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

July 31, 2015

Mr. Paul Fessler
Chief Nuclear Officer
DTE Energy Company
Fermi 2 - 210 NOC
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: FERMI POWER PLANT, UNIT 2–NRC INTEGRATED INSPECTION REPORT 05000341/2015002

Dear Mr. Fessler:

On June 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Fermi Power Plant, Unit 2. On July 15, 2015, the NRC inspectors discussed the results of this inspection with you and members of your staff. The inspectors documented the results of this inspection in the enclosed inspection report.

The NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a Non-Cited Violation (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violation or significance of the NCV, 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's Office at the Fermi Power Plant.

In accordance with Title 10 of the *Code of Federal Regulations (10 CFR)* 2.390, “Public Inspections, Exemptions, Requests for Withholding,” 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), 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:
IR 05000341/2015002
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:	05000341/2015002
Licensee:	DTE Energy Company
Facility:	Fermi Power Plant, Unit 2
Location:	Newport, MI
Dates:	April 1 through June 30, 2015
Inspectors:	B. Kemker, Senior Resident Inspector P. Smagacz, Resident Inspector S. Bell, Health Physicist J. Jandovitz, Project Engineer J. Wojewoda, Reactor Engineer
Approved by:	M. Kunowski, Chief Branch 5 Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS

Inspection Report 05000341/2015002; 04/01/2015–06/30/2015; Fermi Power Plant, Unit 2; In-Plant Airborne Radioactivity Control and Mitigation.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding, which had an associated Non-Cited Violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) regulations, was identified. 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," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG–1649, "Reactor Oversight Process," dated February 2014.

Cornerstone: Occupational Radiation Safety

Green. The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR 20.1703(c)(4)(vii) for the licensee's failure to implement and maintain procedures for its Mine Safety Appliance (MSA) Ultralite® Self-Contained Breathing Apparatus (SCBA) respirators. The SCBA respirators, in question, were among the population of SCBA units available for use but were not within the overhaul frequency specified by the manufacturer; nor was the overhaul frequency addressed by the licensee's procedure. Immediate corrective actions included the removal from service of those respirators for which the required maintenance was not complete. This has been entered into the licensee's corrective action program as CARD 15–23510, "CLO - Overdue Rebuild Requirement on Spare Regulators," dated May 19, 2015.

In accordance with Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening," the inspectors determined the performance deficiency was of more than minor significance because it was associated with the Program and Process attribute of the Occupational Radiation Safety Cornerstone, and adversely affected the cornerstone objective of ensuring the adequate protection of the workers' health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, the failure to maintain a program or process that drives the performance of required periodic maintenance could have resulted in the SCBA not performing its intended function. Using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined the finding had a very low safety significance (Green) because the finding: (1) did not involve as-low-as-is-reasonably-achievable planning and controls; (2) did not involve a radiological overexposure; (3) there was not a substantial potential for an overexposure; and (4) there was no compromised ability to assess dose. These SCBAs are scheduled for near term replacement with a newer model. The inspectors reviewed the implementation for the new model and determined that an adequate maintenance program has been established. No cross-cutting aspect was assigned because the performance deficiency was not reflective of current performance. (Section 2RS3)

REPORT DETAILS

Summary of Plant Status

Fermi Power Plant, Unit 2, was shut down at the start of the inspection period to complete maintenance following an automatic reactor scram on March 19. On April 3, the licensee performed a reactor startup and synchronized the unit to the electrical grid on April 4, completing a 15-day forced outage. The unit reached 100 percent power on April 6 and was operated at or near full power during the inspection period with the following exceptions:

- On June 27, the licensee reduced power to about 70 percent to perform a control rod pattern adjustment and main turbine control, stop, and bypass valve testing. The unit was returned to 100 percent power on June 28.

- On June 29, the licensee reduced power to about 80 percent to perform an additional control rod pattern adjustment. The unit was returned to 100 percent power on June 30.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate AC [Alternating Current] Power Systems

a. Inspection Scope

The inspectors evaluated the licensee's plant features and procedures for operation and continued availability of offsite and alternate AC power systems. The inspectors interviewed plant personnel and reviewed the licensee's 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. Aspects considered in the inspectors' review included:

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

During the week of May 18 through 22, the inspectors performed a walkdown of the switchyards to observe the material condition of the offsite power sources and also reviewed the status of outstanding work orders (WOs) to assess whether corrective

actions for any degraded conditions were scheduled with the TSO with the appropriate priority.

In addition, the inspectors verified problems associated with the availability and reliability of the offsite and alternate AC power systems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected condition assessment resolution documents (CARDs) were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one offsite and alternate AC power systems readiness inspection sample as defined in Inspection Procedure (IP) 71111.01.

b. Findings

No findings were identified.

