

Detroit Edison



August 31, 2010
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U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, D.C. 20555

Reference: Enrico Fermi Atomic Power Plant, Unit 1
NRC Docket No. 50-16
NRC License No. DPR-9

Subject: Enrico Fermi Atomic Power Plant, Unit 1
Annual Report Period Ending June 30, 2010

Pursuant to Section F.7 (Reporting Requirements) of the Technical Specifications for Provisional Operating License No. DPR-9, the annual report for the period ending June 30, 2010 for the SAFSTOR Fermi 1 facility is enclosed.

Should you have any questions, please contact Lynne S. Goodman, Manager, Fermi 1 at 734-586-1205.

Sincerely,

A handwritten signature in cursive script that reads "Joseph H. Plona".

Joseph H. Plona
Site Vice President, Nuclear Generation

JHP/CN/ljd

Enclosure

cc: NRC Regional Administrator, Region III
T. Smith, NRC (Washington, D.C.)
NRC Resident Inspector- Fermi 2
P. Lee, NRC Region III
T. Strong (Michigan Dept of Natural Resources and Environment)

NHSSOI
FSME

DETROIT EDISON COMPANY
ENRICO FERMI ATOMIC POWER PLANT, UNIT 1

Docket No. 50-16
License No. DPR-9

Annual Report for Period
July 1, 2009 through June 30, 2010

Approved by:



Lynne S. Goodman
Custodian

Date:

8/25/10

ENRICO FERMI ATOMIC POWER PLANT, UNIT 1
ANNUAL REPORT
JULY 1, 2009 THROUGH JUNE 30, 2010

1.0 PREFACE

This report provides a summary of the activities performed and the results of the facility surveillance program of the Enrico Fermi Atomic Power Plant, Unit 1 Decommissioning Project, during the past twelve (12) months ending June 30, 2010.

In summary, required activities were conducted in accordance with the Operating License and Technical Specifications. Fermi 1 continues decommissioning activities with the removal of contaminated components and commencement of final status surveys to achieve license termination.

2.0 SAFSTOR STATUS

2.1 Health Physics

2.1.1 Personnel Exposure

From July 1, 2009 through June 30, 2010, all monitored Fermi 1 personnel wore Thermoluminescent Dosimeters (TLDs) as dosimetry of record. Electronic Dosimeters (EDs) were worn from July 1, 2009 through June 30, 2010 as secondary dosimetry at Fermi 1. All visitors were appropriately escorted and wore EDs as a minimum when entering all Radiologically Restricted Areas (RRA).

The accumulative whole body dose from activities associated with Fermi 1 was 8,884 millirem for this reporting period. This is based on TLD readings for the third and fourth quarter 2009 and the first quarter 2010. Electronic dosimeter readings were used for the second quarter 2010, since TLD readings are not available at the time of this submittal.

2.2 Surveillance Program

2.2.1 Environmental Surveys

No liquid radiological releases occurred during this period; therefore, environmental monitoring samples were not required.

2.2.2 Weekly Tests and Inspections

- **General area** --- The Fermi 1 staff performed walk through and visual inspections as required by Technical Specifications. No significant issues were identified during the inspections.

2.2.3 Monthly Inspections

- **Controlled Area Inspections** --- During the specified interval, Fermi 1 staff conducted visual inspections of the fences, gates, and doors and surveyed the sump water levels from the top access of all active sumps. No significant issues were identified during the inspections.

2.2.4 Quarterly Surveillances

Radiological Surveys --- The Radiation Protection technicians checked the Reactor Building and the Fuel and Repair Building (FARB) for presence of gamma radiation, as well as beta, gamma, and alpha contamination. There were no unexpected radiation readings detected. The results of the quarterly contamination surveys indicated general area walkways remain <500-dpm/100 cm² beta/gamma and <20-dpm/100-cm² alpha.

3.0 DECOMMISSIONING PROJECT

The Fermi 1 Decommissioning Project continued during this period including equipment removal and commencement of final status surveys. Details are discussed below.

The Fermi 1 staff collected groundwater monitoring well samples to obtain information for license termination planning. No plant related radioactive isotopes were detected above background levels.

3.1 Sodium Building

The following activities were conducted in the Sodium Building during this period:

- Completed the evaporation of the neutralized processing liquid being stored in the three (3) 15,000 gallon primary sodium storage tanks.
- Removed sections of cover gas piping in the Primary Sodium Storage Tank room previously connected to the tanks that were used for processing the residual sodium.
- Completed processing of Sodium Potassium (NaK) from plant instrumentation lines previously removed.
- Disassembled and disposed of Sodium Building windbox, scrubber system, and associated piping and equipment.
- Removed remaining clean argon system piping and disposed of as polychlorinated biphenyls (PCB) bulk product waste.

