



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

July 29, 2013

Mr. Joseph Plona
Senior Vice-President and
Chief Nuclear Officer
DTE Electric Company
Fermi 2 - 210 NOC
6400 North Dixie Highway
Newport, MI 48166

**SUBJECT: FERMIL POWER PLANT, UNIT 2, NRC INTEGRATED INSPECTION
REPORT 05000341/2013003**

Dear Mr. Plona:

On June 30, 2013, 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 July 9, 2013, with Mr. K. Scott, Director, Production, 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.

Based on the results of this inspection, two NRC-identified findings of very low safety significance were identified. The findings involved no violation of NRC requirements.

If you contest these findings, 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.

J. Plona

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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 Agencywide Document Access and Management 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/

Michael A. Kunowski, Chief
Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report 05000341/2013003
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000341/2013003

Licensee: DTE Electric Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Dates: April 1 through June 30, 2013

Inspectors: R. Morris, Senior Resident Inspector
R. Jones, Resident Inspector
R. Jickling, Senior Emergency Preparedness Inspector
B. Kemker, Senior Resident Inspector, Clinton
R. Lerch, Project Engineer, Technical Support Section
V. Myers, Health Physics Inspector

Approved by: M. Kunowski, Chief
Branch 5
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000341/2013003; 04/01/2013 – 06/30/2013; Fermi Power Plant, Unit 2; Adverse Weather Protection, Identification and Resolution of Problems.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two Green findings were identified by the inspectors. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)" dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated January 28, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

A. NRC-Identified Findings

Cornerstone: Initiating Events

Green. The inspectors identified a finding of very low safety significance for the licensee's failure to follow the augmented quality program (AQP), nuclear plant operating agreement (NPOA), and Updated Final Safety Analysis Report (UFSAR) for plant modifications installed in the 345-kilovolt (kV) and 120-kV switchyards by the International Transmission Company (ITC) around September 2011. Specifically, the ITC liaison did not notify his counterpart at Fermi of the planned installation of new equipment in the switchyards, but no condition assessment resolution document (CARD) was issued or other communication made to Fermi 2 plant support engineering to conduct the required evaluation of proposed design modifications. In addition, no 10 CFR 50.59 review was performed of proposed changes to a modification.

The finding was determined to be more than minor because the inspectors did not see a similar example in IMC-0612, Appendix E, "Examples of minor issues." Further, because the licensee (nor ITC) had performed any design evaluation to assure the proposed activity would not have an adverse impact on the plant, the inspectors concluded that if left uncorrected this failure to perform a systematic design process in accordance with the AQP, NPOA, and UFSAR could lead to more significant safety concerns. Therefore, the issue screened as being more than minor. The inspectors evaluated the significance of the finding using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at-Power," "Exhibit 1 – Initiating Events Screening Questions," and answered "no" to the "Transient Initiators" question, "Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?" Therefore, the issue screened as having very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance, work control, because the licensee did not properly coordinate with ITC on the switchyard work to ensure the requirements of the AQP, NPOA, and UFSAR were met (H.3(b)). (Section 1R01.2)

Green. The inspectors identified a finding of very low safety significance for the licensure's failure to maintain configuration control during plant operations. Specifically, the inspectors identified multiple instances concerning the improper storage of equipment and control of scaffolding from January 1 through June 30, 2013. These instances did not meet the requirements of several licensee programs and management expectations.

The multiple instances constitute a programmatic issue with configuration control. This issue is more than minor because if left uncorrected would lead to a more significant safety concern and is similar to Inspection Manual Chapter (IMC) 0612, Appendix E, Section 4, Example a, in that the licensee routinely failed to perform procedurally-required engineering evaluations on similar issues. Specifically, multiple examples were identified where the licensee placed items in the plant without proper engineering evaluation. The inspectors evaluated the significance of the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at-Power," "Exhibit 1 – Initiating Events Screening Questions," and answered "no" to the "Transient Initiators" question, "Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?" Therefore, the issue screened as having very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance, work practices, because the licensee either failed to follow established procedures or removed the controls from applicable procedures (H.4(b)). (Section 4OA2.1)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Fermi Unit 2 entered the inspection period operating at 65.5 percent power. On April 26, 2013, the plant was shut down to perform high pressure turbine control valve work. The plant was restarted on May 9 and returned to 68 percent power on May 11. The plant continued to operate at 68 percent power through the end of the inspection period.

REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Summer Seasonal Readiness Preparations

a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems, including conditions that could lead to an extended drought.

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 UFSAR and performance requirements for systems selected for inspection and verified operator actions were appropriate as specified by plant specific procedures. Specific documents reviewed during this inspection are listed in the Attachment to this report. 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 the CAP in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Reactor Building Closed Loop Cooling System
- Turbine Building Ventilation System

This inspection constituted one seasonal adverse weather sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings were identified.

.2 Readiness of Offsite and Alternate Alternating Current Power Systems

a. Inspection Scope

The inspectors verified plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission

system operator (TSO) and the plant to verify the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- coordination between the TSO and the plant during off-normal or emergency events;
- explanations for the events;
- estimates of when the offsite power system would be returned to a normal state; and
- notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified the procedures addressed the following:

- actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;
- re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment to this report. The inspectors also reviewed CAP items to verify the licensee was identifying adverse weather issues at an appropriate threshold and entering them into the CAP in accordance with station corrective action procedures.

This inspection constituted one readiness of offsite and alternate AC power systems sample as defined in IP 71111.01-05.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance (Green) finding for the licensee's failure to follow various plant documents for modifications installed in the 345-kV and 120-kV switchyards by the TSO. The TSO, International Transmission Company (ITC), maintains the switchyards, in accordance with a written agreement between Fermi 2 and ITC.

Description: As part of routine operator training earlier in 2013, licensee staff identified air conditioning equipment installed in the 345-kV relay house was not described in the training materials. Further review by the licensee identified that ITC had installed the air conditioner as part of required critical infrastructures protection (CIP) modifications in the 345-kV and 120-kV switchyards. ITC engineering had provided the design information

for the CIP modifications to Fermi 2 engineering. Condition assessment resolution document (CARD) 10-22019 was issued for engineering evaluation of the modifications to the 120-kV switchyard, and Technical Service Request (TSR) 36456 was issued to post potentially affected Fermi 2 base configuration design documents. Likewise, CARD 11-27575 was issued for engineering evaluation of the modifications to the 345-kV switchyard, and TSR 36814 was issued to post potentially affected Fermi 2 base configuration design documents. Toward the end of the installation of the CIP modifications, ITC recognized they had not included air conditioning equipment for each relay house in the CIP modification. The ITC liaison identified this need for installing air conditioning units in both relay houses to the DTE liaison, emphasizing that weather was projected to be warm. The two liaisons discussed what would be needed to perform this revision to the CIP modification package. The liaisons performed walkdowns, and plans were made for installation of the air conditioning equipment during September 2011. However, this revision to the CIP modification package to add air conditioning equipment was not provided to ITC engineering nor was it provided to Fermi plant support engineering. Therefore, no evaluation of the design change was performed to the CIP modification.

Before installation of the air conditioning equipment, the Fermi liaison was unavailable for an extended period of time and an acting Fermi liaison was assigned. The new air conditioning equipment was shipped to Fermi, receipt inspected, brought into the warehouse, and installed on or about September 2011. Additionally, a satellite phone and charger were installed in the 120-kV relay house.

Augmented Quality Program (AQP)-0002, "ITC – Fermi Interface, 120-kV and 345-kV Switchyards," section 8.0, "Design Modifications and Configuration Control," requires, in part, "Designing and introducing new equipment or systems...in the 120-kV or 345-kV switchyards, a systematic design process that meets the requirements of 10 CFR 50, Appendix B, Criteria III, will be followed." Further, Nuclear Plant Operating Agreement (NPOA), section 6.5.8, requires, in part, "Design and configuration control activities shall be coordinated...to ensure equipment will perform its intended design function and maintain configuration control." Also the UFSAR 17.2.3, "Design Control," states, in part, "Technical Organization is responsible for...modifications.... Design documents...will contain the required regulatory requirements, quality standards, and design bases in accordance with NRC licensing requirements...." ITC failed to develop a systematic design for the revisions they identified to the CIP modifications. The ITC liaison did notify the Fermi 2 liaison and acting liaison of the new equipment, but no CARD was issued or other notification made to Fermi 2 plant support engineering to conduct the required evaluation of the proposed design modifications. In addition, no 10 CFR 50.59 review was performed of the proposed design changes to the CIP modifications. The CARD owner presented the direct cause of this event to the CARD Review Board (CRB) on March 20, 2013. The presenter identified ITC as not having submitted modification changes, which was true. However, the CARD owner failed to acknowledge that ITC had notified the DTE liaison of the need for air conditioning equipment, as required. Further, they failed to identify this never got captured in a CARD or communicated to Fermi plant support engineering which was also required by AQP-0002, Section 8.0. Additionally, the delivery of equipment, entrance into the Fermi warehouse, and transfer to the protected area for installation were coordinated with the acting liaison. An earlier example of issues related to the transition entity ITC affecting Fermi 2 was included in NRC Inspection Reports 05000341/2011004 and 05000341/2011008. From March to June 2011, Fermi 2 had experienced several events

whereby the 345-kV and/or the 120-kV switchyards had been declared inoperable. The cause of these events was identified as a software feature installed in the ITC real time contingency analyzer in 2005 that over-predicted generation sources. The inspectors pointed out the conclusion of the Fermi 2 apparent cause evaluation (ACE) (that this event was solely caused by the ITC Real Time Contingency Analyzer and Fermi 2 had no control of this event) was not supported by the formal memoranda of understanding between Fermi 2 and the transmission entities. Fermi 2 concluded that AQP-0002 and the NPOA would prevent any future issues with ITC affecting Fermi 2. The licensee issued CARD 11-29147 to document the inspectors' concerns regarding the agreements made between the TSO and Fermi 2, i.e., AQP-0002 and NPOA, but the licensee concluded there were no specific actions needed to occur to close this CARD. In other words, the licensee reviewed AQP-0002 and the NPOA and concluded they adequately controlled the design control process necessary for modifications to the Fermi plant. However, installation of modifications in the switchyards demonstrated the process was not sufficiently robust with adequate defenses in depth, and it failed to prevent the installation of equipment in the 345-kV and 120-kV switchyards that had not been systematically designed and the design for which was not evaluated as required by the AQP, NPOA, and UFSAR.