.2 Readiness for Impending Hot Summer Weather Conditions

a. Inspection Scope

The inspectors evaluated the licensee's preparations for hot summer weather conditions, focusing on the Supplemental Cooling Water (SCS), Residual Heat Removal Service Water (RHRSW), Emergency Equipment Service Water (EESW), and Diesel Generator Service Water systems. During the week of May 31 through June 6, the inspectors performed a detailed review of severe weather and plant de-winterization procedures and performed general area plant walkdowns. The inspectors focused on plant specific design features and implementation of procedures for responding to or mitigating the effects of hot summer weather conditions on the operation of the plant. The inspectors reviewed system health reports and system engineering summer readiness review documents for the above systems.

In addition, the inspectors verified adverse weather-related problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one seasonal extreme weather readiness inspection sample as defined in IP 71111.01.

b. Findings

No findings were identified.

.3 External Flooding

a. Inspection Scope

The inspectors reviewed flood protection barriers and procedures for coping with external flooding at the plant. The inspectors reviewed Section 3.4 of the Updated Final Safety Analysis Report (UFSAR) and Section 5.2 of the Individual Plant Examination of External Events Report to understand the susceptibility of the plant to external flooding

and the design features to mitigate the consequences of external flooding events. The inspectors reviewed Abnormal Operating Procedure 20.000.01, "Acts of Nature," Revision 48, to assess the adequacy of the licensee's response to external flooding conditions.

The inspectors conducted a walkdown of the Residual Heat Removal (RHR)/Emergency Diesel Generator (EDG) Complex and Auxiliary Building, including the roofs. The inspectors assessed the condition of roof drains and scuppers; the sealing of water-tight doors, equipment floor plugs, electrical conduits, and holes or penetrations in the exterior walls below flood grade; and the condition of room floor drains, sumps, and sump pumps.

Additionally, the inspectors verified external flooding protection related problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one external flooding readiness inspection sample as defined in IP 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns (71111.04Q)

a. Inspection Scope

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

- High Pressure Coolant Injection (HPCI) (Single Train Risk Significant System);
- Division 1 EESW Subsystem during Division 2 EESW Pump Replacement; and
- Division 2 Core Spray (CS) Subsystem during Division 1 CS Subsystem Maintenance.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones. The inspectors reviewed operating procedures, system diagrams, Technical Specification (TS) requirements, 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 were available. The inspectors observed operating parameters and examined the material condition of the equipment to verify there were no obvious deficiencies.

In addition, the inspectors verified equipment alignment related problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were

appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted three partial system walkdown inspection samples as defined in IP 71111.04.

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 that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk significant plant areas:

- Onsite Storage Facility;
- Auxiliary Building Fifth Floor, Division 1 Control Center Heating, Ventilation, and Air Conditioning (CCHVAC) Room;
- Reactor Building Third Floor, East Side and Standby Liquid Control; and
- Auxiliary Building Third Floor, Division 2 Switchgear Room.

The inspectors reviewed these fire 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 Protection 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 Report with later additional insights, their potential to impact equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. 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.

In addition, the inspectors verified fire protection related problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted four quarterly fire protection inspection samples as defined in IP 71111.05AQ.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On May 5, the inspectors observed fire brigade activation for a fire drill in the Main Turbine Generator Area. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified the licensee 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 (SCBA);
- proper use and layout of fire hoses;
- employment of appropriate firefighting 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.

This inspection constituted one annual fire protection drill inspection sample as defined in IP 71111.05AQ.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensed operators during evaluated simulator training on June 11. The inspectors assessed the operators' response to the simulated events focusing on alarm response, command and control of crew activities, communication practices, procedural adherence, and implementation of Emergency Plan requirements. The inspectors also observed the post-training critique to assess the ability of the licensee's evaluators and the operating crew to self-identify performance deficiencies. 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 inspection sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observations During Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On April 3, the inspectors observed licensed operators in the Control Room perform a reactor start up following a forced maintenance outage. This activity required heightened awareness, additional detailed planning, and involved increased operational 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 (or equipment) manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions.

The performance in these areas was compared to pre-established operator action expectations, procedural compliance, and task completion requirements.

In addition, the inspectors verified licensed operator performance related problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated the licensee's handling of selected degraded performance issues involving the following risk significant structures, systems, and components (SSCs):

- Process Radiation Monitoring System; and
- Number 2 High Pressure Stop Valve (HPSV).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the SSCs. Specifically, the inspectors independently verified the licensee's handling of SSC performance or condition problems in terms of:

- appropriate work practices;
- identifying and addressing common cause failures;
- scoping of SSCs in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65(b);
- characterizing SSC reliability issues;
- tracking SSC unavailability;
- trending key parameters (condition monitoring);
- 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification; and
- appropriateness of performance criteria for SSC functions classified (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSC functions classified (a)(1).

