



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

January 30, 2012

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: FERMI POWER PLANT, UNIT 2, INTEGRATED INSPECTION  
REPORT 05000341/2011005

Dear Mr. Davis:

On December 31, 2011, the U. S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Fermi Power Plant, Unit 2. The enclosed inspection report documents the inspection results which were discussed on January 12, 2012, with the Site Vice President, J. Plona, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

One NRC identified finding and one self-revealed finding of very low safety significance (Green) were identified during this inspection. The NRC identified finding was determined to involve a violation of NRC requirements. The NRC is treating the issue as a non-cited violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Fermi Power Plant.

If you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Fermi Power Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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 document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Jamnes L. Cameron, Chief  
Branch 6  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000341/2011005  
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000341/2011005

Licensee: Detroit Edison Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Dates: October 1 through December 31, 2011

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Branch 6  
Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

Inspection Report (IR) 05000341/2011005; 10/01/2011 – 12/31/2011; Fermi Power Plant, Unit 2; Maintenance Effectiveness and Problem Identification and Resolution.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two Green findings were identified. One of the findings was considered a non-cited violation (NCV) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects were determined using IMC 0310, "Components within the Cross Cutting Areas." 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: Barrier Integrity, Reactor Safety**

Green. A self-revealed finding of very low safety significance (Green) was identified by the inspectors for placing a fuel bundle in the wrong cell during a fuel shuffle in the spent fuel pool. The error was noted later in the fuel shuffle when another bundle was moved to the same location, and the operators noted that the cell was filled. Specifically, on November 1, 2011, movement of spent fuel in the Spent Fuel Pool was taking place in preparation for testing of boron concentration in the high density racks. While performing step 150 of the approved MES32003, "Special Nuclear Material/Component Transfer Form," the presence of a fuel bundle already occupying the target location (4N-12) for step 150 was self-revealed. The Refuel Floor Coordinator was informed, and the bundle was returned to its original starting location. This issue was placed in the licensee's corrective action program as CARD 11-29841, "Fuel Move Error in Spent Fuel Pool."

The inspectors determined that this finding was more than minor because if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. This finding was determined to be of very low safety significance because all the screening questions in IMC 0609 Attachment 0609.04 Table 4a, Characterization Worksheet for IE, MS, and BI Cornerstones were answered "no".

This finding had a cross-cutting aspect in the area of human performance, work practices because the licensee failed to provide direct licensed operator oversight (H.4(c)) of fuel handling operations in the spent fuel pool. (Section 4OA2.6)

#### **Cornerstone: Mitigating Systems**

Green. The NRC inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.65 for failure to develop appropriate corrective actions for an (a)(1) monitored system. The licensee failed to determine the cause of repeated SS-1 computer and printer lock ups in the D1100 process radiation monitor system. They determined the D1100 SS-1 computer should be monitored as (a)(1) status, and

established (a)(1) monitoring goals, established a get-well plan, and implemented their plan. However, the get-well plan corrective actions failed to meet the (a)(1) monitoring goals and further inspection revealed the weaknesses in the causal determination and the ineffectiveness of the corrective actions. The inspectors determined this finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and impacted the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). This finding was determined to be of very low safety significance because all the screening questions in IMC 0609, Attachment 04, Table 4a, for the Mitigating Systems Cornerstone were answered "no."

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action, problem evaluation aspect because the licensee failed to appropriately evaluate the causes of the D1100 SS-1 computer problems (P.1 (c)). (Section 1R12.1)

**B. Licensee-Identified Violations**

No findings were identified.

## **REPORT DETAILS**

### **Summary of Plant Status**

Fermi Unit 2 operated at 100 percent power until 2114 on November 16, 2011, at which time the operators reduced power to 19 percent to facilitate rework/repair of disconnected "Z" phase conductor CI-B on main unit transformer 2B. Operators restored power to 100 percent at 0740 on November 19, 2011. Power stayed at or near 100 percent for the remainder the inspection period, with the exception of a routine power reduction for testing activities.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### **1R01 Adverse Weather Protection (71111.01)**

##### **.1 Winter Seasonal Readiness Preparations**

##### **a. Inspection Scope**

The inspectors conducted a review of the licensee's preparations for winter conditions to verify the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. The inspectors walked down the residual heat removal (RHR), emergency diesel generator (EDG), and condensate storage tank systems for cold weather preparations. Documentation for selected risk-significant systems was reviewed to ensure these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed corrective action program (CAP) items to verify the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- condensate storage tank
- RHR/EDG complex heaters

This inspection constituted one winter seasonal readiness preparations sample as defined in inspection procedure (IP) 71111.01-05.

##### **b. Findings**

No findings were identified.

## 1R04 Equipment Alignment (71111.04)

### .1 Quarterly Partial System Walkdowns

#### a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- non-interruptible air supply (NIAS);
- control center heating, ventilation, and air conditioning division 2; and
- emergency diesel generator 14.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify there were no obvious deficiencies. The inspectors also verified the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted three partial system walkdown samples as defined in IP 71111.04-05.

#### b. Findings

No findings were identified.

## 1R05 Fire Protection (71111.05)

### .1 Routine Resident Inspector Tours (71111.05Q)

#### a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- turbine building, second floor, balance of plant (BOP) switchgear room;
- reactor building, first floor, south hydraulic control unit (S HCU) area;
- auxiliary building, torus room; and
- reactor building, torus room, top of torus.



The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified fire hoses and extinguishers were in their designated locations and available for immediate use; fire detectors and sprinklers were unobstructed; transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Underground Vaults

a. Inspection Scope

The inspectors selected underground bunkers/manholes subject to flooding that contained cables whose failure could disable risk-significant equipment. The inspectors determined the cables were not submerged, splices were intact, and appropriate cable support structures were in place. In those areas where dewatering devices were used, such as a sump pump, the device was operable and level alarm circuits were set appropriately to ensure the cables would not be submerged. In those areas without dewatering devices, the inspectors verified drainage of the area was available, or the cables were qualified for submergence conditions. The inspectors also reviewed the licensee's corrective action documents with respect to past submerged cable issues identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following underground bunkers/manholes subject to flooding:

- Manholes # 16552 and #16950 with safety related and security related cables.

Specific documents reviewed during this inspection are listed in the Attachment to this report.

This inspection constituted one underground vaults sample as defined in IP 71111.06-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On October 18, 2011, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.2 Biennial Written and Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Biennial Written Examinations, administered by the licensee from October 13 through November 10, 2011, and the Annual Operating Tests, administered by the licensee from October 11 through November 9, 2011, required by 10 CFR 55.59(a). The results were compared to the thresholds established in IMC 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," to assess the overall adequacy of the licensee's Licensed Operator Requalification Training (LORT) program to meet the requirements of 10 CFR 55.59.

This inspection constitutes one biennial licensed operator requalification inspection sample as defined in IP 71111.11A.

b. Findings

No findings were identified.

.3 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the weeks of October 24 and October 31, 2011, to assess: 1) the effectiveness and adequacy of the facility licensee's implementation and maintenance of its systems approach to training (SAT) based LORT program, put into effect to satisfy the requirements of 10 CFR 55.59; 2) conformance with the requirements of 10 CFR 55.46 for use of a plant referenced simulator to conduct operator licensing examinations and for satisfying experience requirements; and 3) conformance with the operator license conditions specified in 10 CFR 55.53. The documents reviewed are listed in the Attachment.