Analysis: The inspectors determined that the installation of modifications in the switchyards without following the requirements of plant documents was a performance deficiency warranting further review. The deficiency was determined to be more than minor because the inspectors did not see a similar example in IMC 0612, Appendix E, "Examples of minor issues," dated August 11, 2009, and, if left uncorrected, this failure to follow the AQP, NPOA, and UFSAR could lead to more significant safety concerns.

The inspectors evaluated the significance of the finding using IMC 0609, "Significance Determination Process," Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, dated "Exhibit 1 – Initiating Events Screening Questions," and answered "no" to the "Transient Initiators" question, "Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?" Therefore, the issue screened as having very low safety significance (Green).

This finding has a cross-cutting aspect in the area of human performance, work control, because the licensee failed to properly coordinate with ITC on work in the switchyards to ensure the requirements of the AQP, NPOA, and UFSAR were met (H.3(b)).

Enforcement: No violation of NRC requirements was identified for this finding ((FIN) 05000341/2013003-01, Not Following Plant Documents for Switchyard Modifications).

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:

- Control rod drive (CRD);
- Division 1 residual heat removal (RHR), including shutdown cooling;

- Division 2 emergency equipment cooling water (EECW); and
- High pressure coolant injection (HPCI).

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 four 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, first floor, locked open storage area;
- Auxiliary building, second floor, division 1 switchgear room;
- Turbine building, third floor, north and south end;
- RHR/emergency diesel generator (EDG) building, division 1;
- Turbine building, basement, condenser pump bay; and
- Reactor building, first floor, traverse in-core probe room.

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 to this report, 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 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 six quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On May 3, 2013, the inspectors observed a fire brigade activation drill for the turbine building, second floor, hydrogen seal area. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were:

- proper wearing of turnout gear and self-contained breathing apparatus;
- proper use and layout of fire hoses;
- employment of appropriate fire fighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;
- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (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:

- Pumping manholes and cable vaults.

Documents reviewed are listed in the Attachment to this report.

This inspection was counted in NRC Inspection Report 05000341/2013002 as one underground vault sample as defined in IP 71111.06-05 and, therefore, does not constitute a sample for this inspection report.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification (71111.11Q)

a. Inspection Scope

On April 16, 2013, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification training 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 (EP) 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 simulator sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On April 8, April 26, and May 11, the inspectors observed licensed operators in the control room during execution of WO 33761978, Shutdown for Planned Outage (PO) 13-01, and securing shutdown cooling and plant startup from PO 13-01, respectively. These were activities that required heightened awareness or were related to increased risk. 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 procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and EP actions and notifications.

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11.

b. Findings

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 or equipment:

- B3100 reactor recirculation system (CARD 13-20408);
- Motor-operated valves (CARD 13-23057); and
- N2100 reactor feedwater system.

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 three quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings were identified.

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 division 2 EECW safety systems outage (SSO), division 2 control center heating, ventilation, and air conditioning (CCHVAC) SSO;
- Risk during division 1 RHR/RHR service water (SW) SSO, and commencement of PO 13-01;
- Risk during PO 13-01;
- Risk during division 1 bus 102 outage; and
- Risk during HPCI SSO.

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.

Documents reviewed are listed in the Attachment to this report.

These maintenance risk assessments and emergent work control activities constituted five 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:

- Main generator stator water cooling system;
- Operational Decision Making Issue (ODMI) 13-002, "No. 3 High Pressure Stop Valve (HPSV) Failure to Close";
- CARD 13-22389, "EECW Division 2 Makeup Pump Will Not Start during Surveillance"; and
- CARD 13-21995, "Division 1 Core Spray Pump Minimum Flow Valve Failed to Open on Low Flow during 24.203.02, Section 5.1."

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 TSs 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 inspection constituted four operability samples 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 modification(s):

- Temporary Modification (TM) 12-0005, Revision B, "TM to Monitor [nuclear steam supply shutoff system] NSSSS ½ Main Steam Isolation Valve Isolation Logic Trip Channel D."

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, UFSAR, and 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 modifications were installed as directed and consistent with the design control documents; 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 are listed in the Attachment to this report.

This inspection constituted one temporary modification sample 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 (PM) activities to verify procedures and test activities were adequate to ensure system operability and functional capability:

- Division 1 EECW check valve;
- WO 32986361, "Perform Mini Inspection and Periodic Valve Performance Monitoring Stroke Test";
- WO 36264189, "Rework Tongue and Spindle Connection for High Pressure Control Valve (HPCV) No. 3";
- WO 36428656, "Rework Steam Leak in Reactor Water Clean Up (RWCU) Penetration Room";
- WO 36487828, "EECW Inverter Replacement (CARD 13-23086)";
- WO 36558934, "Received Main Control Room Alarm 1D57 'ADS/SRV/EECW Temperature Control Valve' Power Supply Failure"; and
- Perform WO E759110100, "Perform MAXI Periodic MOV Inspection and VPM Stroke Test."

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 seven post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Other Outage Activities

a. Inspection Scope

The inspectors evaluated outage activities for PO 13-01 that began on April 27, 2013, and continued through the May 10, 2013. The inspectors reviewed activities to ensure the licensee considered risk in developing, planning, and implementing the outage schedule.

The inspectors observed or reviewed the reactor shutdown and cooldown, outage equipment configuration and risk management, electrical lineups, selected clearances, control and monitoring of decay heat removal, control of containment activities, personnel fatigue management, startup and heatup activities, and identification and resolution of problems associated with the outage. The outage work scope was limited to the repair of the high pressure stop and control valve operating mechanisms.

This inspection constituted one other outage sample as defined in IP 71111.20-05.

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:

- Procedure 28.504.09, "Electric Fire Pump Monthly Operability Test" (routine);
- WO 33756506, "Perform Procedure 24.206.01, Reactor Core Isolation Cooling (RCIC) System Pump and Valve Operability Test at 1000 psig" (inservice testing);
- WO 3375056, "Perform 24.307.15, Section 5.1, EDG 12 Start and Load Test" (routine); and
- WO 34898089, "Perform 43.408.002, Division 2 Primary Containment Monitoring System Leakage Test" (routine).

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

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were 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 for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- 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 one inservice testing sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

1EP2 Alert and Notification System Evaluation (71114.02)

Alert and Notification System Evaluation

a. Inspection Scope

The inspectors reviewed documents and conducted discussions with Radiological Emergency Response Plan (RERP) staff and management regarding the operation, maintenance, and periodic testing of the Alert and Notification System (ANS) in the Fermi Power Plant's plume pathway Emergency Planning Zone. The inspectors reviewed monthly trend reports and the monthly operability records from April 2011 through May 2013. Information gathered during document reviews and interviews was

used to determine whether the ANS equipment was maintained and tested in accordance with EP commitments and procedures. Documents reviewed are listed in the Attachment to this report.

This alert and notification system inspection constituted one sample as defined in IP 71114.02-06.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System
(71114.03)

Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed and discussed with plant RERP management and staff the EP commitments and procedures that addressed the primary and alternate methods of initiating an Emergency Response Organization (ERO) activation to augment the on-shift staff as well as the provisions for maintaining the plant's ERO team and qualification lists. The inspectors reviewed reports and a sample of CAP records of unannounced off-hour augmentation drills and pager test, which were conducted between May 2011 and May 2013, to determine the adequacy of the drill critiques and associated corrective actions. The inspectors also reviewed a sample of the EP training records of approximately 27 ERO personnel, who were assigned to key and support positions, to determine the status of their training as it related to their assigned ERO positions. Documents reviewed are listed in the Attachment to this report.