In addition, the inspectors verified problems associated with the effectiveness of plant maintenance for risk significant SSCs were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness inspection samples as defined in IP 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- Planned maintenance during the week of April 20 through 24 including EDG 12 surveillance testing and General Service Water Building diving activities;
- Planned maintenance during the week of April 27 through May 1 including EDG 14 safety system outage;
- Planned maintenance during the week of May 4 through 8 including Division 2 EESW Pump replacement and emergent work on Division 2 CCHVAC subsystem;
- Planned maintenance during the week of May 24 through 30 including Division 2 RHR/ RHRSW subsystem and HPCI system testing; and
- Planned maintenance during the week of June 15 through 19 including Division 1 CS subsystem maintenance.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each of the above activities, the inspectors reviewed the scope of maintenance work in the plant's daily schedule, reviewed Control Room logs, verified plant risk assessments were completed as required by 10 CFR 50.65(a)(4) prior to commencing maintenance activities, discussed the results of the assessment with the licensee's Probabilistic Risk Analyst and/or Shift Technical Advisor, and verified plant conditions were consistent with the risk assessment assumptions. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid, redundant safety related plant equipment necessary to minimize risk was available for use, and applicable requirements were met.

In addition, the inspectors verified maintenance risk related problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted five maintenance risk assessment and emergent work control inspection samples as defined in IP 71111.13.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- CARD 15–21350, Reactor Building Heating, Ventilation, and Air Conditioning System (RBHVAC) Tripped from Freeze-Stat H;
- CARD 14–21236, Results from the BADGER Test Report Indicate Three Fuel Storage Rack Panels Have Boron Density Less Than That Assumed; and
- CARD 15–24202, Water Spray Due to High Humidity from Room Cooler Spraying on HPCI Turbine Components.

The inspectors selected these potential operability/functionality issues based on the safety significance of the associated components and systems. The inspectors verified the conditions did not render the associated equipment inoperable/non-functional or result in an unrecognized increase in plant risk. When applicable, the inspectors verified the licensee appropriately applied TS limitations, appropriately returned the affected equipment to an operable or functional status, and reviewed the licensee's evaluation of the issue with respect to the regulatory reporting requirements. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. When applicable, the inspectors also verified the licensee appropriately assessed the functionality of SSCs that perform specified functions described in the UFSAR, Technical Requirements Manual, Emergency Plan, Fire Protection Plan, regulatory commitments, or other elements of the current licensing basis when degraded or nonconforming conditions were identified.

In addition, the inspectors verified problems associated with the operability or functionality of safety-related and risk significant plant equipment were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted three operability determination and functionality assessment inspection samples as defined in IP 71111.15.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the following plant Temporary Modifications (TMs):

- TM 13–0033, Monitor the A71BK010D and A71BK007D Trip Strings; and
- TM 13–0042 and TM 15–0035 Low Pressure Exhaust Hood Temperature Switches Bypassed from Turbine Trip Logic.

The inspectors reviewed the TM and the associated 10 CFR 50.59 screening/evaluation against applicable system design basis documents, including the UFSAR and the TS, to verify whether applicable design basis requirements were satisfied. The inspectors reviewed the Control Room logs and interviewed engineering and operations department personnel to understand the impact that implementation of the TM had on operability and availability of the affected system.

In addition, the inspectors verified problems associated with the installation of temporary plant modifications were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two TM inspection samples as defined in IP 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- WO 42469214, Perform 64.020.105, Fuel Pool Ventilation Exhaust Radiation Monitor Division 1 Channel A Radiological Calibration;
- WO 36838925, Replace B EESW Pump;
- WO 37482707, Replace Division 1 CCHVAC Exhaust Air Inboard Isolation Damper Solenoid Valve; and
- WO 37927982, Replace Microswitch in Division 2 CS Pump Discharge Flow Switch.

The inspectors reviewed the scope of the work performed and evaluated the adequacy of the specified post-maintenance testing. The inspectors verified the post-maintenance testing was performed in accordance with approved procedures; the procedures contained clear acceptance criteria that demonstrated operational readiness and the acceptance criteria were met; appropriate test instrumentation was used; the equipment was returned to its operational status following testing; and the test documentation was properly evaluated.

In addition, the inspectors verified problems associated with post-maintenance testing activities were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- 24.205.08, Division 1 RHR Cooling Tower Fan Operability and RHRSW Valve Line-Up Verification;
- Reactor Coolant System (RCS) Leakage Detection System Channel Functional Testing (multiple surveillance test procedures);
- 24.207.08, Division 1 Emergency Equipment Cooling Water (EECW) Pump and Valve Operability Test;
- 44.030.252, ECCS [Emergency Core Cooling System] - Reactor Water Level (Levels 1, 2, and 8), Division 2, Channel B Functional Test and 44.030.254, ECCS - Reactor Water Level (Levels 1, 2, and 8), Division 2, Channel D Functional Test;
- 24.307.15, EDG 12 - Start and Load Test; and
- 24.203.02, Division 1 CS Pump and Valve Operability and Automatic Actuation.

The inspectors observed selected portions of the test activities to verify the testing was accomplished in accordance with plant procedures. The inspectors reviewed the test methodology and documentation to verify equipment performance was consistent with safety analysis and design basis assumptions, 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, and appropriate testing acceptance criteria were satisfied. When applicable, the inspectors also verified test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable.

In addition, the inspectors verified problems associated with surveillance testing activities were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one in-service test, one RCS leakage, and four routine surveillance inspection samples as defined in IP 71111.22.

