

DTE Energy Company
6400 North Dixie Highway
Newport, MI 48166



April 29, 2015
NRC-15-0054

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

Reference: Fermi 2
NRC Docket No. 50-341
NRC Operating License No. NPF-43

Subject: Annual Non-Radiological Environmental Operating Report

Pursuant to the Fermi 2 Operating License, Appendix B, "Environmental Protection Plan," Section 5.4.1, DTE Electric Company hereby submits the 2014 Annual Non-Radiological Environmental Operating Report for Fermi 2.

Should you have any questions or require additional information, please contact me at (734) 586-5076.

Sincerely,

A handwritten signature in dark ink, appearing to read "C. Robinson", written over the printed name.

for Christopher R. Robinson
Manager - Nuclear Licensing

cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 5, Region III
Regional Administrator, Region III
Michigan Public Service Commission
Regulated Energy Division (kindschl@michigan.gov)



2014 Annual Non-radiological Environmental Operating Report

DTE Electric Company - Fermi 2
6400 North Dixie Highway
Newport, MI 48166

Reporting Period:

January 1, 2014 to December 31, 2014

2014 ANNUAL NON-RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

TABLE OF CONTENTS

| Section Number | Page Number |
|--|------------------------|
| 1.0 EXECUTIVE SUMMARY | 2 |
| 2.0 INTRODUCTION | 3 |
| 2.1 Purpose | 3 |
| 2.2 Environmental Protection Plan Overview | 3 |
| 2.3 Annual Report Objectives | 4 |
| 2.4 Site Description | 5 |
| 3.0 TERRESTRIAL MONITORING | 5 |
| 4.0 HERBICIDE MONITORING | 6 |
| 5.0 AQUATIC MONITORING | 7 |
| 6.0 ENVIRONMENTAL PROTECTION PLAN NONCOMPLIANCES | 8 |
| 7.0 DESIGN OR OPERATION CHANGES | 9 |
| 8.0 UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS | 9 |
| 9.0 CONCLUSIONS | 10 |

2014 ANNUAL NON-RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

1.0 EXECUTIVE SUMMARY

The following is a brief summary of the 2014 Annual Non-Radiological Environmental Operating Report for the DTE Electric Company - Enrico Fermi Unit 2 Power Plant (Fermi 2):

- No terrestrial monitoring activities were conducted, or required to comply with the Fermi 2 Operating License. Terrestrial monitoring was conducted in 2008 to support the licensing of a new unit at the site and is detailed in the Combined Operating License Application (COLA) for Fermi 3 which was submitted to the NRC on September 18, 2008. Based on the findings of the terrestrial monitoring program, which was concluded in 1994, no further aerial-photographic evaluations are planned.
- ITC Transmission currently owns and operates the transmission infrastructure, including the corridor rights-of-way where herbicides are applied. ITC vegetation managers confirmed that they did not conduct any herbicide application in 2014 on the Wayne-Monroe or the Brownstown-Fermi transmission corridors.
- 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.
- One noncompliance with the Fermi 2 National Pollutant Discharge Elimination System (NPDES) Permit occurred in 2014. This non-compliance event is described in Section 5.0

2014 ANNUAL NON-RADIOLOGICAL 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 Non-Radiological Environmental Protection Program (EPP) at the DTE Electric Company - 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 Non-Radiological 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 non-radiological 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 the environment 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 within transmission rights-of-way.
3. A program to ensure that changes to Fermi 2 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 (includes aerial remote sensing and herbicide application). Where applicable, the report should compare these activities to pre-operational studies, operational controls, observed environmental impacts, and previous non-radiological environmental monitoring reports. Provide detailed data analysis and a proposed course of action if harmful effects or evidence of trends towards irreversible damage to the environment are identified.
- Describe any changes to the Fermi 2 design, operation, testing or experimentation 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 non-compliance with the EPP and the corrective actions taken to correct the non-compliances.
- Describe any non-routine 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 3,486 megawatt (gross) thermal General Electric Boiling Water Reactor 4 Nuclear Power Plant. The Fermi 2 power block is situated in the northeast quarter of a 1,260-acre site that is located approximately 6 miles east-northeast of Monroe, Michigan and 30 miles southwest of Detroit, Michigan. The site is fenced with locked or guarded gates.

The Enrico Fermi 1 Power Plant (Fermi 1) is on the site as well. Fermi 1 was an experimental fast breeder reactor that is presently in a SAFSTOR condition. 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.

Contiguous to the site are four oil-fired combustion turbine generators (CTGs), which are periodically operated during periods of high electricity demand. Also, there is an emergency backup diesel generator for the site's station blackout (SBO) combustion turbine generator (CTG-11-1), located adjacent to the combustion turbine generators.

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.

Per a Cooperative Agreement between DTE Electric Company and the U.S. Fish and Wildlife Service (FWS), the Lagoon Beach Unit of the Detroit River International Wildlife Refuge has been located on site since September 2003.