This ERO augmentation testing inspection constituted one sample as defined in IP 71114.03-06.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (71114.05)

Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the Nuclear Quality Assurance staff's 2012 audit of the Fermi Power Plant's Emergency Preparedness Program to determine that the independent assessments met the requirements of 10 CFR 50.54(t). The inspectors reviewed samples of CAP records associated with the 2012 biennial exercise, as well as various EP drills conducted in 2012 and 2013, in order to determine whether the licensee fulfilled drill commitments and to evaluate the licensee's efforts to identify and resolve identified issues. The inspectors reviewed a sample of RERP items and corrective actions related to the station's RERP program and activities to determine whether corrective actions

were completed in accordance with the site's CAP. Documents reviewed are listed in the Attachment to this report.

This maintenance of emergency preparedness inspection constituted one sample as defined in IP 71114.05-06.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on June 11, 2013, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator control room and technical support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

This emergency preparedness drill inspection constituted one sample as defined in IP 71114.06-05.

b. Findings

No findings were identified.

RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

This inspection constituted one complete sample as defined in IP 71124.03-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant UFSAR to identify areas of the plant design as potential airborne radiation areas and any associated ventilation systems or airborne monitoring instrumentation. Instrumentation review included continuous air monitors (continuous air monitors and particulate-iodine-noble-gas-type instruments) used to identify changing airborne radiological conditions such that actions to prevent an

overexposure may be taken. The review included an overview of the Respiratory Protection Program and a description of the types of devices used. The inspectors reviewed the UFSAR, TSs, and emergency planning documents to identify location and quantity of respiratory protection devices stored for emergency use.

The inspectors reviewed the licensee's procedures for maintenance, inspection, and use of respiratory protection equipment, including Self-Contained Breathing Apparatus (SCBA), as well as procedures for air quality maintenance.

The inspectors reviewed reported performance indicators to identify any unintended dose resulting from intakes of radioactive material.

b. Findings

No findings were identified.

.2 Engineering Controls (02.02)

a. Inspection Scope

The inspectors reviewed the licensee's use of permanent and temporary ventilation to determine whether the licensee used ventilation systems as part of its engineering controls (i.e., in lieu of respiratory protection devices) to control airborne radioactivity. The inspectors reviewed procedural guidance for use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation, and assessed whether the systems were used, to the extent practicable, during high-risk activities (e.g., using containment purge during cavity floodup).

The inspectors selected installed ventilation systems used to mitigate the potential for airborne radioactivity and evaluated whether the ventilation airflow capacity, flow path (including the alignment of the suction and discharges), and filter/charcoal unit efficiencies, as appropriate, were consistent with maintaining concentrations of airborne radioactivity in work areas below the concentrations of an airborne area to the extent practicable.

The inspectors selected temporary ventilation system setups (i.e., high-efficiency particulate air/charcoal negative pressure units, down-draft tables, tents, metal "Kelly buildings," and other enclosures) used to support work in contaminated areas. The inspectors assessed whether the use of these systems was consistent with licensee procedural guidance and the As-Low-As-Is-Reasonably-Achievable (ALARA) Concept.

The inspectors reviewed airborne monitoring protocols by selecting installed systems used to monitor and warn of changing airborne concentrations in the plant and evaluated whether the alarms and setpoints were sufficient to prompt licensee/worker action to ensure that doses were maintained within the limits of 10 CFR Part 20 and the ALARA concept.

The inspectors assessed whether the licensee had established trigger points (e.g., the Electric Power Research Institute's "Alpha Monitoring Guidelines for Operating Nuclear Power Stations") for evaluating levels of airborne beta-emitting (e.g., plutonium-241) and alpha-emitting radionuclides.

b. Findings

No findings were identified.

.3 Use of Respiratory Protection Devices (02.03)

a. Inspection Scope

For those situations where it was impractical to employ engineering controls to minimize airborne radioactivity, the inspectors assessed whether the licensee provided respiratory protective devices, such that, occupational doses were ALARA. The inspectors selected work activities where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether the licensee performed an evaluation concluding that further engineering controls were not practical and that the use of respirators was ALARA. The inspectors also evaluated whether the licensee had established means (i.e., routine bioassay) to determine if the level of protection (protection factor) provided by the respiratory protection devices during use was at least as good as that assumed in the licensee's work controls and dose assessment.

The inspectors assessed whether respiratory protection devices used to limit the intake of radioactive materials were certified by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA) or have been approved by the NRC per 10 CFR 20.1703(b). The inspectors selected work activities where respiratory protection devices were used. The inspectors evaluated whether the devices were used consistent with their NIOSH/MSHA certification or any conditions of their NRC approval.

The inspectors reviewed records of air testing for supplied-air devices and SCBA bottles to assess whether the air used in these devices met or exceeded Grade D quality. The inspectors reviewed plant breathing air supply systems to determine whether they meet the minimum pressure and airflow requirements for the devices in use.

The inspectors selected several individuals qualified to use respiratory protection devices, and assessed whether they have been deemed fit to use the devices by a physician.

The inspectors reviewed training curricula for users of respiratory protection devices and requested a demonstration of device use (i.e., donning, doffing, functional checks, and device malfunction) from selected individuals.

The inspectors chose multiple respiratory protection devices staged and ready for use in the plant or stocked for issuance. The inspectors assessed the physical condition of the device components (i.e., mask or hood, harness, air lines, regulators, air bottles, etc.) and reviewed records of routine inspection for each. The inspectors selected several of the devices and reviewed records of maintenance on the vital components (e.g., pressure regulators, inhalation/exhalation valves, hose couplings, etc.). The inspectors reviewed the Respirator Vital Components Maintenance Program to ensure the repairs of vital components were performed by the respirators' manufacturer.

b. Findings

Introduction: The inspectors identified an Unresolved Item (URI) concerning the use of respirator cartridges within the radiologically controlled area.

Discussion: The licensee utilizes various types of respiratory protection devices to limit the intake of radioactive material within the radiologically controlled area. During a walkdown of the respiratory protection devices, it was noticed that some respirator cartridges had manufacture dates in the mid-to-late 1990s. The inspectors questioned the effectiveness of these cartridges with respect to the long storage time. This issue is categorized as an URI pending completion of the NRC review of the issue (URI 05000341/2013003-02, Respirator Cartridge Storage Life).

.4 Self-Contained Breathing Apparatus for Emergency Use (02.04)

a. Inspection Scope

Based on the UFSAR, TSs, and emergency operating procedure requirements, the inspectors reviewed the status and surveillance records of self-contained breathing apparatuses staged in-plant for use during emergencies. The inspectors reviewed the licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions.

The inspectors selected several individuals on control room shift crews and from designated departments currently assigned emergency duties (e.g., onsite search and rescue duties) to assess whether control room operators and other emergency response and radiation protection personnel (assigned in-plant search and rescue duties or as required by Emergency Operating Procedures or the Emergency Plan) were trained and qualified in the use of self-contained breathing apparatuses (including personal bottle change-out). The inspectors evaluated whether personnel assigned to refill bottles were trained and qualified for that task.

The inspectors determined whether appropriate mask sizes and types were available for use (i.e., in-field mask size and type match what was used in fit-testing). The inspectors determined whether on-shift operators had no facial hair that would interfere with the sealing of the mask to the face and whether vision correction (e.g., glasses inserts or corrected lenses) was available as appropriate.

The inspectors reviewed the past two years of maintenance records for select SCBA units used to support operator activities during accident conditions and designated as "ready for service" to assess whether any maintenance or repairs on any SCBA unit's vital components were performed by an individual, or individuals, certified by the manufacturer of the device to perform the work. The vital components typically are the pressure-demand air regulator and the low-pressure alarm. The inspectors reviewed the onsite maintenance procedures governing vital component work to determine any inconsistencies with the SCBA manufacturer's recommended practices. For those self-contained breathing apparatuses designated as "ready for service," the inspectors determined whether the required, periodic air cylinder hydrostatic testing was documented and up to date, and the retest air cylinder markings required by the U.S. Department of Transportation were in place.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed whether the corrective actions were appropriate for a select sample of problems involving airborne radioactivity and were appropriately documented by the licensee.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

This inspection constituted one complete sample as defined in IP 71124.04-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the results of the Radiation Protection Program audits related to internal and external dosimetry (e.g., licensee's quality assurance audits, self-assessments, or other independent audits) to gain insight into overall licensee performance in the area of dose assessment, and to verify the focus of the inspection activities was consistent with the principle of "smart sampling."

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report on the vendor's most recent results to determine the status of the contractor's accreditation.

A review was conducted of licensee procedures associated with dosimetry operations, including issuance/use of external dosimetry (routine, multibadging, extremity, neutron, etc.); assessment of internal dose (operation of whole body counter, assignment of dose based on derived air concentration-hours, urinalysis, etc.); and evaluation of dose assessment for radiological incidents (distributed contamination, hot particles, loss of dosimetry, etc.).

The inspectors evaluated whether the licensee established procedural requirements for determining when external and internal dosimetry is required.

b. Findings

No findings were identified.

.2 External Dosimetry (02.02)

a. Inspection Scope

The inspectors evaluated whether the licensee's dosimetry vendor was NVLAP accredited and if the approved irradiation test categories for each type of personnel dosimeter used were consistent with the types and energies of the radiation present and the way the dosimeter was being used (e.g., to measure deep dose equivalent, shallow dose equivalent, or lens dose equivalent).