- Facility Operating History and Licensee Training Feedback System (10 CFR 55.59(c); SAT Element 5 as Defined in 10 CFR 55.4): The inspectors evaluated the licensee's ability to assess the effectiveness of its LORT program and their ability to implement appropriate corrective actions to maintain its LORT program up to date. The inspectors reviewed documents related to the plant's operating history and associated responses (e.g., plant issue matrix and performance review reports; recent examination and inspection reports; licensee event reports (LERs)). The inspectors reviewed the use of feedback from operators, instructors, and supervisors as well as the use of feedback from plant events and industry experience information. The inspectors reviewed the licensee's quality assurance oversight activities, including licensee training department self-assessment reports.
- Licensee Regualification Examinations (10 CFR 55.59(c); SAT Element 4 as Defined in 10 CFR 55.4): The inspectors reviewed the licensee's program for development and administration of the LORT biennial written examination and annual operating tests to assess the licensee's ability to develop and administer examinations that are acceptable for meeting the requirements of 10 CFR 55.59(a).
  - The inspectors reviewed the methodology used to construct the examination including content, level of difficulty, and general quality of the examination/test materials. The inspectors also assessed the level of examination material duplication from week-to-week for both, the operating tests conducted during the current year, as well as the written examinations administered in 2011. The inspectors reviewed a sample of the written examinations and associated answer keys to check for consistency and accuracy.
  - The inspectors observed the administration of the annual operating test and biennial written examination to assess the licensee's effectiveness in conducting the examinations, including the conduct of pre-examination briefings, evaluations of individual operator and crew performance, and post-examination analysis. The inspectors evaluated the performance of three simulator crews (one shift crew) in parallel with the facility evaluators

during three dynamic simulator scenarios, and evaluated various licensed crew members concurrently with facility evaluators during the administration of several job performance measures (JPMs).

- The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the last requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans.
- Conformance with Examination Security Requirements (10 CFR 55.49): The inspectors conducted an assessment of the licensee's processes related to examination physical security and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors reviewed the facility licensee's examination security procedure, and observed the implementation of physical security controls (e.g., access restrictions and simulator I/O controls) and integrity measures (e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the inspection period.
- Conformance with Simulator Requirements Specified in (10 CFR 55.46): The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements. The inspectors reviewed a sample of simulator performance test records (e.g., transient tests, malfunction tests, scenario based tests, post-event tests, steady state tests, and core performance tests), simulator discrepancies, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy corrective action process to ensure that simulator fidelity was being maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics.
- Conformance with Operator License Conditions (10 CFR 55.53): The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53(e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators, and which control room positions were granted watch-standing credit for maintaining active operator licenses. Additionally, medical records for seven licensed operators were reviewed for compliance with 10 CFR 55.53(l).

This inspection constitutes one biennial licensed operator requalification inspection sample as defined in IP 71111.11B.

b. Findings

(1) Licensed Operator Exam Material Temporarily Left Unattended In Plant Area

During administration of an Annual Operating Test JPM, the licensee evaluator and operator being examined left the associated plant procedure and JPM initiating cue

sheet at the job site in the plant while temporarily leaving the area to retrieve a tool as part of the activity simulation. The materials were left unattended for a maximum of 3 minutes. Control of the examination material was not in accordance with Fermi 2 Nuclear Training Work Instruction, Section 1.0 Administration Instruction 1.16, Step 7.2.1, which states, "The individuals in possession of exam materials that leave the Exam Development Room are responsible for maintaining control of that exam material." The operator was the last to perform the JPM on that day, and the JPM was not scheduled to be performed again during the annual operating test. No other person had entered the key-carded room containing the unattended JPM. The licensee documented the examination security issue in Condition Assessment Resolution Document 11-29924. Since the material was not to be used again, and no person carded into the room during that time, the inspectors determined that the procedural event was minor and that no compromise of examination material occurred.

No findings were identified.

## 1R12 Maintenance Effectiveness (71111.12)

### .1 Routine Quarterly Evaluations (71111.12Q)

#### a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- D1100 Process Radiation Monitor SS-1 Computer (this was carried over from and counted as a sample in Inspection Report 05000341/2011004); and
- R3600 Emergency Lighting.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly maintenance effectiveness sample as defined in IP 71111.12-05.

b. Findings

(1) Failure to Develop Appropriate Corrective Actions for a Maintenance Rule (a)(1) Monitored System

Introduction: The inspectors identified a finding and associated non-cited violation (NCV) of 10 CFR 50.65 for failure to develop appropriate corrective actions for an (a)(1) monitored system. The licensee failed to determine the cause of repeated SS-1 computer and printer lock ups in the D1100 process radiation monitor system. They determined the D1100 SS-1 computer should be monitored as (a)(1) status, and established (a)(1) monitoring goals, established a get-well plan, and implemented their plan. However, the get-well plan corrective actions failed to meet the (a)(1) monitoring goals and further inspection revealed the weaknesses in the causal determination and the ineffectiveness of the corrective actions.

Description: The D1100 process radiation monitor system provides indication of levels of activity in effluent and selected process streams. The stationary particulate, iodine, and noble gas (SPING) and standby gas treatment systems (SGTS) provide input to the SS-1 computer, which is then provided to the integrated plant computer system, a local annunciator panel, the visual annunciator system (i.e., annunciator 3D44), and a printer. The SS-1 printer was replaced on January 8, 2010, to correct a printing problem. On January 9, 2010, the first of a long series of maintenance preventable functional failures (MPFF) occurred whereby the SS-1 computer "locked up" while printing. When locked up the SS-1 computer is unable to receive and process inputs from the SPING and SGTS, and is unable to provide its output to the visual annunciator system 3D44. When locked up it fails to perform its maintenance rule function D1100-04, which is to monitor liquid and gaseous effluents for radiation and provide alarms and/or indication and/or trips of the associated release pathways.

As a result of this series of MPFFs, the Maintenance Rule Expert Panel (MREP) determined D1100 should be monitored as (a)(1) status on May 27, 2010, and established the (a)(1) monitoring criteria as less than three MPFFs per two cycles; and no repetitive MPFFs per two cycles. The get-well plan was approved on July 17, 2010, to correct causes. Implementation of the get-well plan was completed December 29, 2010. During this period the system engineer assigned to D1100 was changed multiple times. Additionally, engineering had eliminated the investigation of software problems from the causal investigation. At least some of the SS-1 computer lockups observed during this period were determined to be a result of software issues. Further, the SS-1 printer was not replaced with an equivalent printer during the original get-well plan implementation.

Subsequently, on January 3, 2011, the SS-1 computer locked up while printing and the D1100 SS-1 computer MPFFs observed during the first quarter of 2011 were at the highest rate experienced to date. As stated in CARD 10-20156, the D1100 get-well plan that had just been implemented was ineffective. The licensee's Maintenance Rule Conduct Manual Appendix D, guidance for determining functional failures, Section 4.2.5 states that the second MPFF occurs following the first MPFF and the implementation of corrective actions. The corrective actions for the D1100 SS-1 computer were

implemented on December 29, 2010, and the next similar failure occurred on January 3, 2011; and therefore, this failure was repetitive. Further investigation revealed that the causal analysis was flawed and the corrective actions were not appropriate to meet the (a)(1) monitoring goals.

Analysis: The inspectors determined the failure to develop appropriate corrective actions for the D1100 process radiation monitoring system SS-1 computer following identification of multiple MPFFs, designation of (a)(1) status and establishment of (a)(1) monitoring goals, the development, approval and the implementation of the get-well plan was a performance deficiency that required evaluation using the SDP. The inspectors determined this finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and impacted the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). This finding was determined to be of very low safety significance because all the screening questions in IMC 0609, Attachment 04, Table 4a, for the Mitigating Systems Cornerstone were answered "no."

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action, problem evaluation aspect because the licensee failed to appropriately evaluate the causes of the D1100 SS-1 computer problems (P.1 (c)).