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 scheduled licensee emergency drill on May 12 to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The drill was planned to be evaluated and was included in the performance indicator data regarding drill and exercise performance. The inspectors observed emergency response operations in the Control Room Simulator, Technical Support Center, and Emergency Operations Facility to determine whether the event classifications, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee's drill critique to compare any inspector-observed weaknesses with those identified by the licensee's staff in order to evaluate the critique and to verify whether the licensee's staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

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

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

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant's UFSAR, to identify areas of the plant designed as potential airborne radiation areas, and any associated ventilation systems or airborne monitoring instrumentation. The instrumentation review included 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, TS, and emergency planning documents to identify location and quantity of respiratory protection devices stored for emergency use.

The inspectors reviewed the licensee procedures for maintenance, inspection, and use of respiratory protection equipment, including SCBA, as well as procedures for air quality maintenance.

The inspectors reviewed any reported performance indicators related to 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 (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 flood-up).

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 (high-efficiency particulate air (HEPA) / 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 is 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 personnel of changing airborne concentrations in the plant and evaluated whether the alarms and setpoints were sufficient to prompt licensee/worker action to ensure 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 is 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 (such as 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 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 National Institute for Occupational Safety and Health/Mine Safety and Health Administration 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 met 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 had been deemed fit to use the devices by a physician.

The inspectors selected several individuals assigned to wear a respiratory protection device and observed them donning, doffing, and functionally checking the device as appropriate. Through interviews with these individuals, the inspectors evaluated whether they knew how to safely use the device and how to properly respond to any device malfunction or unusual occurrence (loss of power, loss of air, etc.).

The inspectors chose multiple respiratory protection devices staged and ready for use in the plant or stocked for issuance for use. The inspectors assessed the physical condition of the device components (mask or hood, harnesses, 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). The inspectors reviewed the respirator vital components maintenance program to ensure on-site personnel assigned to repair the vital components have received the appropriate manufacturer-approved training.

b. Findings

No findings were identified.

.4 SCBA 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 SCBAs 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 the Control Room shift crews and from designated departments currently assigned emergency duties (e.g., on-site search and rescue duties) to assess whether they were trained and qualified in the use of SCBAs (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 were used in fit-testing). The inspectors determined whether on-shift operators had 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 on-site maintenance procedures governing vital component work to determine any inconsistencies with the SCBA manufacturer's recommended practices. For those SCBAs 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

(1) Failure to Maintain SCBA Components

Introduction: The inspectors identified a finding of very low safety significance (Green) and Non-Cited Violation of 10 CFR 20.1703, for the licensee's failure to implement and maintain written procedures regarding maintenance for its SCBA respirators.

Description: The licensee used Mine Safety Appliance (MSA) Ultralite® SCBA respirators for the purpose of minimizing the workers' exposure to radioactive materials. The manufacturer of these devices specified a graded approach to maintenance based on the frequency of usage of the device. The manufacturer specified the respirator regulator be overhauled with a frequency not-to-exceed 15 years when the SCBA was infrequently used. The inspectors reviewed licensee Procedure 65.000.718, "Maintenance and Repair of MSA Respiratory Protection Equipment," Revision 8. This procedure did not contain SCBA regulator overhaul frequency requirements. The inspectors requested information from the licensee regarding the age of the SCBAs in service. This review determined that two regulators, which were among the population of SCBA units available for use, exceeded the 15-year requirement. These two regulators were last overhauled approximately 19 and 21 years ago, respectively. The licensee previously tracked the overhaul schedule by the usage of an informal tracking method. This informal method of tracking ceased during transition from the previous respiratory protection program owner to the current one.

Analysis: The inspectors determined the failure to implement and maintain procedures for the maintenance of its Mine Safety Appliance (MSA)BA Ultralite® SCBA respirators was a performance deficiency, the cause of which was reasonably within the licensee's ability to foresee and correct, and should have been prevented. The issue was not subject to traditional enforcement since the concern did not have a significant safety consequence, did not impact the NRC's ability to perform its regulatory function, and was not willful. The performance deficiency was determined to be of more than minor safety significance in accordance with IMC 0612, Appendix B, "Issue Screening," issued September 7, 2012, because it was associated with the Program and Process attribute of the Occupational Radiation Safety Cornerstone, and adversely affected the cornerstone objective of ensuring the adequate protection of the workers' health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, the failure to properly maintain the SCBA respirators could lead to degraded components remaining in service, and the use of degraded SCBAs could impair the users such that they could be unable to perform their intended functions. The inspectors also reviewed the guidance in IMC 0612, Appendix E, "Examples of Minor Issues," issued August 11, 2009, and did not find any similar examples.

In accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," issued August 19, 2008, the inspectors determined the finding had a very low safety significance (Green) because the finding: (1) did not involve ALARA planning and controls; (2) did not involve a radiological overexposure; (3) there was not a substantial potential for an overexposure; and (4) there was no compromised ability to assess dose.