The inspectors evaluated the onsite storage of dosimeters before issuance, during use, and before processing/reading. The inspectors also reviewed the guidance provided to radiation workers with respect to care and storage of dosimeters.

The inspectors assessed whether non-NVLAP accredited passive dosimeters (e.g., direct ion storage sight read dosimeters) were used according to licensee procedures that provide for periodic calibration, application of calibration factors, usage, reading (i.e., dose assessment), and zeroing.

The inspectors assessed the use of active dosimeters (i.e., electronic personal dosimeters) to determine if the licensee used a "correction factor" to address the response of the electronic personal dosimeter as compared to the passive dosimeter for situations when the electronic personal dosimeter must be used to assign dose. The inspectors also assessed whether the correction factor was based on sound technical principles.

The inspectors reviewed dosimetry occurrence reports or CAP documents for adverse trends related to electronic personal dosimeters, such as interference from electromagnetic frequency, dropping or bumping, failure to hear alarms, etc.

The inspectors assessed whether the licensee had identified any trends and implemented appropriate corrective actions.

b. Findings

No findings were identified.

.3 Internal Dosimetry (02.03)

Routine Bioassay (In Vivo)

a. Inspection Scope

The inspectors reviewed procedures used to assess the dose from internally deposited nuclides using whole body counting equipment. The inspectors evaluated whether the procedures addressed methods for differentiating between internal and external contamination, the release of contaminated individuals, the route of intake, and the assignment of dose.

The inspectors reviewed the whole body count process to determine if the frequency of measurements was consistent with the biological half-life of the nuclides available for intake.

The inspectors reviewed the licensee's evaluation for use of its portal radiation monitors as a passive monitoring system to determine if instrument minimum detectable activities were adequate to determine the potential for internally deposited radionuclides, sufficient to prompt additional investigation.

The inspectors selected several whole body counts and evaluated whether the counting system used, had sufficient counting time/low background to ensure appropriate sensitivity for the potential radionuclides of interest. The inspectors reviewed the radionuclide library used for the count system to determine its appropriateness. The inspectors evaluated whether any anomalous count peaks/nuclides indicated in each output spectra received appropriate disposition. The inspectors reviewed the licensee's 10 CFR Part 61 data analyses to determine whether the nuclide libraries included appropriate gamma-emitting nuclides. The inspectors evaluated how the licensee accounts for hard-to-detect nuclides during dose assessment.

b. Findings

No findings were identified.

Special Bioassay (In Vitro)

a. Inspection Scope

The inspectors selected internal dose assessments obtained using in vitro monitoring. The inspectors reviewed and assessed the adequacy of the licensee's program for in vitro monitoring (i.e., urinalysis and fecal analysis) of radionuclides (i.e., tritium, fission products, and activation products), including collection and storage of samples.

The inspectors reviewed the vendor laboratory quality assurance program and assessed whether the laboratory participated in an industry recognized cross-check program, including whether out-of-tolerance results were resolved appropriately.

b. Findings

No findings were identified.

Internal Dose Assessment – Airborne Monitoring

a. Inspection Scope

The inspectors reviewed the licensee's program for airborne radioactivity assessment and dose assessment, as applicable, based on airborne monitoring and calculations of derived air concentration. The inspectors determined whether flow rates and collection times for air sampling equipment were adequate to allow lower limits of detection to be obtained. The inspectors also reviewed the adequacy of procedural guidance to assess internal dose, if respiratory protection was used.

b. Findings

No findings were identified.

Internal Dose Assessment – Whole Body Count Analyses

a. Inspection Scope

The inspectors reviewed several dose assessments performed by the licensee using the results of whole body count analyses. The inspectors determined whether affected personnel were properly monitored with calibrated equipment and that internal exposures were assessed, consistent with the licensee's procedures.

b. Findings

No findings were identified.

.4 Special Dosimetric Situations (02.04)

Declared Pregnant Workers

a. Inspection Scope

The inspectors assessed whether the licensee informed workers, as appropriate, of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

The inspectors selected individuals who had declared pregnancy during the current assessment period and evaluated whether the licensee's Radiological Monitoring Program (i.e., internal and external) for declared pregnant workers was technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls employed by the licensee and with respect to the requirements of 10 CFR Part 20.

b. Findings

No findings were identified.

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

a. Inspection Scope

The inspectors reviewed the licensee's methodology for monitoring external dose in non-uniform radiation fields or where large dose gradients exist. The inspectors evaluated the licensee's criteria for determining when alternate monitoring, such as use of multi-badging, was to be implemented.

The inspectors reviewed dose assessments performed using multi-badging to evaluate whether the assessment was performed consistently with licensee procedures and dosimetric standards.

b. Findings

No findings were identified.

Shallow Dose Equivalent

a. Inspection Scope

The inspectors reviewed shallow dose equivalent dose assessments for adequacy. The inspectors evaluated the licensee's method (e.g., VARSKIN or similar code) for calculating shallow dose equivalent from distributed skin contamination or discrete radioactive particles.

b. Findings

No findings were identified.

Neutron Dose Assessment

a. Inspection Scope

The inspectors evaluated the licensee's Neutron Dosimetry Program, including dosimeter types and/or survey instrumentation.

The inspectors reviewed neutron exposure situations (e.g., independent spent fuel storage installation operations or at-power containment entries) and assessed whether a) dosimetry and/or instrumentation was appropriate for the expected neutron spectra; b) there was sufficient sensitivity for low dose and/or dose rate measurement; and c) neutron dosimetry was properly calibrated. The inspectors also assessed whether interference by gamma radiation had been accounted for in the calibration and whether time and motion evaluations were representative of actual neutron exposure events, as applicable.

b. Findings

No findings were identified.

Assigning Dose of Record

a. Inspection Scope

For the special dosimetric situations reviewed in this section, the inspectors assessed how the licensee assigned dose of record for total effective dose equivalent, shallow dose equivalent, and lens dose equivalent. This included an assessment of external and internal monitoring results, supplementary information on Individual exposures (e.g., radiation incident investigation reports and skin contamination reports), and radiation surveys and/or air monitoring results when dosimetry was based on these techniques.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors assessed whether problems associated with occupational dose assessment were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the

appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving occupational dose assessment.

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 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance indicator (PI) for the first quarter 2012 through the first quarter 2013. To determine the accuracy of the PI data, definitions and guidance in Nuclear Energy Institute (NEI) document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator 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 safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system (RCS) leakage PI for the first quarter 2012 through the first quarter 2013. To determine the accuracy of the PI data, definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator logs, RCS leakage tracking data, issue reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator 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 RCS system leakage sample as defined in IP 71151-05.

b. Findings

No findings were identified.

Drill and Exercise Performance

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance (DEP) PI for the third quarter 2012 through the first quarter 2013. To determine the accuracy of the PI data, definitions and guidance in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's records to verify the licensee accurately reported the PI in accordance with relevant procedures and NEI guidance. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance on assessing opportunities for the PI; assessments of PI opportunities during pre-designated control room simulator training sessions; performance during the 2012 biennial exercise; and performance during other drills. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes one DEP sample as defined in IP 71151-05.

b. Findings

No findings were identified.

Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors sampled licensee submittals for the ERO Drill Participation PI for the third quarter 2012 through the first quarter 2013. To determine the accuracy of the PI data, definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's records to verify the licensee accurately reported the PI in accordance with relevant procedures and NEI guidance. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance on assessing opportunities for the PI; participation during the 2012 biennial exercise and other drills; and revisions of the roster of personnel assigned to key ERO positions. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes one ERO drill participation sample as defined in IP 71151-05.

b. Findings

No findings were identified.

ANS Reliability

a. Inspection Scope

The inspectors sampled licensee submittals for the ANS PI for the third quarter 2012 through the first quarter 2013. To determine the accuracy of the PI data, definitions and guidance in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's records associated with the PI to verify the licensee accurately reported the indicator in accordance with relevant procedures and NEI guidance. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance on assessing opportunities for the PI and results of periodic ANS operability tests. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes one ANS sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.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.

During routine plant status walkdowns, the inspectors looked at ladders, scaffolding, and other items in the plant that are not part of the permanent plant configuration. The inspectors reviewed the licensee's drawings and programs for monitoring these items to insure the proper engineering evaluations have been performed or the items are under the control of the licensee's prescribed programs. The inspectors reviewed recent past occurrences and found there have been multiple instances of items being used in the plant without the proper configuration control documents and were not in accordance with the licensee's procedures.

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

Introduction: The inspectors identified a finding of very low safety significance (Green) for the licensee's failure to maintain configuration control during plant operations. Specifically, the inspectors identified multiple instances concerning the improper storage of equipment and control of scaffolding from January 1 through June 30, 2013. These instances did not meet requirements of several plant programs and management expectations.

Description: The inspectors identified multiple examples where the licensee did not maintain configuration control during plant operations as required by procedures MOP 23, Revision 1, "Plant Storage," and MMA 08, Revision 15, "Scaffolding." These instances involved scaffold, ladders, and temporary equipment.