3.2 Reactor Building

The following activities were conducted in the Reactor Building during this period:

- Completed removal of the majority of bulk graphite and asbestos containing material from around the perimeter of the reactor and the primary shield tank (PST), except the portion under the reactor vessel. Some graphite left in place for personnel shielding for future activities.
- Completed removal of the 6", 14", and 30" connections to the reactor.
- Completed removal and shipment of the three primary sodium pumps and three intermediate heat exchangers.
- Removed the two primary overflow tank pumps.
- Removed chiller unit from East yard that was used to support the processing of residual sodium in the Reactor Building.
- Removed some miscellaneous support steel from Reactor Building lower level.

3.3 Tunnels / Annulus

The following activities were conducted in the Tunnels / Annulus during this period:

- Removed all secondary sodium pipe, supports, and miscellaneous other equipment from the East and West Sodium Galleries. Performed radiological surveys and free-released the majority of steel for recycle.
- Completed equipment removal from the Fission Product Detector Building.
- Removed pipe and supports from the Sodium Tunnel. Removed miscellaneous equipment from Sodium Tunnel filter room.

3.4 Fuel and Repair Building (FARB)

The following activities were conducted in the FARB during this period:

- Removed the FARB Decay Pool bridge crane.
- Removed three large FARB Cutup Pool roof panels and shipped offsite for recycling.
- Setup permanent ladder in Cutup pool to support pool access. Removed majority of stainless steel liner and support beams from the Cutup pool, and all of the Decay pool liner and beams. Also removed all of the sand from behind the pool liners.
- Completed tank and equipment removal in the FARB Waste Tank room, and decontaminated the room. Completed equipment removal in the waste pump and valve room and decontaminated the room. Completed most of the tank and equipment removal from the FARB Dump Tank room. Removed steel shot, asbestos insulation, and pipes penetrating between rooms.

3.5 Radiological Surveys

Radiological surveys were conducted in accordance with plant procedures. No unexpected radiological conditions were encountered during this reporting period.

3.6 Radiological Shipments

The Fermi 1 team shipped the following materials offsite without incident from Fermi 1 during the reporting period. Tools and equipment shipped to Fermi 2 are not included in this table.

Shipment Number	Material Description	Destination	Shipment Category	Activity (mCi)	Volume Gross (ft3)	Weight Gross (lbs)
EF1-09-013	Core Sweep & OHM	Energy Solutions CWF, Clive UT	LSA	441	11.18	43,400
EF1-09-017	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	21.7	768	39,985
EF1-09-018	Contaminated Laundry	UniTech, Morris IL	LQ	2.5	118	3079
EF1-09-020	Contaminated Laundry	UniTech, Morris IL	LQ	2.49	118	1960

Shipment Number	Material Description	Destination	Shipment Category	Activity (mCi)	Volume Gross (ft3)	Weight Gross (lbs)
EF1-09-021	Contaminated Laundry	UniTech, Morris IL	LQ	3.7	118	2,883
EF1-09-022	DAW/Metal Waste/Graphite Blocks	Energy Solutions BWF, Clive UT	LSA	51.4	4830	242,860
EF1-09-023	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	28.2	1266	36,998
EF1-09-024	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	8.4	1560	29,665
EF1-09-025	DAW/Metal/Graphite & Asbestos Waste	Energy Solutions BWF, Clive UT	AU	58.4	5520.8	271,620
EF1-09-026	Contaminated Laundry	UniTech, Morris IL	LQ	2.8	236	3,699
EF1-09-027	Sodium Pump #1	Energy Solutions BWF, Clive UT	AU	31.6	618	56,101
EF1-09-028	Sodium Pump #2	Energy Solutions BWF, Clive UT	AU	31.6	618	56,101
EF1-09-029	Sodium Pump #3	Energy Solutions BWF, Clive UT	AU	31.6	618	56,101
EF1-09-030	Heat Exchanger #3	Energy Solutions BWF, Clive UT	AU	89.5	805	196,401
EF1-09-031	Heat Exchanger #2	Energy Solutions BWF, Clive UT	AU	89.5	805	196,601
EF1-09-032	Heat Exchanger #1	Energy Solutions BWF, Clive UT	AU	89.5	805	197,101
EF1-09-033	DAW/Metal/Graphite	Energy Solutions Clive UT	AU	52	4830	244,790
EF1-09-034	Samples	GEL Laboratories, Charleston SC	LQ	1.1E-3	<1	8.2
EF1-09-035	Contaminated Laundry	UniTech, Morris IL	LQ	2.1	186	2,493
EF1-10-001	DAW/Metal/Graphite Blocks/Asbestos Waste	Energy Solutions, Bear Creek Operations, Oak Ridge TN	AU	55.7	4830	256,110
EF1-10-002	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	4.6	690	32,700