The licensee is replacing its MSA Ultralite SCBAs in the immediate future. The inspectors evaluated the maintenance schedule for the replacement SCBAs and determined it was in accordance with the manufacturer's specifications. This schedule was within the station's formal ongoing maintenance work process. Additionally, the performance deficiency occurred approximately six years ago and was not determined to be reflective of current performance. Thus, a cross-cutting aspect was not assigned.

Enforcement: 10 CFR 20.1073(c)(4)(vii) requires, in part, that the licensee implement and maintain a Respiratory Protection Program that includes written procedures regarding the maintenance for respiratory protection equipment.

Procedure 65.000.718, "Maintenance and Repair of MSA Respiratory Protection Equipment," Revision 8, in part, implements the requirements of 10 CFR 20.1703(c)(4)(vii).

Contrary to the above, on May 19, 2015, this procedure did not contain SCBA regulator overhaul frequency requirements and the licensee had SCBA respirators available for use that did not have regulators overhauled at the frequency established by the manufacturer and implemented by licensee Procedure 65.000.718, "Maintenance and Repair of MSA Respiratory Protection Equipment." Corrective actions included the immediate removal from service of the applicable SCBA respirators and the establishment of a formal tracking mechanism to ensure all maintenance was performed within the specifications specified by the manufacturer. Since this finding and violation was of very low safety significance and has been entered in the licensee's corrective action program (as CARD 15-23510, "CLO [Crew Learning Opportunity] - Overdue Rebuild Requirements on Spare Regulators," dated May 19, 2015), this violation is being treated as a Non-Cited Violation consistent with Section 2.3.2.a of the NRC Enforcement Policy **(NCV 05000341/2015–002–01, Failure to Maintain Self-Contained Breathing Apparatus Components)**.

.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 corrective action program. The inspectors assessed whether the corrective actions were appropriate for a selected 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.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the results of 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 insights into overall licensee performance in the area of dose assessment and focus the inspection activities consistent with the principle of "smart sampling."

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

A review was conducted of the licensee procedures associated with dosimetry operations, including issuance/use of external dosimetry (routine, multi-badging, 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 and dose assessment for radiological incidents (distributed contamination, hot particles, loss of dosimetry, etc.).

The inspectors evaluated whether the licensee had established procedural requirements for determining when external and internal dosimetry was 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 National Voluntary Laboratory Accreditation Program 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 their 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 licensee does not use non-National Voluntary Laboratory Accreditation Program accredited passive dosimeters.

The inspectors assessed the use of active dosimeters (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 had to 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 corrective action program 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, and 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 inspector's 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 accounted for hard-to-detect nuclides in the dose assessment.

b. Findings

No findings were identified.

Special Bioassay (In-Vitro)

a. Inspection Scope

There were no internal dose assessments obtained using in-vitro monitoring for the inspectors to review. The inspectors reviewed and assessed the adequacy of the licensee’s program for in-vitro monitoring (i.e., urinalysis and fecal analysis) of radionuclides (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. The licensee had not performed dose assessments using airborne/derived air concentration monitoring since the last inspection.

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 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 (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 existed. 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 corrective action program. 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

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index (MSPI) - High Pressure Injection Systems

a. Inspection Scope

The inspectors reviewed a sample of plant records and data against the reported MSPI - High Pressure Injection Systems Performance Indicator. To determine the accuracy of the performance indicator data reported, performance indicator definitions and guidance contained in Nuclear Energy Institute (NEI) 99–02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used. The inspectors reviewed the MSPI derivation reports, Control Room logs, Maintenance Rule database, Licensee Event Reports (LERs), and maintenance and test data from April 2014 through March 2015 to validate the accuracy of the performance indicator data reported. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's corrective action program database to determine if any problems had been identified

with the performance indicator data collected or transmitted for this performance indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI - High Pressure Injection Systems Performance Indicator verification inspection sample as defined in IP 71151.

b. Findings

No findings were identified.

.2 MSPI - AC Power System

a. Inspection Scope

The inspectors reviewed a sample of plant records and data against the reported MSPI - Emergency AC Power System Performance Indicator. To determine the accuracy of the performance indicator data reported, performance indicator definitions and guidance contained in NEI 99–02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used. The inspectors reviewed the MSPI derivation reports, Control Room logs, Maintenance Rule database, LERs, and maintenance and test data from July 2014 through March 2015 to validate the accuracy of the performance indicator data reported. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's corrective action program database to determine if any problems had been identified with the performance indicator data collected or transmitted for this performance indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI - Emergency AC Power System Performance Indicator verification inspection sample as defined in IP 71151.

b. Findings

No findings were identified.

.3 RCS Leakage

a. Inspection Scope

The inspectors verified the RCS Leakage Performance Indicator. The inspectors reviewed the licensee's RCS leakage tracking surveillance test data from April 2014 through March 2015 to validate the accuracy of the licensee's submittals. To determine the accuracy of the performance indicator data reported during this period, performance indicator definitions and guidance contained in NEI 99–02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used. The inspectors also reviewed the licensee's corrective action program database to determine if any problems had been identified with the performance indicator data collected or transmitted for this performance indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RCS Leakage Performance Indicator verification inspection sample as defined in IP 71151.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As 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 corrective action program at an appropriate threshold, adequate attention was being given to timely corrective actions, and adverse trends were identified and addressed. Some minor issues were entered into the licensee's corrective action program as a result of the inspectors' observations; however, they are not discussed in this report.