Enforcement: Title 10 CFR 50.65, Maintenance Rule, section (a)(1) requires, in part, the holders of an operating license shall monitor the performance or condition of structures, systems, or components within the scope of the rule as defined by 10 CFR 50.65 (b), against licensee-established goals, in a manner sufficient to provide reasonable assurance that such structures, systems or components are capable of fulfilling their intended functions. When the performance of a structure, system or component does not meet established goals, appropriate corrective action shall be taken. Contrary to the above, following identification of multiple MPFFs, and the development, approval and implementation of a get-well plan for the SS-1 computer, the SS-1 computer experienced another lock up while printing. Further inspection revealed that the corrective actions were not appropriate. Because the violation was of very low safety significance and it was entered into your CAP as CARDS 11-27553 and 10-20156, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000341/2011005-01; Failure to Develop Appropriate Corrective Actions for a Maintenance Rule (a)(1) Monitored System).

#### 1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

##### .1 Maintenance Risk Assessments and Emergent Work Control

###### a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify the appropriate risk assessments were performed prior to removing equipment for work:

- risk during emergency equipment cooling water/emergency equipment service water and ultimate heat sink (UHS) outage;

- risk during division 2 RHR work week;
- risk during EDG 13 safety system outage, 2-year preventative maintenance (PM); and
- risk from disconnected “Z” phase output cable from 2B transformer.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the Attachment to this report.

These maintenance risk assessments and emergent work control activities constituted four samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- CARD 11-29444, turbine trip (TT) circuit fault and CARD 11-29546 TS entry condition not entered.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted one sample as defined in IP 71111.15-05.



b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modifications:

- TM 08-0025, Feedwater Control DCS Power Supply Monitoring; and
- TM 11-0029, Gag High Pressure Coolant Injection (HPCI) Minimum Flow Isolation Valve.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TSs, as applicable, to verify the modification did not affect the operability or availability of the affected systems. The inspectors, as applicable, observed ongoing and completed work activities to ensure the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

This inspection constituted two temporary modification samples as defined in IP 71111.18-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance activities to verify procedures and test activities were adequate to ensure system operability and functional capability:

- reactor recirculation motor-generator (RRMG) set brush replacement;
- Procedure 54.000.03, Control Rod Scram Insertion Time Testing for Control Rod 10-35;
- rod block monitor "a" trouble shooting and repair;
- high pressure stop/control and bypass valve testing; and

- Procedure 47.000.02, Mechanical Vibration Testing for Post-maintenance Testing of RRMG South Cooling Fan.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure the test results adequately ensured the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted five post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- 24.307.33; EDG 14 Start from the Control Room (routine);
- 24.307.31; EDG 12 Start from the Control Room (routine);
- 24.404.03; Standby Gas Treatment System Valve Operability Test (inservice testing)
- 54.000.03; Control Rod Scram Insertion Time Testing (routine); and
- 24.206.01; RCIC Pump Operability and Valve test @ 1000 psig (inservice testing)

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted three routine surveillance testing samples and two inservice testing samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

.1 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, the licensee implemented Emergency Plan Revision 39 based on its determination, in accordance with

10 CFR 50.54(q), that the changes resulted in no decrease in effectiveness of the Plan, and that the revised Plan as changed continues to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors conducted a sampling review of the Emergency Plan changes to evaluate for potential decreases in effectiveness of the Plan. However, this review does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

This emergency action level and emergency plan changes inspection constituted one sample as defined in IP 71114.04-05.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness**

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Residual Heat Removal System performance indicator for the period from the third quarter 2010 through the third quarter 2011. To determine the accuracy of the performance indicator (PI) data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC integrated inspection reports for the period of October 2010 through September 2011 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI residual heat removal system (MS09) sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems performance indicator for the period from the third quarter 2010 through the third quarter 2011, interval should reflect the period from the last inspection of the PI to the latest licensee submittal. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC integrated inspection reports for the period of September 2010 through September 2011, time period should reflect reporting period for the PI review period to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI cooling water system (MS10) sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, adequate attention was being given to timely corrective actions, and adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on licensee human performance issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, and licensee trending reports. The inspectors' review nominally considered the 6 month period of July 2011 through December 2011, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP including human performance steering committee and human performance department coordinator meetings, site/department/crew clock resets, human performance metrics, quality assurance audit/surveillance reports, self-assessment reports, interviews with management, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This review constituted one semi-annual trend inspection sample as defined in IP 71152-05.

b. Observation

Introduction: The inspectors observed that the licensee had failed to enter the correct TS limiting condition for operations (LCO) condition subsequent to Fermi 2 experiencing a loss of the capability to initiate a turbine trip on reactor pressure vessel (RPV) level 8 on October 19, 2011, as described in CARDS 11-29444 and 11-29546. The loss of the capability to initiate a turbine trip on RPV level 8 occurred during instrumentation and control (I&C) technicians conducting testing on high condenser pressure switch N30N216B.

Description: While I&C technicians were conducting testing on high condenser pressure switch N30N216B, at 1332 hours, on October 19, 2011, Fermi 2 experienced a "turbine protection circuit fault" annunciator alarm. The sequence of events recorder indicated that the cause of the alarm was "turbine trip circuit fault." The operators entered TS 3.3.2.2, Condition A, Feedwater and Main Turbine High Water Level Trip Instrumentation, and directed the I&C technicians to secure the high condenser pressure switch testing. The technicians lifted the leads to separate the condenser pressure high trip switches from positive voltage feed, and the turbine trip circuit fault alarm cleared at 1511 hours. The operators then exited TS 3.3.2.2 Condition A. The licensee established an emergent issue team to investigate the cause of this problem with the turbine trip circuit.

The licensee determined that while the main turbine trip circuitry was de-energized, it was not capable of tripping on an RPV level 8 signal; and when the circuitry was re-energized at 1511, the capability to trip the turbine on an RPV level 8 signal was restored. The inspectors determined TS 3.3.2.2, Condition B, Feedwater and Main Turbine High Water Level Trip Capability Not Maintained, applied to the plant conditions. This condition has a two (2) hour action statement. Thus, although the incorrect TS LCO had been entered, the condition was corrected within the two (2) hour action statement time limit. Because the licensee corrected the condition within the correct LCO action statement time limit, the inspectors determined that the issue was minor.

c. Findings

No findings were identified.

.4 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the operator workarounds (OWAs) on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of OWAs. The documents listed in the Attachment were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their CAP and proposed or implemented

appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of Mitigating Systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified operator workarounds.

This review constituted one operator workaround annual inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.5 Selected Issue Follow-up Inspection: Extent-of-Condition Evaluation for Use of Certified Mill Test Reports in Drywell Structural Steel Evaluations

a. Inspection Scope

The inspectors performed a review of the extent-of-condition evaluation performed by the licensee to identify structural steel members in the drywell that were evaluated using certified mill test reports (CMTRs) instead of the minimum specified material strengths. During inspections associated with the independent spent fuel storage Installation (ISFSI), NRC had identified the concern that use of CMTRs was not consistent with edition 7 of the American Institute of Steel Construction Manual of Steel Construction which is the code of record for the plant. The licensee revised the calculations associated with the ISFSI to remove the use of CMTRs and performed an extent of condition evaluation to identify other calculations involving seismic category I structures where CMTRs may have been used. The inspectors reviewed related CARDS and technical evaluations to assess the adequacy of the licensee extent-of-condition evaluation for the drywell steel.

b. Observations

The inspectors found that while the use of CMTRs was identified in various CARDS, the action to perform an extent of condition was included in the CARD 10-28090-08 and was documented under Technical Evaluation TE-T22-10-078. Action 10-28090-14 was created to revise the associated calculations to demonstrate adequacy of the affected structural steel members based on the specified minimum strengths rather than the CMTR values. The inspectors noted that as part of the technical evaluation, the licensee used a systematic process for identification and review of structural calculations and seismic category I structural members to determine whether CMTR values were used in their evaluation and also to identify the stress levels in such members. Based on the stress interaction ratios identified in the technical evaluation, the licensee concluded the issue did not affect the plant operability.