Shipment Number	Material Description	Destination	Shipment Category	Activity (mCi)	Volume Gross (ft3)	Weight Gross (lbs)
EF1-10-003	Contaminated Laundry	UniTech, Morris IL	LQ	6	310	4,302
EF1-10-004	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	9.95	1770	44,500
EF1-10-005	Contaminated Laundry	UniTech, Morris IL	LQ	1.38	124	1,878
EF1-10-007	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	4.3	690	26,500
EF1-10-008	Samples	GEL Laboratories, Charleston SC	LQ	.044	1.2	17.8
EF1-10-009	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	5.24	690	25,120
EF1-10-010	Contaminated Laundry	UniTech, Morris IL	LQ	4.1	310	5,041
EF1-10-011	Samples	GEL Laboratories, Charleston SC	LQ	.04	<1	28
EF1-10-012	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	4.81	690	33,605
EF1-10-013	Samples	GEL Laboratories, Charleston SC	LQ	4.42E-02	<1	20
EF1-10-014	Samples	GEL Laboratories, Charleston SC	LQ	2.87E-05	<1	7
EF1-10-015	Contaminated Laundry	UniTech, Morris IL	LQ	5.30	310	5,279
EF1-10-016	DAW/Metal Waste	Energy Solutions BWF, Clive UT	LSA	4.4	690	30,880
EF1-10-017	Samples	GEL Laboratories, Charleston SC	LQ	6.02E-01	1.5	10

BWF – Bulk Waste Facility

CWF – Containerized Waste Facility

DAW – Dry Active Waste

3.7 License Termination Plan

Final Status Surveys were performed in the following areas:

- Office Building
- Steam Generator Building
- Turbine Building (4th floor and above, including the roofs)
- Waste Gas Building
- West Sodium Gallery

4.0 RADIOLOGICAL EFFLUENTS

There were no unplanned radiological gaseous effluent releases during the reporting period. All measurable releases were associated with the decommissioning project. The maximum dose to an offsite member of the public from these releases was 9.5 E-6 mrem Total Effective Dose Equivalent (TEDE) derived from a total of 19.4 mCi of tritium. The gaseous effluent releases were below the Technical Specification air dose limit of 10 mrad of gamma radiation and 20 mrad of beta radiation per year. The individual dose calculated due to gaseous effluent releases was below the Technical Specification dose limit of 5 mrem Total Effective Dose Equivalent.

5.0 50.59 EVALUATIONS, DESIGN CHANGES AND LER's

5.1 10 CFR 50.59

The Fermi 1 team conducted one 10 CFR 50.59 Evaluation during this period and made two (2) revisions to one 10 CFR 50.59 Evaluation from the previous reporting period. Screenings determined that 50.59 Evaluations were not required for other activities.

08-050-SE, Rev. 1 50.59 Evaluation for Cutting and Removing the Reactor Vessel
08-050-SE, Rev. 2 50.59 Evaluation for Cutting and Removing the Reactor Vessel

Summary:

The 50.59 Evaluation 08-050-SE, Rev. 1 and Rev. 2 addressed changes to the cutting method for cutting the reactor vessel and removing it for shipment and disposal. The impact on the accident analysis was addressed for the changes in cutting methods, including adding an allowance for additional cuts relative to particulates that could be available for release in an accident.

Previously, activated reactor vessel radionuclides were considered immobile and not available for release in any postulated accident. Calculations determined that the existing Fermi 1 Safety Analysis Report (F1SAR), Rev. 5 accident analyses bound the cutting operations' potential for the release of removed contamination and activated material. Lastly, the as-left condition, with the reactor vessel removed, reduces the available source term for a postulated accident and reduces the frequency for an accident involving release of radioactive material.

09-011-SE, 50.59 Evaluation on Postulated Accident Airborne Release Dose

Summary:

The consequences of postulated airborne release accidents in the Fermi 1 Safety Analysis Report (F1SAR) were recalculated in response to a corrective action document that identified it would be more appropriate to use the dose to activity correlation based on the correlation between effluent concentration and public dose in 10 CFR 20, Appendix B, Table 2, than the correlation between DAC and occupational exposure in 10 CFR 20, Appendix B, Table 1. The 50.59 Evaluation 09-011-SE was performed to address the results of the accident analyses change. The consequences of some postulated airborne accident releases increased, but not more than minimally. The consequences remained well below 100 mrem and 10 CFR 100 limits.

5.2 Design Changes

The Fermi 1 team implemented Design Change 09-002-DC, which installed an emergency stop function on the Fermi 1 Containment Building crane.

Removal of abandoned systems and components continued using work request documents per the Fermi 1 Quality Assurance Program.

5.3 Licensee Event Reports

There were no Licensee Event Reports during this reporting period.

6.0 AUDIT SUBCOMMITTEE

The Audit Subcommittee inspected the physical facility and reviewed the Technical Specification surveillance records during the reporting period. No significant problems were identified.

All audit reports are maintained on file.