3.0 TERRESTRIAL MONITORING

Overview

Section 4.2.1 of the Fermi 2 EPP required that a special surveillance program be conducted to evaluate changes to vegetative communities within a 1 kilometer radius of the cooling towers. This program involved analysis of low altitude over flights prior to harvest utilizing color infrared photography, backed up by field reconnaissance inspections to verify areas of vegetative stress and non-stress 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.

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.

Terrestrial monitoring was conducted in 2008 to support the licensing of a new unit at the site and is detailed in the Combined Operating License Application (COLA) for Fermi 3 which was submitted to the NRC on September, 18, 2008. No terrestrial monitoring activities were conducted, or required, under the Fermi 2 Operating License in 2014. Based on the findings and conclusions presented in the 1995 report, 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 herbicide use within the corridor rights-of-way 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; total pounds used; method and frequency of application; location; and, date of application.

Activities and Controls

The herbicide application program, detailed in a conduct manual, is designed to maintain records for herbicide application on-site but does not impose requirements on the application of herbicides within the transmission corridor rights-of-way outside of the Owner Controlled Area. The transmission infrastructure is currently owned and operated by ITC Transmission.

Records pertaining to the application of herbicides within the rights-of-way were obtained from ITC Transmission. These records include extensive mapping of the Wayne-Monroe and Brownstown-Fermi transmission corridors showing location and method for herbicide application. There were no herbicides applied within these two transmission corridor right-of-ways in 2014.

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 non-radiological 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 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.

NPDES Permit Changes

Fermi 2 received the renewal of its NPDES Permit on June 7, 2010. The new permit went into effect on August 1, 2010. The permit was subsequently modified on April 23, 2012. This modification eliminated the flow limitation on service water screen backwash at Outfall 011A, which includes Travelling Screen and Pump Strainer Backwash.

An application for permit renewal was submitted to the Michigan Department of Environmental Quality (MDEQ) on March 31, 2014 in accordance with the requirements of the NPDES Permit. The MDEQ has not issued a new permit, even though the existing permit expired in October 2014. However, because the application was submitted within the specified time frame, Fermi 2 is allowed to operate under the existing permit until such time as the MDEQ issues a renewed permit.

NPDES Non-compliances in 2014

One non-compliance was reported for the site during 2014:

Fermi 2 had one reportable oil release in 2014 (CARD 14-25532). On July 8, 2014 at approximately 0930, approximately 2,500 gallons of fuel oil was discovered in the Fermi 1 Oily Waste Water Equalization Basin (Basin). The Basin acts as secondary containment for the peaking units at the plant. The cause of the release was determined to be a valve that was inadvertently left in the open position following routine operation of the peakers. This valve is hard-piped into a drain that leads to a sump beneath the peaking unit, so the resulting leak was not visible. The peaker sump overflows via a pipe to a forwarding sump that subsequently forwards to the Basin. At all times the fuel oil was contained within a sump, piping or the basin. At no time did fuel oil reach the ground or surface water. The open valve allowed fuel oil to be forwarded through the system until it was detected in the Basin.

Immediate actions taken included:

- Deployed spill response contractor to remove fuel oil from the Basin;
- Removed from service the peaking unit that was determined to be the cause of the release.

Fuel oil removal from the Basin was started at approximately 1300 on July 8, 2014, and was completed by 1300 hours on July 9, 2014.

Although this release was contained and did not spill to the ground or surface water, the Basin is considered a secondary containment for release of fuel oil from the CTGs. If less than 1000 gallons of a polluting material (e.g., fuel oil) is released to a secondary containment, it is not reportable if clean up begins within 24 hours and is completed within 72 hours. This release was more than double the threshold for reporting.

There were two documented precursor events to this reportable release of fuel oil on (1) June 13 (CARD 14-24952; 500 gallons to the Basin) and (2) June 19 (CARD 14-25099; 900 gallons to Basin), 2014.

During the investigation of these events, the cause was determined to be that the individuals involved with the filter change out had assumed that the other person had closed the drain valve. There was no step in the work order that specifies to close, or verify closed, all of the filter drain valves. A step was subsequently added to the maintenance package to verify all vent and drain valves operated are documented and verified closed at the end of maintenance and prior to operating the CTG for a maintenance run.

A lesson learned from these events is to investigate spills of oil to containment, even if they are below the reporting threshold of 1000 gallons. Smaller spills, especially more than one related spill, may lead to a larger, reportable event

6.0 ENVIRONMENTAL PROTECTION PLAN NON-COMPLIANCES

Overview

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

Activities and Controls

No incidents of EPP noncompliance occurred at Fermi 2 in 2014.

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 un-reviewed environmental question, DTE Electric Company 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, non-radiological 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 that created an un-reviewed 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 2014. Accordingly, no non-routine reports were submitted.

9.0 CONCLUSIONS

In 2014, with the exception of one incident of noncompliance as discussed in Section 5.0, DTE Electric Company - Fermi 2 successfully maintained compliance with the EPP.