During a plant walkdown, the inspectors identified a concern regarding adequate installation clearances between two 10" diameter temporary steel columns installed to



support the reactor building first floor during ISFSI campaigns and the adjacent structures/components. Actual clearance could not be measured due to the presence of insulation and accessibility. The calculation associated with the columns did not address any clearance concerns. The licensee documented the concern in CARD 11-29905 and subsequently provided evaluation to demonstrate the available clearance met the design requirements. Documents reviewed are described in the Attachment to this report.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

c. Findings

No findings were identified.

.6 Fuel Move Error in Spent Fuel Pool During Non-Outage Fuel Handling

a. Inspection Scope

The inspectors reviewed the self-revealed fuel movement error in the spent fuel pool during badger testing of the boron cell plates.

b. Finding

Introduction: A self-revealed finding of very low safety significance (Green) for placing a fuel bundle in the wrong cell during a fuel shuffle in the spent fuel pool. The error was noted later in the fuel shuffle when fuel handling personnel attempted to move another bundle to the same location and the operators noted that the cell was filled.

Description: On November 1, 2011, operators were moving spent fuel in the Spent Fuel Pool (SFP) in preparation for testing of boron concentration in the high density racks. At approximately 1134, while performing step 150 of the approved MES32003, Special Nuclear Material/Component Transfer Form (FTF), operators discovered that there was already a fuel bundle occupying the target location (4N-12) for step 150. The Refuel Floor Coordinator (RFC) was informed and the bundle was returned to its original starting location. The Shift Manager directed that all further fuel moves be halted pending investigation.

Fuel movement to support badger testing had commenced on October 26, 2011. An integrated pre-job brief was conducted prior to the evolution on October 25, 2011, which was attended by all Fuel Handlers, RFCs, Reactor Engineers assigned to badger testing, Supervisor Reactor Services, Radiation Protection, and the Outage and Work Management General Supervisor and Manager. The briefing was detailed and covered all required elements except that it did not cover specific procedural steps for moving fuel per 35.710.030, Non-Outage Fuel Movement in the Spent Fuel Pool, nor identify critical steps related to that procedure.

Commencing on November 1, 2011, the licensee directed that Reactor Engineers would serve as Spotter/Verifiers as allowed by MOP16, Conduct of Refuel Floor Activities (Non-Outage), instead of the Westinghouse Fuel Handlers. There is no specific qualification for Spotter/Verifier. Although the Spotter/Verifier was familiar with 35.710.030, it had not been reviewed immediately prior to the task. Neither the sequence of events nor the critical steps were covered as part of the Pre-Job Brief.

Steps 132 through 144 were completed without error. Step 145 of the FTF was commenced. Proper bundle was verified via agreement between the Spotter/Verifier and the Fuel Handler by reading the bundle serial number, YJ7054, on the camera. The bundle was then raised. While the Refueling Platform (RFP) was still stationary, the Spotter/Verifier granted permission to his relief to enter the RFP. It is typical and expected for oncoming Fuel Handlers and Spotter/Verifiers to watch the off-going fuel handling team through a fuel movement. Although some discussion took place between the oncoming and off going Spotter/Verifiers regarding the upcoming badger testing, the testing was stopped by the on duty Spotter/Verifier when it was time to move the bundle to its target location.

After the Fuel Handler and the Spotter/Verifier agreed on the correct "To" or target location, the Fuel Handler moved the RFP to the desired location. The desired "To" location was in the newer, higher density "Holtec" racks, and therefore, the grid markings on the bridge did not line up with the cells in the SFP. The Fuel Handler must rely on counting from fixed locations and the labeling of rows and columns in the fuel pool to arrive at the correct location. The Spotter/Verifier, by procedure, counts from a fixed location to determine the correct location.

Procedure 35.710.030, Non-Outage Fuel Movement in the Spent Fuel Pool, requires that following agreement between the Fuel Handler and Spotter/Verifier that the RFP is in the correct location, that the bundle is lowered until it is "near the SFP entry point" and then the Spotter/Verifier verifies correct SFP location by counting cells or bundles from a fixed geographic location. The Spotter/Verifier stated that he believed that since the bundle was only 18 inches above the cell to start with that lowering the bundle prior to performing the verification was not necessary. The verification was performed by counting with the bundle 18 inches above the cell entry point. Another challenge at this point was that the row of the rack that the bundle was to be placed in was partially obscured by a row of labels for the columns (4S through 4H). The Spotter/Verifier miscounted and the bundle was placed in cell 4N-11 instead of the required 4N-12.

Following placement of the bundle and ungrappling, The Spotter/Verifier turned over to his relief. The next four moves were completed without error. At step 150, the Fuel Handler reported that there appeared to be a bundle already occupying the "To" location for step 150. The RFC was informed and the bundle for step 150, YJ2692 was directed to be returned to its original "From" location. The bundle was returned as directed and ungrappled. All fuel movement was stopped. The FTF was updated to reflect the actual locations of bundles YJ7054 and YJ2692.

Analysis: The inspectors determined that placing a spent fuel bundle in the wrong cell in the spent fuel pool was a performance deficiency that required a significance determination process (SDP) evaluation. The inspectors determined that this finding was more than minor because if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. This finding was determined to be of very low safety significance because all the screening questions in IMC 0609 Attachment 0609.04 Table 4a, Characterization Worksheet for IE, MS, and BI Cornerstones were answered "no".

This finding had a cross-cutting aspect in the area of human performance, work practices because the licensee failed to provide direct licensed operator oversight (H.4(c)) of fuel handling operations in the spent fuel pool.

Enforcement: This finding does not involve enforcement action because no regulatory violation was identified. Because this finding does not involve enforcement action and has very low safety significance and was entered into your CAP, CARD 11-29841, "Fuel Move Error in Spent Fuel Pool," it is identified as FIN 05000341/2011005-02, Fuel Move Error in Spent Fuel Pool during Non-Outage Fuel Handling.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000341/2011-001; High Pressure Coolant Injection System Inoperable Minimum Flow Valve

On September 6, 2011, during surveillance testing of the high pressure coolant injection (HPCI) system, control room position indication was lost on the HPCI minimum flow valve as the valve was stroking closed following shutdown of HPCI. Operators declared the HPCI minimum flow valve inoperable at 0104 Eastern Daylight Time. The minimum flow valve main power fuses were checked, found blown and replaced. During a subsequent stroking of the valve, control room position was lost and main power fuses were found blown again. The valve was locally verified closed and system troubleshooting was performed. The licensee determined that the minimum flow valve motor windings were determined to have developed an electrical short causing the fuses to blow. The motor and associated components were replaced and tested satisfactorily. Post-maintenance testing was successfully completed and the HPCI system was declared operable at 2300 Eastern Daylight Time on September 10, 2011. The issue was documented in the licensee's CAP as CARD 11-28197. Because this was discovered during the licensee's normal testing program, no findings were identified and no violation of NRC requirements occurred. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

.2 Main Unit Transformer 2B Z Phase Repairs/Downpower

At 1155 hours on November 15, 2011, one of two of the Z phase conductors on the main unit transformer 2B Z phase disconnect was observed to have come loose from the welded terminal connection at the disconnect switch and to be hanging free. Engineering determined by analysis and thermography that the single Z phase conductor could safely carry the Z phase current while plans for repair were prepared. Power was reduced to 20 percent and the main generator was taken offline on November 17, 2011. International Transmission Company restored the connection for the second Z phase conductor. The main generator was synchronized back to the grid at 1920 hours on November 17, 2011. Documents reviewed as part of this inspection are listed in the Attachment.

