the indicators with the circulating water (CW) decant system in service. A sample taken at the decant line (Outfall 001) for Total Residual Oxidant (TRO) was 0.11mg/l (ppm), which is above the daily maximum limit of 0.036 ppm for continuous discharge mode during chlorination. The CW decant line was shutdown and the state was notified as required. An investigation of the event was initiated, the dehalogenation tanks were refilled and the system was returned to service at 0430 hours on April 5, 2000. Another sample at Outfall 001 was taken, with an acceptable result of <0.03 ppm. Chemistry management has required that the dehalogenation tanks be checked daily to prevent a recurrence of this event. The dehalogenation system is not as reliable as desired, therefore, current plans are to replace the system in 2001.

6.0 EPP NONCOMPLIANCE

Overview

In accordance with Section 5.4.1 of the EPP, all occurrences of noncompliance with the EPP must be reported along with a discussion of actions taken to correct the situation.

Activities and Controls

There were two incidents of EPP noncompliance at Fermi 2 in 2000 that were associated with the site's NPDES permit. See section 5.0 for a description of these incidents and the corrective actions taken to prevent recurrence.

There were no other incidents of EPP noncompliance at Fermi 2 in 2000.

7.0 DESIGN OR OPERATION CHANGES

Overview

In accordance with the Fermi 2 EPP, before engaging in additional construction or operational activities, which might affect the environment, Fermi 2 is required to prepare and record an environmental evaluation of such activity. If the evaluation should indicate that the proposed activity involves an unreviewed environmental question, Detroit Edison must 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, nonradiological effects are confined to the on-site areas previously disturbed during site preparation and plant construction.

Activities and Controls

During the period covered by this report, there were no changes to station design or operational activities, which created an unreviewed environmental question, per the requirements of the EPP.

8.0 UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS

Overview

According to Section 4.1 of the EPP, any unusual occurrence or important event which indicates, or could result in, significant environmental impact causally related to plant operation must be reported to the NRC within 24 hours, followed by a written report within 30 days.

The following are considered examples of unusual or important environmental events:

- Excessive bird impacts
- On-site plant or animal disease outbreaks
- Mortality or unusual occurrence of any species protected by the Endangered Species Act
- Fish kills
- Increase in nuisance organisms or conditions

Activities and Controls

No unusual or important environmental events occurred during 2000. Accordingly, no nonroutine reports were submitted.

9.0 CONCLUSIONS

In 2000, the Environmental Health Program at Fermi 2 successfully maintained compliance with the EPP and all applicable environmental regulations, with the exception of two minor noncompliances associated with the site's NPDES permit. No significant environmental impacts occurred as a result of these events. Corrective actions have been taken to prevent recurrences of similar events.

In 2001, Fermi 2 and the Environmental Health Department will strive to continuously improve the Environmental Program, to proactively manage environmental issues, and to maintain compliance with the site's EPP and all applicable environmental regulations.