- On March 7, 2013, the inspectors identified a ladder had been installed in the control room envelope ventilation filters area for reactor building heating, ventilation, and air conditioning (RBHVAC) adjustment for some unspecified time since January 22, 2013. The ladder was installed with a seismic restraint but was not being tracked by the utility under any program. This was one example of a series of issues dating back to 2011 (CARD 11-21177) when the inspectors identified a ladder installed for a prolonged period of time and that the ladder installation process had been removed from the scaffold procedure. CARD 11-21177 was still open and has been extended several times. On May 21, the licensee wrote CARD 13-23690, identifying that 7 NRC-identified CARDS and 11 licensee CARDS had been written against ladders. When the ladder control was removed from the scaffold program, the management expectation was that workers would remove ladders when the work was complete or at the end of each shift. To date, there is no written program or procedure for control of ladders.
- On May 9, 2013, the inspectors identified two scaffold stands were left installed for greater than 90 days without a 10 CFR 50.59 evaluation. Work Order 34437528 installed the scaffold in the turbine building second floor steam tunnel for support of outage work. The WO had been closed at the end of the outage without removing the scaffold. The inspectors noted licensee procedure MMA 08, "Scaffolding," requires the scaffold have a 10 CFR 50.59 evaluation if it is to remain in place for greater than 90 days.
- On May 8, 2013, the licensee wrote CARD 13-23298, identifying the wooden shield wall and two, 10-ton air conditioning units were installed on the turbine building first floor using WO 34787196. The technical evaluation for this job did not include the 10 CFR 50.59 evaluation required for installation of the wall or the air conditioners. The author of the work order did not verify the extent of the technical evaluation prior to writing the work order to install the items. A temporary (90-day) evaluation was performed prior to installation but that expired on October 18, 2012. The shift manager determined this was a non-conforming condition and had the wall and air conditioners removed on May 29, 2013.

Based on the inspectors' finding, the licensee performed a formal evaluation and took appropriate corrective actions for each of the instances.

Analysis: The inspectors determined the multiple instances described in the section above constitute a performance deficiency warranting further review. This deficiency is more than minor because if left uncorrected would lead to a more significant safety concern and is similar to IMC 0612, Appendix E (dated August 11, 2009), Section 4, Example a, in that the licensee routinely failed to perform procedurally-required engineering evaluations on similar issues. Specifically, multiple examples were identified where the licensee placed items in the plant without proper engineering evaluation. The inspectors evaluated the significance of the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, "Exhibit 1 – Initiating Events Screening Questions," and answered "no" to the "Transient Initiators" question, "Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?" Therefore, the issue screened as having very low safety significance (Green).

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance, work practices, because the licensee either failed to follow established procedures or removed the controls from applicable procedures (H.4(b)).

Enforcement: No violation of NRC requirements was identified for this finding (FIN 0500341/2013003-03, Failure to Maintain Configuration Control During Plant Operation).

.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 repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 40A2.2 above, licensee trending efforts, and licensee human performance results. The inspectors'

review nominally considered the 6-month period of January through June 2013, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, 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. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.4 Selected Issue Follow-Up Inspection: CARD 13-21328, NRC Concern Regarding Multiple Misses for Added Air Conditioning Units to the 345-kV Relay House and the 120-kV Relay House

a. Inspection Scope

The inspectors selected the concern regarding multiple misses by several organizations for the addition of air conditioning equipment into the 345-kV and 120-kV relay houses (CARD 13-21328). The equipment was not evaluated prior to installation, and once identified as installed without proper engineering evaluation, including 10 CFR 50.59 applicability determinations, the licensee response to the identification of these unevaluated modifications had been to only screen the modification to the 345-kV switchyard per the guidance in NEI 96-07, Revision 1, "Guidelines for 10 CFR 50.59 implementation." The inspectors were concerned that the unevaluated modification installed in the 120-kV switchyard was not also screened once identified, since the unevaluated loads could have affected the station blackout combustion turbine generator 11-1. The inspectors evaluated numerous CARDS, conducted interviews, observed CARD Review Board meetings, and reviewed Fermi conduct of engineering procedures for modifications in the switchyards.

Refer to section 1R01.2 of this inspection report regarding a Green, NRC-identified finding regarding not following the AQP, NPOA and UFSAR for switchyard modifications. Documents reviewed in this inspection are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report (LER) 05000341-2013-001, Loss of Secondary Containment Function

On January 22, 2013, at 1:13 a.m., during restart of the center train of the RBHVAC system, with the standby gas treatment system (SGTS) operating, secondary containment pressure went positive for 27 seconds, reaching approximately +0.15 inches of water column. Technical Specification limiting condition for operation 3.6.4.1, condition B, was entered, and exited when secondary containment pressure was restored to less than -0.125 inches water column. The west train of RBHVAC was then restarted and SGTS was returned to standby. The cause of the event was the center RBHVAC supply and exhaust fan discharge damper and relay timing were out of tolerance. CARD 13-20522 was issued to perform an apparent cause evaluation for this event. No findings or violations were identified following review of this LER. Documents reviewed are listed in the Attachment to this report. This LER is closed.

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

.2 (Discussed) LER 05000341-2012-006, Manual Reactor Scram Due to Hydrogen Leakage into the Stator Water Cooling System

On November 7, 2012, the reactor mode switch was taken to shutdown and the main turbine generator was manually tripped in response to excessive hydrogen gas leakage into the stator water cooling system from the main turbine generator. The scram was uncomplicated. The leak in the stator water cooling system was subsequently located and repaired.

The inspectors identified a finding that was discussed in NRC Inspection Report 05000341/2013009 and LER 05000341/2012-006-00 was closed in that report. The finding, of very low safety significance, was a result of the licensee's ineffective corrective actions for a similar problem that caused a reactor scram on September 30, 2009. A very small metallic particle (foreign material) had bored into a generator stator bar over time and created a hole that allowed hydrogen cooling gas to leak into the stator cooling water system. Documents reviewed as part of this inspection are listed in the Attachment to this report.

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

40A6 Management Meetings

.1 Exit Meeting Summary

On July 9, 2013, the inspectors presented the inspection results to Mr. K. Scott, Director, Production, 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 results of the Emergency Preparedness program inspection with Ms. J. Ford conducted at the site on June 28, 2013.
- The inspection results for the areas of In-Plant Airborne Radioactivity Control and Mitigation; and Occupational Dose Assessment, with T. Conner, Site Vice-President, on June 14, 2013. Additional telephone exits were conducted on July 9 and 17, 2013, with R. LaBurn, Radiation Protection Manager

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

T. Conner, Site Vice-President
K. Scott, Director, Production
M. Caragher, Director, Engineering
J. Ford, Director, Organizational Effectiveness
K. Hlavaty, Director, Engineering
R. LaBurn, Radiation Protection Manager
Z. Rad, Manager, Licensing

Nuclear Regulatory Commission

M. A. Kunowski, Chief, Reactor Projects Branch 5

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000341/2013-001	FIN	Not Following Plant Documents for Switchyard Modifications (Section 1R01.2)
05000341/2013-003	FIN	Failure to Maintain Configuration Control During Plant Operation (Section 4OA2.1)

Opened

05000341/2013-002	URI	Respirator Cartridge Storage Life (Section 2RS3)
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Closed

05000341/2013-001	LER	Loss of Secondary Containment Function (Section 4OA3.1)
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Discussed

05000341/2012-006	LER	Manual Reactor Scram Due to Hydrogen Leakage into the Stator Water Cooling System (Section 4OA3.2)
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LIST OF DOCUMENTS REVIEWED

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

1R01 – Adverse Weather Protection

- AQP-0002; ITC – Fermi Interface; Revision 4
- Fermi Control Room Log, Unit 2; 06/06/2013
- NPOA for the Fermi 2 Nuclear Power Plant (NUC-001: R2, R9.1.2); Revision 7
- Operations Department Expectation (ODE)-12; LCOs; Revision 30
- Procedure 27.000.07, Attachment 3, System E1151; 04/29/2013
- Procedure 27.000.07, Attachment 3, System E1156; 04/29/2013
- Procedure 27.000.07, Attachment 3, System P1100; 04/25/2013
- Procedure 27.000.07, Attachment 3, System P2100; 04/29/2013
- Procedure 27.000.07, Attachment 3, System P4100; 04/23/2013
- Procedure 27.000.07, Attachment 3, System P6100; 04/23/2013
- Procedure 27.000.07, Attachment 3, System T4100; 04/16/2013
- Procedure 27.000.07, Attachment 3, System U4100; 04/16/2013
- Procedure 27.000.07, Attachment 3, System V4100; 04/16/2013
- Procedure 27.000.07, Attachment 3, System W2400; 04/28/2013
- Procedure 27.000.07, Attachment 3, System W2500; 04/28/2013
- Procedure 27.000.07, Attachment 3, System W2700; 04/28/2013
- Procedure 27.000.07, Attachment 3, System W3300; 04/28/2013
- Procedure 27.000.07, Attachment 3, System W4100; 04/29/2013
- Procedure 27.000.07, Attachment 3, System X4103; 04/16/2013
- Procedure 27.000.07, Attachment 3, System X4104; 04/23/2013
- Procedure 27.000.07, Attachment 3, System X4105; 04/23/2013
- Procedure 27.000.07, Attachment 3, System X8000; 04/25/2013
- Procedure MES07; Review, Approval, and Control of Vendor Design Documents; Revision 15
- WO 31941309; Perform Diagnostic Software Test Prior to Seasonal Startup
- WO 32798856; Perform 27.000.06, Attachment 3, Hot Weather System Readiness Review Checklist(s)
- WO 33658697; Perform Seasonal Startup PM per Vendor Requirements
- WO 33670954; Perform Motor Checks per Winding and Insulation Resistance Checks
- WO 33679081; Perform Maintenance on Starter Panel
- WO 35387270; Perform 27.000.07, Attachment 3, Cold Weather System Readiness Review Checklist(s) NSSS
- WO 35392340; Perform 27.000.06, Attachment 3, Hot Weather System Readiness Review Checklist(s)