This inspection was not considered to be an inspection sample as defined in IP 71152.

b. Findings

No findings were identified.

.2 Annual In-depth Review Samples

a. Inspection Scope

The inspectors selected the following issues for in-depth review:

- CARD 14–21815, Human Performance Issues Involving Cycle 16 Refueling Outage (RF16) Refueling Activities; and
- CARD 14–22848, Refueling Bridge Equipment Reliability Issues.

As appropriate, the inspectors verified the following attributes during their review of the licensee's corrective actions for the above CARDs and other related CARDs:

- complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications, common cause, and previous occurrences;
- evaluation and disposition of operability/functionality/reportability issues;
- classification and prioritization of the resolution of the problem commensurate with safety significance;
- identification of the root and contributing causes of the problem; and
- identification of corrective actions, which were appropriately focused to correct the problem.

The inspectors discussed the corrective actions and associated evaluations with licensee personnel. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two annual in-depth review inspection samples as defined in IP 71152.

b. Findings and Observations

No findings were identified.

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

.1 (Closed) LER 05000341/2015–001–00, Secondary Containment Declared Inoperable after Loss of Reactor Building Ventilation from Freeze Protection Actuation

(Closed) LER 05000341/2015–001–01, Secondary Containment Declared Inoperable after Loss of Reactor Building Ventilation from Freeze Protection Actuation, Supplement 1

On February 19, the nonsafety-related RBHVAC system tripped during operation, causing secondary containment pressure to momentarily exceed the required limit specified in TS 3.6.4.1, "Secondary Containment," of greater than or equal to -0.125 inches water gauge. Secondary containment pressure was restored by Control Room operators manually starting the Standby Gas Treatment system. At the time of the trip, outside air temperature was -1 degree Fahrenheit and the nonsafety-related RBHVAC system tripped due to a freeze-stat actuation. The freeze-stat is a low temperature switch installed to protect heating coils in the ventilation duct from freezing. There is no automatic start of the safety-related Standby Gas Treatment system unless there is a secondary containment isolation actuation. Secondary containment pressure briefly degraded to less than -0.125 inches water gauge for a second time while operators were attempting to restore the RBHVAC system to operation.

The licensee completed an 8-hour notification call (Event Notification 50831) on February 19 to report the inoperable secondary containment as required by 10 CFR 50.72(b)(3)(v)(C) as an event or condition, that at the time of discovery, could have prevented the fulfillment of a safety function needed to control the release of radioactive material.

The licensee submitted LER 05000341/2015–001–00 to report this event in accordance with 10 CFR 50.73(a)(2)(v)(C) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material. The licensee subsequently supplemented the original LER to correct a minor technical error in the original report.

The inspectors reviewed the licensee's cause evaluation for the RBHVAC system trip. The cause was determined to be a freeze-stat actuation on low temperature for the "H" heating coil. The licensee had had multiple freeze-stat trips for the "H" heating coil during the winter months. Engineers examined the "H" heating coil and identified the material deviated from the original design, which resulted in a lower rate of heat transfer. The "H" heating coil was replaced in November 2011 with one made from aluminum. The original design was copper. The licensee initiated a corrective action to replace the heating coil with original design specification material prior to the next winter season. The inspectors did not identify any significant safety issue not addressed in the licensee's cause evaluation.

The inspectors concluded there was no finding associated with this event since the performance issue was determined to be of minor safety significance. Although the secondary containment was declared inoperable due to briefly exceeding the TS value for secondary containment vacuum, the structural integrity of the secondary containment was not degraded at the time. Upon receipt of an accident signal, the Standby Gas Treatment system would have automatically started and restored secondary containment vacuum to within the bounding UFSAR Chapter 15 analyses. The accident analysis for a loss-of-coolant-accident does not assume secondary containment is under vacuum throughout the duration of an accident and contains conservative leakage assumptions to bound the effects of a postulated ground level release. No violation of regulatory requirements was identified because the RBHVAC system is not safety related.

LERs 05000341/2015–001–00 and 05000341/2015–001–01 are closed.

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

.2 (Closed) LER 05000341/2015–002–00, Loss of Both Divisions of the Residual Heat Removal Low Pressure Coolant Injection Functions Due to 480-Volt Swing Bus Inoperable

On March 9, while performing a scheduled surveillance test of the automatic transfer (or throw over) of 480-volt bus 72CF, the automatic transfer feature failed. This resulted in inoperability of both Low Pressure Coolant Injection (LPCI) subsystems. As required by TS 3.5.1 Condition K, the licensee entered TS 3.0.3, requiring entry into Mode 2 within 7 hours. Accordingly, the licensee commenced a reactor shutdown at 4:15 p.m. and initiated maintenance to correct the problem. Reactor operators stabilized reactor power at about 81.5 percent when it appeared a resolution of the problem would allow exiting TS 3.5.1 Condition K and TS 3.0.3. After completing corrective maintenance and returning both LPCI subsystems to an operable status to satisfy the TS requirements at 10:11 p.m., the licensee returned the reactor to 100 percent power at 11:59 p.m.

