



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

August 26, 2010

Mr. Jack M. Davis  
Senior Vice President and  
Chief Nuclear Officer  
Detroit Edison Company  
Fermi 2- 210 NOC  
6400 North Dixie Highway  
Newport, MI 48166

SUBJECT: FERMIL POWER PLANT, UNIT 2  
NRC INSPECTION REPORT 05000341/2010-011(DRS)

Dear Mr. Davis:

On August 6, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Fermi Power Plant, Unit 2. The enclosed inspection report documents the inspection results, which were discussed on August 6, 2010, with you and other members of your staff.

This inspection report documents a review of the control of heavy loads specific to the reactor building crane, reactor building crane support structure and reactor building superstructure conducted in conjunction with Operating Experience Smart Sample (OpESS) FY2007-03, "Crane And Heavy Lift Inspection, Supplemental Guidance for Inspection Procedure (IP) 71111.20," Revision 2.

Based on the results of this inspection, no findings were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide

J. Davis

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Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

David E. Hills, Chief  
Engineering Branch 1  
Division of Reactor Safety

Docket No.: 50-341  
License No.: NPF-43

Enclosure: Inspection Report 05000341/2010-011(DRS)  
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-341  
License No: NPF-43

Report No: 05000341/2010-011(DRS)

Licensee: Detroit Edison Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Dates: July 21 through August 6, 2010

Inspectors: J. Bozga, Reactor Inspector

Approved by: David E. Hills, Chief  
Engineering Branch 1  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000341/2010011(DRS); 07/21/2010 – 08/06/2010; Fermi Power Plant, Unit 2; Refueling and Other Outage Activities Inspection.

This report covers portions of the Refueling and Other Outage Activities Inspection Procedure. The inspection was conducted by Region III inspectors. Based on the results of this inspection, no NRC-identified findings were discovered that involved violations of NRC requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified and Self-Revealed Findings

#### **Cornerstone: Initiating Events**

No violations of significance were identified.

### B. Licensee-Identified Violations

No violations of significance were identified.

## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstone: Initiating Events

#### 1R20 Outage Activities (71111.20)

##### .1 Refueling Outage Activities

##### a. Inspection Scope

From January 13, 2010 through June 1, 2010, the inspectors inspected the Independent Spent Fuel Storage Installation (ISFSI) Control of Heavy loads portion of Inspection Procedure 60854.1 "Preoperational and Operational Testing of an Independent Spent Fuel Storage Installation." During this inspection the inspectors identified design calculation issues associated with the reactor building crane, reactor building crane support structure, and the reactor building super-structure. The ISFSI inspection remains ongoing. However, because the reactor building crane, reactor building crane support structure, and reactor building super-structure are used to lift not only ISFSI related loads but other heavy loads as well, Region III staff opted in the interim to expedite review of these issues via a separate inspection.

Hence, from July 21, 2010 through August 6, 2010, the inspector reviewed the licensee's control of heavy loads program in conjunction with a portion of the NRC's Operating Experience Smart Sample (OpESS) FY2007-03, "Crane and Heavy Lift Inspection, Supplemental Guidance for IP-71111.20," Revision 2 specifically related to the removal and installation of the Reactor Pressure Vessel (RPV) head during refueling outages as well as design calculations associated with the reactor building crane, reactor building crane support structure and the reactor building super-structure. Documents reviewed during the inspection are listed in the Attachment of this report.

##### b. Findings

##### (1) Reactor Building Crane and Reactor Building Crane Support Structure/Superstructure Design Calculation Issues

Introduction: The inspectors determined that an unresolved item (URI) existed concerning the design calculations that demonstrate the design adequacy of the reactor building crane, reactor building crane support structure and reactor building superstructure.