1R04 – Equipment Alignment

- CARD 13-23793; NRC Concern, M-5708-1 and M-2043 Need Updated
- Current System Status, C1100 / C1107 / C1108; 2012Q4
- Current System Status, C1150; 2012Q3

- Drawing 6M721-5703-1; Control Rod Drive System Functional Operating Sketch; Revision AD
- Drawing 6M721-5703-2; Control Rod Drive Scram Discharge System, Functional Operating Sketch; Revision R
- Drawing 6M721-5706-2; RHR, Division 1; Revision X
- Drawing 6M721-5706-3; RHR Service Water Make Up Decant and Overflow Systems; Revision AA
- Drawing 6M721-5708-1; High Pressure Coolant Injection System; Revision AN
- Procedure 23.106; Continuous Use, Control Rod Drive Hydraulic System; Revision 104
- Procedure 23.106, Attachment 2; Control Rod Drive Hydraulic System Electrical Lineup
- Procedure 23.202; High Pressure Coolant Injection System; Revision 106
- Procedure 23.205, Attachment 2A; Division 1 RHR Electrical Lineup; 02/29/2012
- Procedure ODE-20, Attachment 29; Outage Protected Equipment Form, Protecting Division 1 Shutdown Cooling System; Revision 10
- Procedure ODE-20, Attachment 33; Outage Protected Equipment Form, Protecting Reactor Water Cleanup System; Revision 10
- Procedure ODE-20, Attachment 34; Outage Protected Equipment Form, Protecting Division 1 Emergency Diesel Generators; Revision 10
- Procedure ODE-20, Attachment 35; Outage Protected Equipment Form, Protecting Division 1 ESF Switchgear; Revision 10
- Procedure ODE-20, Attachment 36; Outage Protected Equipment Form, Protecting Division ESF Batteries; Revision 10
- Procedure ODE-20, Attachment 37; Outage Protected Equipment Form, Protecting 120-kV Mat; Revision 10

1R05 – Fire Protection

- CARD 13-23144; Procedure Enhancement Fire Protection Pre-Plan FP-TB
- CARD 13-23170; Request Revision of Fire Brigade Training
- CARD 13-23171; Procedure Enhancement for 23.501.01 Manual Electric Operations of HSO Deluge System
- Drawing 6A721-2405; Fire Protection Evaluation Reactor and Auxiliary Buildings, Second Floor; Revision Y
- Drawing 6A721-2412; Fire Protection Evaluation Turbine Building, Basement; Revision F
- Drawing 6A721-2413; Fire Protection Evaluation Turbine Building, First Floor; Revision K
- Drawing 6I721-2868-13; Installation Fire Detection System, Reactor Building Second Floor; Revision N
- Drawing 6I721-2878-25; Installation Fire Detection System, South Half, First Floor, Turbine Building – Zone 19; Revision E
- Fermi 2 UFSAR 9A.4.3; Residual Heat Removal Complex; Revision 18
- Procedure FP-TB, Enclosure C; Reference: 28.505.62, Attachment 22
- WO 33397281; Perform 28.508.01 Monthly Portable Fire Extinguisher Inspection

1R06 – Flood Protection

- CARD 13-22036; Evaluate Improvements to Electrical Manhole Pump Out Trending and Communications
- CARD 13-23041; NRC Identified Issue with Sump Pump Switch Level Adjustment for Cable Manhole 15346
- Weekly Manhole Level Inspection Data Sheet; Week of 04/22/2013

1R11 – Licensed Operator Requalification Program

- CARD 13-22640; Shift 4 Crew Clock Reset-Incorrect EAL Classification during Evaluated Scenario
- CARD 13-22694; Some Operations Training Assessment Material Not Controlled
- Fermi 2 Evaluation Scenario SS-OP-904-1205; Instrument Failure, Condenser Tube Leak, ATWS, MCC Trips; Revision 1
- Procedure 22.000.02; Plant Startup to 25 Percent Power; Revision 85
- Procedure 22.000.04; Plant Shutdown from 25 Percent Power; Revision 70
- Procedure 23.205; RHR System; Revision 122
- Procedure 24.321.07; Operability of 480-V Swing Bus 72F Automatic Throwover Scheme; Revision 10
- WO 33761978; Perform 24.321.07 480-V Swing Bus 72 CF Automatic Throwover Scheme Operability; 04/08/2013

1R12 – Maintenance Effectiveness

- CARD 10-22518; Trip of 'A' RRMG Set on Startup
- CARD 12-23751; AB2 Relay Room
- CARD 12-23914; N21F400B, South Reactor Feed Pump Minimum Flow Line FCV, Has a 100 DPM Leak
- CARD 12-24065; HP Throttle Valve Not Stroking Fully
- CARD 12-25983; N2100-F045A, North Reactor Feed Pump Discharge Hydraulic Stop Valve has Hydraulic Fluid Leak
- CARD 12-26173; FW SULCV Leak Causes Level Control Issues
- CARD 12-27052; Standby Feedwater Test Valve Would Not Open to Required Test Flow Position
- CARD 12-27667; Startup Level Control Valve Needs Calibration
- CARD 12-28936; Potentially Damaged Mechanical Snubbers on SRFP Discharge Piping
- CARD 12-29691; RRMG Set 'A' Tripped – 2 Seconds after Startup Attempt
- CARD 13-20408; B31 Reactor Recirculation System Exceeds Performance Criteria and Is Placed in A(1) Status
- CARD 13-22321; Work Request 35856037 (Loop Calibration for N21K833B) Not Completed
- CARD 13-23057; Near Maintenance Rule a(1) Status for Motor Operated Valves
- CARD 13-23374; CPEP Needs to be Updated for Past MMR Appendix F Changes
- CARD 13-23762; NRC Concern – Use of Reference to Class 2 Piping and Allowable Leakage
- CRB ACE Brief Sheet; CARD 12-26250, In Preparation for a Reactor Startup Following Forced Outage 12-02, RRMG Set 'A' Tripped upon Startup in Mode 4 on 07/25/2012
- DTE Energy Nuclear Generation Memorandum TMIS-13-0044, P. Roelant to G. Piccard; Maintenance Rule Expert Panel Meeting No. 246 Summary; 04/18/2013
- Expert Panel Presentation – System Classification Review; Motor Operated Valves; 04/08/2013
- Maintenance Rule Functional Failure Evaluation; System B3100, Document ID 1377392; 03/26/2013
- Open MOV Extent-of-Condition WOs
- Procedure MQA15, Enclosure 1; RRMG Set 'A' Trip on Startup, Equipment ACE Guide Template; Revision 9
- Procedure MQA15, Enclosure G; RRMG Set A Trip on Startup, ACE; 11/02/2012 and Revision 2 dated 12/17/2010

- Program Health Report Fermi 2, Motor Operated Valves; First, Second, Third, and Fourth Quarters, 2012
- RF-16 Approved Scope; 05/03/2013
- System Evaluation ID 120614-01; B3100, Reactor Recirculation System; 06/11/2013
- System Evaluation ID 120722-01; N2100, Reactor Feedwater Supply System; 07/30/2012
- System Evaluation ID 130401-01; N2100, Reactor Feedwater Supply System; 04/10/2013
- Wedge Holder Evaluation for E1150F605A; 04/08/2012

1R13 – Maintenance Risk Assessments and Emergent Work Control

- Drawing 6I721-2095-01A; Distribution of 120 VAC Division I – Division II; Revision AF
- Drawing 6I721-2095-31; NBS T/U Power Distribution and Trouble Relays Testability Modification; Revision N
- Drawing 6I721-2225-10; HPCI System T/U Cab Power Distribution Testability Modification; Revision V
- Fermi 2 Plan of the Day; 03/28/2013, 04/01-04, 19, 22-25/2013, 05/15-17, 24, 28-30/2013
- HPCI SSO; 05/23/2013
- PO 13-01; 04/27/2013 to 05/09/2013
- PO 13-01; Defense-In-Depth Summary
- PO 13-01, Plan of the Day; May 04, 2013
- Procedure 23.601; Continuous Use, Instrument Trip Sheets; Revision 35
- Scheduler's Evaluation for Fermi 2; 04/01-10, 22-28, 05/15-21, 05/28-6/5/2013
- Shift Manager Daily Operational Focus Meeting; 05/17/2013
- T+1; Performance Analysis Review, Work Week 1318; 04/29/2013