The licensee completed a 4-hour notification call (Event Notification 50874) on March 9 to report the initiation of a TS-required plant shutdown under 10 CFR 50.72(b)(2)(i). The licensee also reported the unplanned inoperability of both LPCI subsystems (8-hour notification requirement) under 10 CFR 50.72(b)(3)(v)(D) as an event or condition that, at the time of discovery, could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

The licensee submitted LER 05000341/2015–002–00 to report this event in accordance with 10 CFR 50.73(a)(2)(v)(D) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident and 10 CFR 50.73(a)(2)(vii) as any event where a single cause or condition caused two independent trains to become inoperable in a single system designed to mitigate the consequences of an accident.

The inspectors reviewed the licensee's apparent cause and equipment apparent cause evaluations for the failure of the 72CF automatic transfer circuit. The apparent cause was determined to be a buildup of tarnish on an auxiliary relay contact, which caused the contact to remain electrically opened when it should have been closed. The inspectors did not identify any significant safety issue neglected from the licensee's apparent cause

evaluations. The licensee replaced the auxiliary contact and initiated a preventive maintenance task to cycle the 72CF auxiliary contacts under load or to replace them periodically. The inspectors concluded there was no performance deficiency associated with this event since the failure was not reasonably within the licensee's ability to foresee and correct. Although generic industry guidance existed with recommended frequencies for electro-mechanical relay cleaning and inspection, the component was about 30 years old, had no history of failures, and no specific preventive maintenance activity existed for cleaning or replacing it.

LER 05000341/2015–002–00 is closed.

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

4OA6 Management Meetings

.1 Resident Inspectors' Exit Meeting

The inspectors presented the inspection results to Mr. P. Fessler and other members of the licensee's staff on July 15, 2015. The licensee acknowledged the findings presented. Proprietary information was examined during this inspection, but is not specifically discussed in this report.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The inspection results for the In-Plant Airborne Radioactivity Control and Mitigation, and Occupational Dose Assessment inspection with Mr. R. LaBurn on May 22, 2015.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Auler, Principal Engineer, Nuclear Engineering
N. Avrakotos, Manager, Radiological Emergency Response Preparedness
S. Berry, Manager, Outage and Work Management
S. Bollinger, Manager, Nuclear Performance Improvement
R. Breymaier, Supervisor, Performance Engineering
J. Ford, Director, Nuclear Organization Effectiveness
D. Hemmele, Superintendent, Operations
V. Kaminskas, Vice President, Nuclear Power Plant
E. Kokosky, Manager, Nuclear Quality Assurance
R. LaBurn, Manager, Radiation Protection
M. Philippon, Director, Nuclear Production
J. Pendergast, Principal Engineer, Regulatory Compliance
L. Peterson, Director, Nuclear Engineering
G. Piccard, Manager, Nuclear Engineering (Systems)
C. Robinson, Manager, Licensing
W. Colonnello, Director, Nuclear Work Management
G. Strobel, Manager, Nuclear Operations
J. Thorson, Manager, Nuclear Engineering (Performance)
H. Yeldell, Manager, Nuclear Maintenance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000341/2015–002–01	NCV	Failure to Maintain Self-Contained Breathing Apparatus Components (Section 2RS3)

Closed

05000341/2015–002–01	NCV	Failure to Maintain Self-Contained Breathing Apparatus Components (Section 2RS3)
05000341/2015–001–00, 05000341/2015–001–01	LER	Secondary Containment Declared Inoperable after Loss of Reactor Building Ventilation from Freeze Protection Actuation (Section 4OA3.1)
05000341/2015–002–00	LER	Loss of Both Divisions of the RHR Low Pressure Coolant Injection Functions Due to 480-Volt Swing Bus Inoperable (Section 4OA3.2)