Description: The inspectors reviewed Calculation No. CN-23934, "Reactor Building Crane for Enrico Fermi Atomic Power Plant No. 2 Bridge and Trolley Structural Calculations," dated March 8, 1973, Calculation No. 4.02.09, "Reactor Building Superstructure Steel Girt and Column Framing Design," Volume I, Revision A, Calculation No. DC-6019, "Assessment of the Interior Columns for the Reactor Building Steel Superstructure Including Crane Lifted Load," Volume IA, Revision 0, and Calculation No. 4.02.04, "Superstructure Roof Framing Bracing System," Volume I, Revision A.

The inspectors were concerned that the reactor building crane and reactor building crane support structure/superstructure had been evaluated using acceptance criteria that were not contained within UFSAR Table 3.8-18, Loading Combinations for Steel Structures Elastic Design. Also, inspectors were concerned that the reactor building crane and reactor building crane support structure/superstructure had not been evaluated for the applied loads that were part of the design and licensing basis load cases/load combinations specified in UFSAR Table 3.8-18, Loading Combinations for Steel Structures Elastic Design.

In response to the inspectors concern, the licensee initiated corrective action program documents related to the reactor building crane and reactor building crane support structure/superstructure. The licensee entered these items into their corrective action program (CAP) as the following condition assessment and resolution documents (CARD):

1. CARD 10-22393; "NRC-ISFSI Issue Calculation Issues"; dated March 19, 2010
2. CARD 10-22723; "NRC ISFSI Issue Need to Revise Calculation CN-23934"; dated March 29, 2010
3. CARD 10-22958; "NRC ISFSI Issue – Calculation 4.02.04"; dated April 6, 2010
4. CARD 10-22979; "NRC ISFSI Issue-Inspector's Questions About Calculations DC-6019 and 4.02.04"; dated April 7, 2010
5. CARD 10-22979; "NRC ISFSI Issue-Inspector's Questions About Calculations DC-6019 and 4.02.04"; dated April 7, 2010
6. CARD 10-22981; "NRC ISFSI Issue-Calculation CN-23934; dated April 7, 2010
7. CARD 10-23797; "NRC ISFSI Issue-Revise Calculation 4.02.04"; dated May 5, 2010
8. CARD 10-23882; "NRC ISFSI Issue-RB5 Crane Calculation"; dated May 7, 2010
9. CARD 10-24045; "NRC ISFSI Issue-Calculation DC-6019 Load Combinations"; dated May 14, 2010
10. CARD 10-24166; "NRC ISFSI Issue-CMTRs used in calculation 4.02.09"; dated May 19, 2010
11. CARD 10-26275; "NRC ISFSI Issue-Clarification of Analysis in DC-6019"; dated July 24, 2010
12. CARD 10-26276; "NRC ISFSI Issue"; dated July 24, 2010
13. CARD 10-26277; "NRC ISFSI Issue-Licensing Basis for Allowable Axis Stresses in 4.02.04"; dated July 24, 2010
14. CARD 10-26278; "NRC ISFSI Issue-Stresses is DC-6019 and 4.02.09"; dated July 24, 2010

15. CARD 10-26279; "NRC ISFSI Issue-Extraction of Loads Used in 4.02.04"; dated July 24, 2010
16. CARD 10-26280; "NRC ISFSI Issue-Acceptance Criteria in Calc. 4.02.09"; dated July 24, 2010
17. CARD 10-26282; "NRC ISFSI Issue-Use of CMTRs in EDP-34473"; dated July 24, 2010
18. CARD 10-26415; "NRC ISFSI Question on Design Basis for Response Spectra used in Design Calculation DC-6019"; dated July 28, 2010
19. CARD 10-26545; "NRC Question- ISFSI-RB5 Structure Corner Column Buckling Calculation Compliance with AISC Code"; dated July 30, 2010
20. CARD 10-26548; "NRC Questions-ISFSI-RB5 Structure Corner Column Peak Critical Yield Analysis Not Evaluated as Plastic According to AISC requirements"; dated July 30, 2010
21. CARD 10-26691; "ISFSI NRC Issue - Crane Runway Girder Splice"; dated August 4, 2010

This item is being held as an unresolved item (URI 05000341/2010011-01) pending evaluation of these concerns by the licensee and subsequent inspector review and discussion with the licensee. The licensee indicated that they would provide the inspectors multiple revised analyses addressing the issues relevant to the reactor building crane, reactor building crane support structure and reactor building superstructure on September 10, 2010.