1R15 – Operability Evaluations

- ACE; Division 1 Core Spray Minimum Flow Valve E2150F031A Failure to Open, CARD 13-21995
- ACE; EECW Division Makeup Pump Failed to Start during Surveillance Testing When Pump Local Control Switch Was Taken to Run; 05/05/2013
- Barton® Nuclear Model 580A Differential Pressure Switch, User Manual; Part No. 9A-C10795, Revision 01; 04/2011
- Barton® Nuclear Model 581A Differential Pressure Switch, User Manual; Part No. 9A-C10766, Revision 01; 10/2011
- CARD 13-21995; Division 1 Core Spray Pump Minimum Flow Valve Failed to Open on Low Flow during 24.203.02, Section 5.1
- CARD 13-22389; EECW Division 2 Makeup Pump Will Not Start during Surveillance Testing
- CARD 13-22389-13; Evaluate for Part 21 Considerations
- CARD 13-23968; Division 2 EECW Makeup Pump Failed to Shutdown during 24.207.13
- Certificate of Conformance 13T1090; Purchase Order #4700839271; 04/18/2013
- Generator Aggregate Assessment Update; 04/05/2013
- ODMI 12-010; Copper Oxide Build Up in Stator Coil Hollow Conductors
- Organizational and Programmatic Issue Screen; 07/26/2012
- SST/PST Frequency Change Request; Procedure 24.203.02, Revision 49; 03/26/2013
- TE-E41-13-022; Impact of Past Failure of P44N446B on HPCI Functionality; 05/28/2013
- TE-N30-12-087; Copper Oxide Build-up in Hollow Conductors within Strator Coils; Revision A
- Troubleshooting Data Sheet; P4400 C00ZB, Division 2 EECW Makeup Pump Failed to Start; 04/03/2013

- Troubleshooting Plan CARD 13-21995 (WOs 36261162, 36262604, WO 36265413), System E2100
- Work Summary and Condition Evaluation; E2150F031A Core Spray Minimum Flow Valve and E21N006A Core Spray Minimum Flow Switch; 03/21/2013

1R18 – Plant Modifications

- 10 CFR 50.59 Screen No. 12-0038; Temporary Modification to Monitor NSSSS ½ Isolation Logic; 05/2013
- Drawing 6I721-2095-15; Nuclear Steam Supply Shutoff System Trip, System B; Revision P
- TM 12-0005; Monitor RPS NSSSS ½ Scram Logic; Revision B

1R19 – Post-Maintenance Testing

- CARD 13-22716; High Generation Risk Scheduled Duration Exceeds Actual
- CARD 13-22721; High Risk Plan for EECW Did Not Mitigate the Risk Effectively
- CARD 13-22771; Steam Leak Identified from G3300F485 Tap Location in Isolated Penetration Room
- CARD 13-23073; Planned Outage 13-01 Due to HPCV Drift
- CARD 13-23086; DC/AC Inverter R31-K001 Failed
- CARD 13-23129; Unacceptable Condition of Bolt Hole Threads HPSV #3 Leak Off Flange
- CARD 13-23173; Leak Off-line Weld Has an Indication
- CARD 13-23188; Out-of-Specification Measurement of Actuator Positioning
- CARD 13-23192; Acceptance Criteria Not Met
- CARD 13-23196; Amplifier N30KA09A Non-linear Response during Calibration
- CARD 13-23874; Loose Fasteners from Yoke to Valve
- Procedure 35.306.003; Limitorque Motor Operator – Periodic Inspection; Revision 53
- Procedure 35.306.009; Motor Power Monitoring Using the Viper 20 System; Revision 3
- Risk Management Plan; WO 36231476 – P4400F625A: EECW Makeup Discharge Check Valve; 04/17/2013
- Temporary Change Notice T-11968; Procedure 35.109.002, Revision 41, Turbine High Pressure Control Valve
- WO 32986361; Perform Mini Periodic MOV Inspection and VPM Strike Test; 04/25/2013
- WO 33809843; Perform 24.202.01 Section 5.1, HPCI Pump/Flow Test and Valve Stroke at 1025 psig
- WO 36231476; P4400F625A EECW Division 1 Make Up Pump Discharge Check Valve Failed to Seat during Surveillance 24.208.02
- WO 36264189; Rework Tongue and Spindle Connection for HPCV No. 3
- WO 36428656; Rework Steam Leak in RWCU Penetration Room
- WO 36460286; Contingency Rework HPCV No. 1 Planned Outage 13-01
- WO 36463243; Rework HPCV No. 4, Planned Outage 13-01
- WO 36467832; Rework HPCV No. 2 N3021F004B-001
- WO 36487828; DC/AC Inverter R31-K001 Failed
- WO 36558934; Received Main Control Room Alarm 1D57 “ADS / SRV / EECW TCCV Power Supply Failure”
- WO E759110100; Perform Maxi Periodic MOV Inspection and VPM Stroke Test

1R20 – Outage Activities

- Procedure 22.000.02; Plant Startup to 25 Percent Power; Revision 85
- Procedure 23.623, Enclosure C; Banked Position Withdrawal Sequence Rules; 03/04/2003
- Procedure 23.623, Enclosure D; Banked Position Withdrawal Sequence Group Definitions
- Procedure 54.000.14, Enclosure A; Prescribed Withdrawal Sequence; 04/13/1999

1R22 – Surveillance Testing

- NFPA 13A; Inspection, Testing, and Maintenance of Sprinkler Systems; 1987
- Procedure 24.206.01; RCIC System Pump and Valve Operability Test; Revision 72
- Radiological Work Permit 13-1030; RCIC Run; 02/12/2013
- WO 33624685; Perform 28.504.07, Diesel Fire Pump Monthly Operability Test
- WO 33631945; Perform 28.504.09, Electric Fire Pump Monthly Operability Test
- WO 33750356; Perform 24.307.15, Section 5.1, EDG 12 Start and Load Test – Slow Start
- WO 33756506; Perform 24.206.01 RCIC System Pump Operability and Valve Test at 1000 psig
- WO 34898089; Perform 43.408.002, Division 2 Primary Containment Monitoring System Leakage Test: PMT Perform Entire Procedure; 06/27/2013

1EP2 – Alert and Notification System Evaluation

- ANS Design Report; February 12, 2013
- CARD 11-26535; ANS Wayne County Dispatch Communications Failure; July 7, 2011
- CARD 11-29653; ANS Not Activated Per Procedure; October 26, 2011
- CARD 12-25602; ANS Siren Erroneous Failure Indication; June 27, 2012
- EP-560; Alert and Notification System Operation and Maintenance; Revision 4
- Radiological Emergency Response Preparedness Plan; Section E, Notification Methods and Procedures; Revision 41
- Siren Annual Preventative Maintenance Records; October 2011 – October 2012
- Siren Corrective Maintenance Records; June 2011 – April 2013
- Siren Test Results; April 2011 – May 2013

1EP3 – Emergency Response Organization Staffing and Augmentation System

- EP-570, Attachment 1; ERO Drive In Test Records; December 1, 2011
- EP-570, Attachment 1; Quarterly ERO Callout Test Records; May 2011 – May 2013
- Fermi 2 ERO Team List; May 31, 2013
- NRC Letter Authorizing Augmentation Time Changes; September 23, 2011
- QP-ER-665; Training and Qualification Program, Emergency Response Organization; Revision 35
- Radiological Emergency Response Preparedness Plan; Section B, Emergency Response Organization; Revision 41

1EP5 – Maintenance of Emergency Preparedness

- Audit Report 13-0101; Emergency Preparedness Program
- CARD 12-26931; Drill-TSC Delayed Dispatch of Some OSC Teams
- CARD 12-27009; Exercise-Failure to Report to Assembly Area
- CARD 12-27096; Exercise-Simulation and Drill Control Issues
- CARD 12-27098; Exercise-Control Room Operators Dispatched Without Emergency Director Approval

- CARD 12-27141; Exercise-Plume Tracking Failure
- CARD 12-27153; Exercise-Plume Tracking Not Effective
- CARD 12-27162; Exercise-TSC Communications Problems
- CARD 12-27164; Exercise-TSC Dose Assessment Error
- CARD 12-27693; Drill-Missed PI Opportunity and Controller Inject
- CARD 12-27717; Drill-EOF Dose Assessment Problems
- CARD 13-20667; Audit-6 Year Drill Objectives Incomplete
- CARD 13-20671; Audit-Review Letters of Agreement With Offsite Agencies During Annual Training
- CARD 13-20748; Audit-CARD Actions Closed Prior to Completion
- CARD 13-20776; Audit-Integrate EP Equipment Into Work Control
- CARD 13-21158; Drill Control Problems
- CARD 13-23740; Initial Notification Radioactive Release Definition Training Request
- EP-290; Emergency Notifications; Revision 54
- EP-304-01; Alternate Emergency Operations Facility; Revision 18
- EP-580; Equipment Important to Emergency Response; Revision 2
- EP-590; 10 CFR 50.54(q) Emergency Plan Change Screens and Evaluation; Revision 0
- Letters of Agreement Contact List; June 14, 2013
- January 29, 2013; Drill Critique; February 22, 2013
- September 11, 2012; Drill Critique; September 24, 2012