This event follow-up review constituted one sample as defined in IP 71153-05.

.3 Loss of Safety Parameter Display System and Emergency Response Data System

At 1017 hours on December 16, 2011, a loss of the safety parameter display system (SPDS) and emergency data response system (ERDS) functions occurred due to a malfunction of the integrated process computer system. At 2235 hours on December 16, 2001, the SPDS and ERDS functions were restored following the restoration of multiplexors A, B, and C. Multiplexor D remained out of service pending

resolution of an in progress work order. Documents reviewed as part of this inspection are listed in the Attachment.

This event follow-up review constituted one sample as defined in IP 71153-05.

#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

On January 12, 2012, the inspectors presented the inspection results to J. Plona, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

##### .2 Interim Exit Meetings

Interim exits were conducted for:

- the licensed operator requalification training biennial written examination and annual operating test results with the Licensed Operator Requalification Lead, Mr. T. Barrett, via telephone on November 14, 2011; and
- the annual review of Emergency Action Level and Emergency Plan changes with Mr. G. Henscheid, Radiological Emergency Response Preparedness Specialist, via telephone on November 22, 2011.

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

J. Plona, Site Vice President  
T. Conner, Plant Manager  
M Caragher, Engineering Director  
W. Colonna, Nuclear Support Director  
K. Scott, Organizational Effectiveness Director  
R. Johnson, Licensing Manager  
G. Strobel, Operations Manager  
J. Davis, Training Manager  
G. Henscheid, Radiological Emergency Response Preparedness Specialist

#### Nuclear Regulatory Commission

Jamnes L. Cameron, Chief, Reactor Projects Branch 6

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

### Opened and Closed

05000341/2011005-01	NCV	Failure to Develop Appropriate Corrective Actions for a Maintenance Rule (a)(1) Monitored System.
05000341/2011005-02	FIN	Placing a Fuel Bundle in the Wrong Cell During Fuel Shuffle

### Closed

05000341/2011-001	LER	High Pressure Coolant Injection System Inoperable due to Inoperable Minimum Flow Valve
05000341/2011005-01	NCV	Failure to Develop Appropriate Corrective Actions for a Maintenance Rule (a)(1) Monitored System.
05000341/2011005-02	FIN	Placing a Fuel Bundle in the Wrong Cell During Fuel Shuffle

## **LIST OF DOCUMENTS REVIEWED**

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or 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.

### **1R01 – Adverse Weather Protection**

- Procedure 27.000.07; Cold Weather Operations; Revision 3
- Procedure 27.000.07, Attachment 2; Cold Weather Preparations Checklist; 11/22/2011

### **1R04 – Equipment Alignment**

- Drawing 6M721-5730-3; Non-Interruptible Control Air System Division I and II; Revision AI
- Drawing 6M721-5734; Emergency Diesel Generator System; Revision BC
- Drawing 6M721-5736-2; Control Center A/C Water System; Revision R
- Drawing 6M721-5736-3; Control Center A/C Air system; Revision I
- Procedure 23.307, Attachment 1D; EDG 14 Valve Lineup
- Procedure 23.307, Attachment 2D; EDG 14 Electrical Lineup
- Procedure 23.307, Attachment 3D; EDG 14 Instrument Lineup
- Procedure 23.413, Attachment 1; Control Center HVAC System Valve Lineup; Revision 11/30/10
- USFAR 8.3; Onsite Power systems; Revision 17

### **1R05 – Fire Protection**

- CARD 11-29917; Exposed wire coming from insulation; 11/03/2011
- CARD 11-30052; NRC Contact – Torus Fire Detection; 11/08/2011
- Drawing 6A721-2402; Fire Protection Evaluation Reactor and Auxiliary Buildings Basement; Revision P
- Drawing 6I721-2868-6; Installation Fire Detection System Reactor Bldg.; Revision A
- Drawing 6I721-2868-12; Installation Fire Detection System Reactor Building First Floor, EL 583'6", Zone 7; Revision G
- Fire Protection Engineering Evaluation 11-0006; Determination of Functionality of Misaligned Smoke Detector T82N448A in the Torus Room (Detection Zone 1); 11/23/2011
- Fire Protection Evaluation RadWaste Building Second Floor Plan EL 613'6"; Revision G
- Technical Evaluation-T41-11-084; Evaluation of the HVAC Airflows around the Non-Compliant Location of Smoke Detector T82N448A; 11/23/2011

### **1R06 – Flood Protection**

- CARD 11-00010; Manhole 16550 Sump Pump Trips Circuit Breaker (Repeat Issue); 11/25/2011
- CARD 11-00011; Manhole 16963 Sump Pump Trips Circuit Breaker; 11/25/2011
- CARD 11-00012; Manhole 16551 High Level Alarm with Pump Running; 11/25/2011
- CARD 11-00013; Manhole 16944 Has High Water Alarm with Sump Pump Running; 11/25/2011
- CARD 11-00014; Manhole 16552 Sump Pump Running Continuously in Auto with Level Low in Sump; 11/25/2011

- CARD 11-00015; Manhole 16549 has High Level Alarm with Sump Pump Breaker Tripped; 11/25/2011
- CARD 11-30389; Manhole Sump Pump 16952 has High Water Level Alarm; 11/20/2011
- CARD 11-30614; The Cable Vault Sump Pumps have Performed Less Than Adequately Since Installation; 11/30/2011
- CARD 11-30660; Manhole sump pump y4100-p018 not working; 12/02/2011
- LOR End of Course Feedback Summaries; 2010-01 through -04, and 2011-01 Through -04
- MES60; Electrical Cable Monitoring Program; Revision 5
- PEP 21; Cable Monitoring, Program Notebook; Revision 2
- PEP 21, Appendix A; Compensatory Pumping Frequency for Manholes with Sump Pumps; 09/16/2011
- PEP 21, Appendix B; Cable Monitoring Program Scope List; 10/21/2011
- PEP 21, Appendix C; Cable Monitoring Program Long-Term Program Strategy; 09/16/2011
- Procedure 47.000.02; Mechanical Vibrations Measurements for Trending; Revision 42
- Program Health Report Fermi 2; Cable Monitoring Program; 2<sup>nd</sup> Quarter 2011
- System Health Fermi 2, Storm Sewer System Y4100; 2<sup>nd</sup> Quarter 2011