#### **4. OTHER ACTIVITIES**

##### **4OA6 Management Meetings**

###### **.1 Exit Meeting Summary**

The inspector presented the results of the inspection including discussing URI 05000341/2010011-01 and planned actions to resolve the related issues with Mr. M. Caragher and other members of the licensee's staff via telephone on August 6, 2010. Licensee personnel acknowledged the inspection results presented. The inspector asked the licensee whether any materials examined during the inspection are considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee

C. Walker, Nuclear Organizational Effectiveness Director  
M. Caragher, Nuclear Engineering Director  
K. Hullum-Lawson, Nuclear Engineering Supervisor  
S. Hassoun, Nuclear Licensing Supervisor  
R. Salmon, Nuclear Compliance Supervisor  
R. Johnson, Nuclear Licensing Manager  
B. Keck, Nuclear Engineering Manager  
G. Abdallah, Lead Civil Engineer  
E. Odar, Consultant

Nuclear Regulatory Commission

D. Hills, Chief, Division of Reactor Safety, Engineering Branch 1  
M. Morris, Senior Resident Inspector

**LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**

Opened

05000341/2010011-01	URI	Reactor Building Crane and Reactor Building Crane Support Structure/Superstructure Design Calculation Issue
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Closed and Discussed

None



## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

### 1R20 Outage Activities Crane and Heavy Lift Inspection (OpESS FY2007-03)

Calculation No. CN-23934; "Reactor Building Crane for Enrico Fermi Atomic Power Plant No. 2 Bridge and Trolley Structural Calculations"; dated March 8, 1973

Calculation No. DC-6019; "Assessment of the Interior Columns for the Reactor Building Steel Superstructure Including Crane Lifted Load"; Volume IA, Revision 0

Calculation No. 4.02.04; "Superstructure Roof Framing Bracing System"; Volume I, Revision A

Calculation No. 4.02.09; "Reactor Building Superstructure Steel Girt and Column Framing Design"; Volume I, Revision A

Corrective Action Program Documents Initiated as a Result of NRC Inspection (OpESS FY2007-03)

CARD 10-22393; "NRC-ISFSI Issue Calculation Issues"; dated March 19, 2010

CARD 10-22430; "NRC ISFSI Issue Correct Calculation Title"; dated March 19, 2010

CARD 10-22723; "NRC ISFSI Issue Need to Revise Calculation CN-23934"; dated March 29, 2010

CARD 10-22958; "NRC ISFSI Issue – Calculation 4.02.04"; dated April 6, 2010

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CARD 10-22981; "NRC ISFSI Issue-Calculation CN-23934"; dated April 7, 2010

CARD 10-23330; "NRC ISFSI Issue-Request for Crane Bumper/Stop Calculations," dated April 20, 2010

CARD 10-23797; "NRC ISFSI Issue-Revise Calculation 4.02.04"; dated May 5, 2010

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CARD 10-26691; "ISFSI NRC Issue - Crane Runway Girder Splice"; dated August 4, 2010

## LIST OF ACRONYMS USED

CAP	Corrective Action Program
CARD	Condition Assessment and Resolution Document
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
OpESS	Operating Experience Smart Sample
RPV	Reactor Pressure Vessel
SDP	Significance Determination Process
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Issue

J. Davis

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Sincerely,

/RA/

David E. Hills, Chief  
Engineering Branch 1  
Division of Reactor Safety

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w/Attachment: Supplemental Information

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