1EP6 – Drill Evaluation

- Scenario 39c

2RS3 – In-Plant Airborne Radioactivity Control and Mitigation

- CARD 11-25750; Enhance RWP for Noble Gas Grab Sampling when Moving Spent Fuel Bundles; Dated June 9, 2011
- CARD 12-29425; Air Fed Suite Malfunction; Dated November 22, 2012
- CARD 12-27993; NQA Audit Deficiency-Respiratory Protection Qualifications Not in QRT; Dated September 26, 2012
- CARD 11-31116; Investigate Guidelines for Radiological Controls in Airborne Alpha Contamination Areas; Dated December 20, 2011
- LP-GN-509-0100; Respiratory Protection Course; Revision 8
- Laboratory Report Compressed Air/Gas Quality Testing; Various Dates
- MSA Firehawk M-7 SCBA Inspection Record; Various Dates
- ProCheck3 Test Results; Complete SCBA Test; Various Dates
- Procedure 65.000.704; Issuance of Respiratory Protection Equipment; Revision 13
- Procedure 65.000.707; Inspection of MSA Respiratory Equipment; Revision 10
- Procedure 65.000.734; Performing Respiratory Fit Testing Using the TSI Portacount; Revision 11
- Procedure 65.000.737; Set UP, Operation, Shutdown, and Disassembly of a Breathing Air System; Revision 9
- RWWI-017; HEPA Unit Operation and Maintenance; Revision 8
- Re-evaluation of Fermi 2 Alpha Source Term and Trends in Fermi 2 Nuclide Mixes; Dated September 12, 2011
- Respirator Qualifications; Various Individuals

2RS4 – Occupational Dose Assessment

- CARD 12-23773; Use of DRDs as Secondary Dosimeters For Multi-Badging; Dated April 25, 2012
- CARD 11-30330; Investigate the Need of Dosimetry for Security Officers Operating X-ray Scanning Equipment at the New PAP; Dated November 17, 2011
- CARD 11-28247; Outsourcing of Fermi 2 TLD Laboratory; Dated September 7, 2011
- Form 65.000.211; Indirect Bioassay Record; Various Dates
- Form 65.000.267; Positive Body Count Investigation; Various Dates
- Procedure 67.000.402; Dosimetry Evaluation; Revision 17
- Procedure 67.000.200; Initiating Personnel Radiation Monitoring; Revision 30
- Procedure 65.000.267; Whole Body Count Protocol and Evaluation of Bioassay Results; Revision 5
- Whole Body Count Peak Analysis Report; Various Dates

4OA1 – Performance Indicator Verification

- ANS Reliability Records; October 2012 – March 2013
- Drill and Exercise Performance Records; October 2012 – March 2013
- EP-540, Enclosure A; NRC Performance Indicators-RERP; Revision 33
- Emergency Response Organization Drill Participation; December 2012 – March 2013
- PI Trend; Barrier Integrity, BI02, Reactor Coolant System Identified Leak Rate; 04/2010 - 03/2013
- PI Trend; Mitigating Systems, MS05, Safety System Functional Failures; Q2/2010-Q1/2013
- Reactor Coolant System Leakage; 04/2011 – 03/2013
- Safety System Functional Failures, Boiling Water Reactor; 1Q/2011 – 4Q/2012

4OA2 – Identification and Resolution of Problems

- AQP-0001; Control of Detroit Edison Owned Switchyard, Transformers, and Peaker Equipment at Fermi; Revision 2
- AQP-0002; ITC Fermi Interface, 120-kV and 345-kV Switchyards; Revision 4
- CARD 13-21044; Added Air Conditioning to the 345-kV Relay House May Impact Long-Term Loading on EDG 11 or 13
- CARD 13-21328; NRC Concern Regarding Multiple Misses for Added Air Conditioning Units to the 345-kV Relay House and 120-kV Relay House
- CARD 13-21371; 3D36 Division 1 Reactor Building Vent Exhaust Radiation Monitor Upscale Trip (D11K808)
- CARD 13-21581-27; CRB Action Item from 03/20/2013: CRB Review of Direct Cause for 12-21044
- CARD 13-21689; NRC Identified Concern: Traceability of Ladders Installed in Field
- CARD 13-23179; Secondary Containers Not Labeled at the Radiation Protection Release Point
- CARD 13-23298; Transient Combustible Permit Not Extended
- CARD 13-23332; NRC Identified Concern: Scaffold Left Installed >90 Days with No 10 CFR 50.59 Evaluation
- CARD 13-23361; NRC Concern: Water Bottle Label Faded
- CARD 13-23483; NRC Identified Concern: Two Ladders Set Up in Turbine Building 1 Steam Tunnel
- CARD 13-23690; NQA Identified, Numerous CARDS Addressing Improper Ladder Use May Indicate Lack of Adequate Guidance; 05/21/2013

- CARD 13-24233; NQA Audit Deficiency – The FME Steering Committee Charter and the FME Program Health Reports Are Not Consistently Implemented
- DTE Energy; Engineering Excellence Update – 1Q2013; 03/13/2013
- Discussion Paper; Fermi 2 Ladder Program
- Fermi 2 Cycle 16, Configuration Management Combined Excellence Plan – Tier 2; 03/07/2013
- MR Expert Panel Meeting #247, Revision 1
- Management Challenge Board Meeting Agenda; 05/23/2013
- NPOA for the Fermi 2 Nuclear Power Plant; Revision 6
- Number of Critical Component Failures, Excellence in Equipment Reliability Metric 3
- Plant Health Committee Agenda; 03/26/2013
- Specific SSC Functions; C1107 Rod Position Information System
- Undervoltage Relay Drift; CARD 13-21118

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

- CARD 13-20522 – Unusual RBHVAC Damper Alignment Caused Entry into EOP's
- CARD 13-20522 – Apparent Cause Evaluation
- CARD 13-20522 – CARD Manager Quality Checklist; 03/15/2013
- CARD 13-20522 – Event and Causal Factors Chart
- Critical Component Failure Clock Reset Screening, Unplanned Shutdown LCO \leq 72 Hours
- CARD Manager Quality Checklist for CARD 13-20522
- Equipment ACE Guide Template; Unusual RBHVAC Damper Alignment Caused Entry into EOP's
- Fermi 2 Cycle 16 – Configuration Management Combined Excellence Plan – Tier 2; 03/07/2013
- LER 2013-001; Loss of Secondary Containment Function; 03/18/2013
- Loss of Secondary Containment Due to Reactor Building Positive During RBHVAC Start-up, Center Train, CARD 13-20522
- Organizational and Programmatic Issue Screen

LIST OF ACRONYMS USED

AC	Alternating Current
ACE	Apparent Cause Evaluation
ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
ANS	Alert and Notification System
AQP	Augmented Quality Program
CAP	Corrective Action Program
CARD	Condition Assessment Resolution Document
CCHVAC	Control Center Heating, Ventilation, and Air Conditioning
CFR	Code of Federal Regulations
CIP	Critical Infrastructure Protection
CRD	Control Rod Drive
CRB	CARD Review Board
DEP	Drill and Exercise Performance
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
EECW	Emergency Equipment Cooling Water
EP	Emergency Preparedness
ERO	Emergency Response Organization
FIN	Finding
HPCI	High Pressure Coolant Injection
HPCV	High Pressure Control Valve
HPSV	High Pressure Stop Valve
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISI	Inservice Inspection
ITC	International Transmission Company
kV	Kilovolt
LER	Licensee Event Report
MOV	Motor-Operated Valve
NEI	Nuclear Energy Institute
NIOSH/MSHA	National Institute for Occupational Safety and Health/Mine Safety and Health Administration
NRC	U.S. Nuclear Regulatory Commission
NPOA	Nuclear Plant Operating Agreement
NSSSS	Nuclear Steam Supply Shutoff System
NVLAP	National Voluntary Laboratory Accreditation Program
ODMI	Operational Decision Making Issue
PARS	Publicly Available Records System
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PM	Post-Maintenance
PO	Planned Outage
RBCCW	Reactor Building Closed Cooling Water
RBHVAC	Reactor Building Heating, Ventilation, and Air Conditioning
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
RERP	Radiological Emergency Response Plan
RHR	Residual Heat Removal

RWCU	Reactor Water Cleanup
SCBA	Self-Contained Breathing Apparatus
SGTS	Standby Gas Treatment System
SDP	Significance Determination Process
SSO	Safety Systems Outage
SW	Service Water
TM	Temporary Modification
TS	Technical Specification
TSO	Transmission System Operator
TSR	Technical Service Request
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order

J. Plona

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Sincerely,

/RA/

Michael A. Kunowski, Chief
Branch 5
Division of Reactor Projects

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SUBJECT: FERMIL POWER PLANT, UNIT 2, NRC INTEGRATED INSPECTION
REPORT 05000341/2013003

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