#### 1R11 – Licensed Operator Requalification Program

- 2010 LOR Written Exam Analysis; Scores and Averages for Cycles 10-01, 10-02, 10-03, 10-03 Make-up
- 2011 LOR Written Exam Analysis; Scores and Averages for Cycles 11-01, 11-02, 11-03, 11-04, 11-01 Make-up, 11-02 Make-up, 11-03 Make-up, 11-04 Make-up
- 2010 LOR Individual and Crew Scenario Assessments; Cycles 10-01, 10-02, 10-03
- 2011 LOR Individual and Crew Scenario Assessments; Cycles 11-01, 11-02, 11-03, 11-04
- 2010 Annual LOR Operating Test Evaluations
- 2011 Annual LOR Operating Test Evaluations
- Administrative Instruction 1.15; Simulator Work Process; Revision 13
- Administrative Instruction 1.20; Simulator Fidelity; Revision 1
- Administrative Instruction 1.22; Simulator Core Performance Testing; Revision 2
- CARD 11-29924; Licensed Operator Exam Material Left Unattended in Plant Area; 11/03/2011
- EP-101; System Malfunctions, Enclosure A, Tab S
- Evaluation Scenario SS-OP-904-1053; APRM Failure/72R Loss/Loss of Air/ATWS/SRV Failure; Revision 4
- Fermi Administrative Instruction 1.23; Revision 3
- LOR Attendance Cycles; 10-1 through 10-05 and Cycles 11-01 through 11-04
- Evaluation Scenario SS-OP-904-0181; 50 Percent/RWCU Trips/HPCI Steam Leak/Torus Leak; Revision 3,
- Evaluation Scenario SS-OP-904-1068; Control Rod Drift/Earthquake/LOCA; Revision 2
- NQA Report 10-03 (3rd and 4th Quarter 2009; 1st Quarter 2010); January-March 2010
- NANT-10-0034; 2009 LOR Annual Requalification Examination Analysis-Quick Hit Self-Assessment; 03/08/2010
- NANT-10-0072; Level 3 Evaluation On Operator Continuing Training; LOR/NOR Cycle 2009-03; 04/09/2010
- NANT-10-0079; Quick Hit Self-Assessment; Performance Review of nuclear Training Performance Indicators; 04/22/2010
- NANT-10-0115; Shift Manager's Six Month Feedback Analysis; 06/09/2010
- NANT-10-0142; Licensed Operator Medical Testing; Quick Hit Self-Assessment; 07/09/2010
- NANT-10-0149; Quick Hit Self-Assessment; Performance Objectives/Lessons; 07/15/2010
- NANT-10-0183; Nuclear Operator Initial Training Six Month Feedback Analysis; 08/30/2010
- NANT-10-0203; Training Committee Meeting Minutes; Quick Hit Self-Assessment; 09/30/2010



- NANT-10-0204; PILAR Process Review; Quick Hit Self-Assessment; 09/30/2010
- NANT-10-0234; Quick Hit Self-Assessment; Performance Review of Nuclear Training Performance Indicators; 12/06/2010
- NANT-11-0003; Quick Hit Self-Assessment; 2010 Instructor Classroom Performance; 01/04/2011
- NANT-11-0004; OHSA; Nuclear Training Corrective Action Self-Assessment; 01/07/2011
- NANT-11-0040; Nuclear Operator Six Month Feedback Analysis; 03/28/2011
- NANT-11-0054; Licensed Operator Medical Testing-OHSA; 04/29/2011
- NANT-11-0059; ILO Six Month Feedback Analysis; 05/05/2011
- NANT-11-0063; OSHA OJT/TPE Guides; 05/16/2011
- NANT-11-0092; Quad Cities NRC IP71111.11 Audit Assist (Industry Working Group Benchmark Report); 07/05/2011
- NANT-11-0102; Fully Qualified Instructor Six Month Feedback Analysis; 07/25/2011
- NANT-11-0106; 2011 Comprehensive Program Evaluation of Operations Training Program; 07/29/2011
- NANT-11-0137; Focused Self-Assessment for CARD 11-25372 Assessing Training Effectiveness in Addressing Operator Revised Fundamentals; 07/29/2011
- NQA Report 10-09 (4th Quarter 2009; 1st, 2nd, 3rd Quarter 2010); July-September 2010
- Nuclear Quality Assurance Audit Report 10-107; Training and Qualification of Unit Staff: July 19-30, 2010
- Nuclear Training Work Instruction Remediation and Re-Evaluation Instruction 5.15, Att. 1; Revision 11
- Nuclear Training Work Instruction Section 5.0 Implementation of Training Instruction 5.14; Revision 2
- Nuclear Training Work Instruction Section 1.0 Administration Instruction 1.16; Revision 27
- ODE-8 Att. 3, Shift 1 Active License Required Hours 1st Quarter 2011; Revision 10
- ODE-8 Att. 3, Shift 2 and 3 Active License Required Hours 1st Quarter 2011; Revision 7
- ODE-8 Att. 3, Shift 4 and 5 Active License Required Hours 1st Quarter 2011; Revision 9
- ODE-8 Att. 3, Shift 1 Active License Required Hours 2nd Quarter 2011; Revision 8
- ODE-8 Att. 3, Shift 2 Active License Required Hours 2nd Quarter 2011; Revision 10
- ODE-8 Att. 3, Shift 3, 4, 5 Active License Required Hours 2nd Quarter 2011; Revision 7
- ODE-8 Att. 3, Shift 1 Active License Required Hours 3rd Quarter 2011; Revision 8
- ODE-8 Att. 3, Shift 2 Active License Required Hours 3rd Quarter 2011; Revision 10
- ODE-8 Att. 3, Shift 3 Active License Required Hours 3rd Quarter 2011; Revision 7
- ODE-8 Att. 3, Shift 4 Active License Required Hours 3rd Quarter 2011; Revision 11
- ODE-8 Att. 3, Shift 5 Active License Required Hours 3rd Quarter 2011; Revision 9
- Operations Licensed Operator CRC Meeting Minutes; 2010 and 2011
- Operations PRC Meeting Minutes; 2010 and 2011
- Procedure MNT09, Control Room Simulator Controls; Revision 8
- Project Plan for Implementing ANSI 3.5/2009 and Scenario Based Testing; 10/31/2011
- RERP Drill Package 45c; 10/18/2011
- Simulator Assessments LOR Cycles; 2011-03
- Systems Malfunctions SS2; page 143
- Open Discrepancy Condition Reports for Simulator; 10/26/2011
- Randomly Selected Licensed Operator Medical Records (7)
- Simulator-to-Plant Differences; 2011
- Simulator Discrepancies Closed; October 2010 through October 2011
- Simulator Performance Index; 1st Quarter 2009 through 3rd Quarter 2011
- Various Biennial LOR Written Exam Questions and Supporting References
- Various Simulator Annual Tests; 2009 and 2010
- Various Simulator Initial Conditions Tests; 2009 and 2010

- Various Simulator Malfunction Tests; 2009 and 2010
- Various Simulator Normal Plant Evolution Tests; 2009 and 2010
- Various Simulator Steady State Tests; 2009 and 2010
- Various Simulator Surveillance Procedure Tests; 2009 and 2010
- Written Examination Remediation LOR Cycles; 2010-01 and 2011-03

## 1R12 – Maintenance Effectiveness

- Apparent Cause Evaluation, CARD 11-26926; R3600 System Exceeds MR Performance Criteria; 11/21/2011
- CARD 10-31690; Maintenance Rule Get-well plan Corrective Action Removed from Schedule; 12/09/2011
- CARD 11-00822; Lights Will Not Illuminate - R3600S245; 08/23/2011
- CARD 11-00824; Lamp #1 is burned out – Emergency Lights; 09/23/2011
- CARD 11-00826; Emergency Lights did not Come On when Test Button was Pushed, Voltage Dropped to Zero; 08/22/2011
- CARD 11-20156; Maintenance Rule Get-well plan for D11K610 is ineffective; 01/06/2011
- CARD 11-24478; SS-1D11K610 CPU and Printer declared MR(a)(1) status. Get-well plan required; 06/01/2010
- CARD 11-26834; Failed SPF Acceptance Criteria with No Documented Discrepancy or Resolution; 07/18/2011
- CARD 11-26926; R3000 system exceeds MR performance criteria; 07/21/2011
- CARD 11-21763; N. Sep Seal Tank Emergency Drain LCV (N22F414A) is not Working Properly; 02/15/2011
- CARD 11-27553; ACEs and MR Get-well plan for D1100 SS-1 Computer Lockups were ineffective; 08/11/2011
- CARD 11-27675; Reactor Building SPING display locked up; 08/16/2011
- CARD 11-27760; Lights Will Not Illuminate – R3600S226; 08/19/2011
- CARD 11-27765; Lights Will Not Illuminate – R3600S224; 08/19/2011
- CARD 11-27786; Green Light (trickle charge) Out on Emergency Light R3600S138; 08/22/2011
- CARD 11-27794; Battery Post Broke Off Emergency Light; 08/22/2011
- CARD 11-27796; Battery Light, Green Trickle Light is Out; 08/22/2011
- CARD 11-27813; Emergency Battery Light 8 Hour Test Failure, Group 9; 08/23/2011
- CARD 11-27827; Emergency Battery Light R3600S131 Failed As-Found Pre-Discharge Test Acceptance Criteria; 08/23/2011
- CARD 11-27836; Level 3 CARD 11-25217 “Cooler in Aux 2 Switchgear Room is Leaking” Never Received a Shift Manager Review; 08/23/2011
- CARD 11-27974; Radwaste Control Room Emergency Light Pack (R3600S017) Electrical Short; 08/27/2011
- CARD 11-28008; Emergency Lighting Unit Not Installed per Design Document; 08/29/2011
- CARD 11-28009; Document Change Requests required for Emergency Lighting Unit; 08/29/2011 Procedures; 08/29/2011
- CARD 11-28206; Perform Common Cause Analysis; 09/06/2011
- CARD 11-30031; Insights from Discussion with NRC on D1100 and R3600 Maintenance Rule Issues; 11/07/2011
- CARD 11-30631; SS-1, Rad Monitor Control Terminal Printer Locked Up; 11/30/2011
- DTE Memo TMIS-09-0053; Summary of Expert Panel Meeting 207, Conducted July 6, 2009; 07/23/2009
- Equipment Apparent Cause Evaluation; D11K610 (SS-1) Declared Maintenance Rule (a)(1) due to Numerous Lock Ups Since January 2010; 05/27/2010

- Fermi 2 SSC and Get-well plan Status Report; 10/24/2011 and 11/31/2011
- Get-well plan; (a)(1) SSC: D11K610(SS-1); Revision 1
- Get-well plan; SSC: R3600 – Emergency Lighting; Revision 0
- Log 96-034; Maintenance Rule Program Position; 03/27/2011, Revision 4, and 03/21/1999, Revision 3
- Maintenance Rule Functional Failure Evaluation; System R3600; 09/15/2009 – 10/07/2011
- Maintenance Rule Functional Failure Evaluation; 01/26/2011 through 08/09/2011
- PC Trending Report; December 2009; February, April, May, and July 2010; April and August 2011
- Procedure 28.506.01; Emergency Lighting 30-Day Inspections; Revision 33
- Procedure 37.000.014; Emergency Lighting Performance Evaluation; Revision 51
- Process Radiation Monitoring System D1100; 2011Q2, 2011Q1, 2010Q4, 2010Q2
- RID 81414; Replacement of Obsolete SS-1 Printer; 05/23/2011
- WO 32378993; SS-1 CPU and Printer (D11k610) were declared MR(a)(1); 02/17/2011
- WO 30395941; Perform Periodic Verification of AOP 20.000.18; 03/29/2011

#### 1R13 – Maintenance Risk Assessments and Emergent Work Control

- CARD 11-29872; PSA Look-Ahead Risk Profile did not evaluate increased Initiator; 11/02/2011
- CARD 11-30256; Disconnected Conductor on 345kV Disconnect CI-B; 11/15/2011
- Document Change Request; Procedure MMR12; 07/21/2011
- Fermi 2 Plan of the Day; September 30, October 4, 25, 27, 28, and 31, November 1 – 4, 2011
- Maintenance Rule conduct Manual MMR12; Equipment Out of service Risk Management; Revision 11
- Risk Profile Summary (Actual); 10/24/2011
- Risk Profile Summary (Summary); 20/24/2011
- Scheduler's Evaluation for Fermi 2; 10/24/2011 through 11/4/2011
- T+1 Performance Analysis Review; Work Week 1144; 10/24/2011

#### 1R15 – Operability Evaluations

- CARD 11-29444; TT circuit fault
- CARD 11-29546; TS entry condition not entered
- CARD 11-30644; TS curves for P/T for Core Critical and Core Not Critical determined to be non conservative

#### 1R18 – Plant Modifications

- CARD 11-29752; NRC Identified – Temp Mod did not consider seismic impact; 10/28/2011
- Design Calculation 6075; Seismic Qualification of Panel H11P612 by Finite Element Analysis; 04/19/2000
- Technical Evaluation TE E41-22-073; Temporary Gagging Device for E4150F012; 09/09/2011
- Technical Evaluation TE E41-11-072 Evaluate Motor Stall impacts on HPCI Min Flow MOV 34150F012; 09/08/2011
- Temporary Modification 08-0025; Feedwater Control Distributed Control System Power Supply Monitoring Using a Voltage Data Recording Device; 09/01/2012
- Temporary Modification 11-0029; Gag HPCI Minimum Flow Isolation Valve; 09/09/2011
- Temporary Modification Continuation Sheet 08-0025; Revision 0, Index Item No. B1
- Temporary Modification Continuation Sheet 08-0025; Revision E, Index Item No. A001

- Temporary Modification Continuation Sheet 08-0025; Monitor Voltage and Current on the Feedwater Control DCS; Revision E, Index Item No. 04
- Temporary Modification Fire Protection Impact 08-0025; Revision C
- Temporary Modification Installation Record 08-0025; 04/09/2009
- WO 33280576; Remove Temp Mod 11-0029 E4150F012 Gag Device; 09/09/2011
- WO 33280584; Install Temp Mod 11-0029 E4150F012 Gag Device; 09/09/2011

#### 1R19 – Post-Maintenance Testing

- CARD 10-29509; Control Rod 10-35 did not Fully Insert during Scram; 10/25/2010
- CARD 11-30357; HCU 10-35; 11/18/2011
- CARD 11-30382; RBM “A” nulled unexpectedly when resetting a rod drift during scram time testing
- Procedure 54.000.03, Attachment 1; Reactor Engineer Scram Insertion Time Checklist; 11/16/2011
- Trend Data; South RRMG Fan (T4100C014); 12/14/2011
- Troubleshooting Datasheet; WO 33656374, CARD 11-30382; 11/19/2011
- WO 31327375; Perform 24.109.02 Turbine Bypass Valves Operability Test; 12/04/2011
- WO 31407782; Perform 24.110.05 RPS-TCV/TSV Chnl Func; 12/04/2011
- WO 31875388; Perform 54.000.03, Sect 6.1 and 6.5 Control Rod Scram Insert Time Test; 11/18/2011
- WO 32497737; Perform 35.317.007 RRMG A/B Exciter Brush and Collector Ring Wear Insp/RRMG B Slip Ring Cleaning; 10/12/2011
- WO 33656374; RBM “A” nulled unexpectedly when resetting a rod drift during scram time testing; 11/29/2011

#### 1R22 – Surveillance Testing

- Full Core Rod Map Display; 11/22/2011
- Procedure 23.129, Attachment 2; Station and Control Air System Electrical Lineup; 04/06/09
- Procedure 23.129, Attachment 1C; NIAS Valve Lineup; 10/02/09
- Procedure 24.307.31; Emergency Diesel Generator No. 12 – 24-Hour Run Followed by Hot Fast Restart; Revision 41
- System r30; Emergency Diesel Generator 11, Current System Status – 2011Q2
- WO 31062534; Perform 24.307.31 EDG No. 12, 24-Hour Run Followed by Hot Fast Restart; 10/18/2011
- WO 31118420; Perform 24.307.33 EDG No. 14, 24-Hour Run Followed by Hot Fast Restart; 10/06/2011
- WO 3128511; Perform 24.206.01 RCIC System Pump Operability and Valve Test @ 1000 PSIG; 11/25/2011
- WO 33507835; Perform 24.404.03 SGTS V/U Operating Test for T4600F402 and T4600F411; 10/21/2011
- WO 31875388; Perform 54.000.03 Control Rod Scram Insert Time Test; 11/18/2011

#### 1EP4 Emergency Action Level and Emergency Plan Changes

- Fermi 2 Radiological Emergency Response Preparedness Plan; Revisions 38 and 39
- 10 CFR 50.54(q) Evaluations; October 12, 2009
- Amendment No. 187; Fermi 2 Amendment to Facility Operating License; September 23, 2011

#### 4OA1 – Performance Indicator Verification

- Fermi 2 Archived Operator Log; 12/02/2010 – 01/01/2011; 03/01/2011 – 07/01/2011; and 08/01/2011 to 09/01/2011
- MSPI Derivation Report; MSPI Residual Heat Removal System; 09/2011
- MSPI Indicator Margin Remaining in Green; 09/2011
- MSPI View Report, Cooling Water Systems; Q4/2009 through Q3/2011
- SH-IC-331-1001-001; E11 Residual Heat Removal; Revision 0

#### 4OA2 – Identification and Resolution of Problems

- CARD 11-28197; Lost Indication of HPCI Minimum Flow Valve while Performing 24.202.01; 09/06/2011
- CARD 11-29841; Fuel Move Error in Spent Fuel Pool; 11/01/2011
- CARD 11-29848; Top of Torus (RB-B); 11/01/2011
- CARD 11-30007; Emerging Trend – PI Quarterly Report NRC Cross-Cutting Areas Matrix – Work Practices; 11/07/2011
- CARD 11-30611; System Engineering HUDC review of Plant Walkdown Pre-Job Brief Checklist; 11/30/2011
- CARD 11-30633; Human Error Investigation Techniques Need to be Further Developed for use in CARD investigations; 11/30/2011
- CARD 11-30814; CARD Quality Reviews – Low Level Trend Identified in Engineering; 12/08/2011
- CARD 11-30893; Operations Shift 5 Crew Clock Reset for Low Sensitivity to Risk Awareness; 12/11/2011
- CARD 11-30941; Emerging Trend: Lack of Human Performance Tool Usage in Plant Support Engineering; 12/13/2011
- Department EFD Reset Briefing Sheet; 11-27969/NRC Identified Issues from SPF for Annual Sampling of Open Oil and Grease Containers in the Warehouse; 08/26/2011
- Department EFD Reset Briefing Sheet; 11-28035/Keycard removed from Protected Area; 08/30/2011
- Engineering Human Performance Department Index; June 2011
- Event Review; CARD 11-29841; Fuel Move Error in Spent Fuel Pool; 11/01/2011
- Fermi 2 Management Observation Program FBP-88; Revision 0
- Fermi 2 Engineering Human Performance Excellence Plan – Tier 1
- Fermi Site Safety Stand Down; 09/06/2011
- HUDC Monthly Meeting Agenda; 11/21/2011
- Human Performance Metric 1; Percent of Management Observations that Observed Procedure Use & Adherence; November 2010 – October 2011
- Human Performance Metric 2; Procedure Use & Adherence Behavior Success; November 2010 – October 2011
- Human Performance Metric 3; Site Human Performance Event-Free Day Clock Reset Rate; November 2010 – October 2011
- Human Performance Metric 4; Department Event-Free Day Resets Average Days Last 6 Resets; November 10 – October 2011
- Human Performance Metric 5; Human Performance Behaviors; November 2010 – October 2011
- Human Performance Metric 6; Percent of Required Paired Management Observations Completed; November 2010 – October 2011
- Human Performance Metric 7; Mispositionings; November 2011 – October 2011

- Human Performance Metric 8; Reinforcement of Human Performance; November 2010 – October 2011
- Maintenance Rule Stand-down Briefing Package
- NRC Engineering Human Performance Update; September 2011
- Observation Summary by Fundamental; 11/01/2011 – 11/18/2011
- Root Cause Evaluation; CARD 11-29841, Fuel Move Error in Spent Fuel Pool; Revision 0
- Site EFD Reset Briefing Sheet; CARD 11-29841; 11/01/2011

#### 4OA3 - Follow-Up of Events and Notices of Enforcement Discretion

- C96 Integrated Plant Computer System SH-IC-331-2401-001; Revision 0
- CARD 10-28090; Reactor Building superstructure Reanalysis; 09/14/2010
- CARD 10-21943; NRC Issue: Use of CMTRs for Slab over Torus Calculation; 03/04/2010
- CARD 10-21097; ISFSI Concern – NRC Question on the Stresses on Reactor Building Girders 5, 6, 14; 02/08/2010
- CARD 10-24166; NRC ISFSI Issue – CMTRs used in Calculation 4.02.09; 05/19/2010
- CARD 10-22979; NRC ISFSI Issue – Inspector's Questions about Calculations DC-6019 and Calculation 4.02.04; 04/07/2010
- CARD 10-22393; NRC ISFSI Issue – Calculation Issues; 03/19/2011
- CARD 11-29905; NRC Identified – Calculation DC-6471; 11/03/2011
- CARD 11-30256; Disconnected Conductor on 345kV Disconnect CI-B; 11/15/2011
- CARD 11-31039; While performing WO # 32263917, Install New GPS Time Server, IPCS Mux B failed; 12/16/2011
- CARD 11-31039 Troubleshooting Datasheet; 12/16/2011
- Drawing 6C721-2981; Reactor Building, First Floor ISFSI Supplemental Supports; Revision 0
- Event Notification 11-0007; Loss of SPDS and ERDS; 12/16/2011
- LER 05000341/2011-001-00; HPCI Inoperable due to Inoperable Minimum Flow Valve; 09/06/2011
- Operator Log; 11/15/2011 – 11/18/2011
- Technical Evaluation TE-T22-10-078; Revision 0
- Technical Evaluation TE-T22-11-086; Revision 0
- WO 33637119; Disconnected Conductor on 345kV Disconnect CI-B; 11/17/2011

## LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CMTR	Certified Mill Test Reports
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
ERDS	Emergency Response Data System
FTF	Material/Component Transfer Form
HPCI	High Pressure Coolant Injection
I & C	Instrumentation and Control
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
JPM	Job Performance Measure
LCO	Limiting Condition for Operations
LER	Licensee Event Report
LORT	Licensed Operator Requalification Training
MPFF	Maintenance Preventable Functional Failures
MREP	Maintenance Rule Expert Panel
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NIAS	Non-Interruptible Air Supply
NRC	U.S. Nuclear Regulatory Commission
OWA	Operator Workaround
PARS	Publicly Available Records System
PI	Performance Indicator
PI&R	Problem Identification and Resolution
RFC	Refuel Floor Coordinator
RFP	Refueling Platform
RHR	Residual Heat Removal
RPV	Reactor Pressure Vessel
RRMG	Reactor Recirculation Motor-Generator
SAT	Systems Approach to Training
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SGTS	Standby Gas Treatment System
SPDS	Safety Parameter Display System
SPING	Stationary Particulate, Iodine, and noble gas
TS	Technical Specification
UHS	Ultimate Heat Sink
UFSAR	Updated Final Safety Analysis Report
WO	Work Order

J. Davis

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Sincerely,

**/RA/**

Jamnes L. Cameron, Chief  
Branch 6  
Division of Reactor Projects

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