LIST OF DOCUMENTS REVIEWED

The following is a partial 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; International Transmission Company and Midwest ISO Augmented Quality Program Documents; Revision 5
- Correspondence, Nuclear Generation Memorandum TMPE–94–0308; From J. G. Walker to Distribution; Subject: Flood Protection Review; May 18, 1994
- CARD 14–00618; Reactor Building to Drywell Entry Exit Building Watertight Door Seal Is Damaged
- CARD 15–00454; Supplemental Cooling Chill Water Chiller Water Expansion Tank Shows Indications of Air Leak
- CARD 15–00498; North Supplemental Cooling Chill Water Chiller Tripped Following Start Due to F46F004A Failure to Open
- CARD 15–20159; Document Change Request for Operations Department Expectation (ODE)-12
- CARD 15–21020; International Transmission Company Performing 120kV Mat Operations Without Notifying the Main Control Room
- CARD 15–24042; Reactor Building Closed Cooling Water (RBCCW) Supplemental Cooling System North Pump Seal Leak
- CARD 15–24110; Evaluate Cooling Tower/Circulation Water System For Impact to Summer Operation/Plant Capacity
- CARD 15–22135; Ground Water Leak Has Increased Twentyfold
- CARD 15–24135; RBCCW SCS–2 Temperature Control System Will Not Control Temperature with the Controller in Manual or Auto
- Drawing 6A721–2001; Reactor Building First Floor - Elevation 583'–6"; Revision BA
- Fermi UFSAR 3.4; Water Level (Flood) Design; October 2012; Revision 18
- Grid–Related Control System Vulnerability; December 2007
- Information Notice 90–42; Failure of Electrical Power Equipment Due to Solar Magnetic Disturbances; June 19, 1990
- Information Notice 2015–01; Degraded Ability to Mitigate Flooding Events; January 9, 2015
- NRC Bulletin 2012–01; Design Vulnerability In Electric Power System; July 27, 2012
- ODE–12; ODE Limiting Condition for Operation; Revision 31
- Procedure 20.000.01; Acts of Nature; Revision 48
- Procedure 20.300.Offsite; Loss of Offsite Power; Revision 11
- Procedure 20.300.PHASE; Loss of Phase; Revision 0
- Procedure 20.300.120kV; Loss of 120kV; Revision 16
- Procedure 20.300.345kV; Loss of 345kV; Revision 14
- Procedure 23.127.01; RBCCW Supplemental Cooling System; Revision 29
- Procedure 27.322; Mayfly Infestation Preparation Plan; Revision 13
- Procedure 27.000.06; Hot Weather Operations; Revision 4
- Report No. 95–R102–59–01; Individual Plant Examination of External Events For High Winds, Floods, and Transportation and Nearby Facility Accidents For Enrico Fermi Unit 2; May 26, 1995; Revision 0

1R04 Equipment Alignment

- Drawing 6I721N–2441–10; EESW System Pump "A" - P4500C002A; Revision X
- Drawing 6M721–2034; CSS Reactor Building; Revision AQ
- Drawing 6M721–5706–3; RHRSW Makeup Decant and Overflow Systems Functional Operating Sketch; Revision AA
- Drawing 6M721–5707; CSS Functional Operational Sketch; Revision AE
- Drawing 6M721–5729–1; EECW (Division 1) Functional Operating Sketch; Revision BF
- Procedure 23.202; HPCI System; Revision 108
- Procedure 23.203; CSS; Revision 58
- Procedure 23.208; RHR Complex Service Water Systems; Revision 106

1R05 Fire Protection

- CARD 15–23901; NRC Concern With Fire Protection Combustible Loading in D–15 Asphalt Room (Onsite Storage Facility Area North of Radwaste Offices)
- Drawing 6A721–2409; Fire Protection Evaluation - Reactor and Auxiliary Buildings - Fifth Floor Plan; Revision U
- Drawing 6M721–5733–1; Fire Protection Functional Operating Sketch; Revision BH
- Fermi UFSAR 9A.4.2.13; Switchgear Room, Fire Zone 12AB, Elevation 643'6"; Revision 18
- Fermi UFSAR 11.5; Solid Radwaste System; October 2009; Revision 16
- Fermi UFSAR 11.7; Onsite Storage Facility; October 2009; Revision 19
- Fire Protection OSSF–1–46; Onsite Storage Facility, Zone 46; Revision 2
- Procedure EP–101; Classification of Emergencies; Revision 39
- Procedure FP–AB–3–14e; Auxiliary Building, Division II Switchgear Room, Zone 14, Elevation 643'6"
- Procedure FP–AB–5–16a; Auxiliary Building North Standby Gas Treatment System Room, Zone 16, Elevation 677'6"
- Procedure FP–AB–5–16b; Auxiliary Building South Standby Gas Treatment System Room, Zone 16, Elevation 677'6"
- Procedure FP–AB–5–16c; Auxiliary Building Division II CCHVAC System Equipment Room, Zone 16, Elevation 677'6"
- Procedure FP–AB–5–16d; Auxiliary Building, Division I CCHVAC System Equipment Room, Zone 16, Elevation 677'6"
- Procedure FP–AB–5–16e; Auxiliary Building, Division II CCHVAC System Equipment Room, Zone 16, Elevation 677'6"
- Procedure FP–AB–5–16f; Auxiliary Building, Fifth Floor Ventilation Equipment Room, Zone 16, Elevation 677'0"
- Procedure FP–TB; Turbine Building; Revision 9
- Procedure LP–FP–940–10YX; Fire Drill – Main Turbine Generator TB3; Revision 1
- Procedure 20.000.22; Plant Fires; Revision 44

1R11 Licensed Operator Requalification Program

- CARD 15-24062; License Operator Requalification Simulator Assessment Rescheduled Due to Lesson Guide Not Reflecting Most Current Simulator Conditions
- Fermi 2 Evaluation Scenario SS-OP-904-1320; Reactor Water Cleanup Leak/Circulating Water Pump Trip/ Loss of Vacuum/Loss of Coolant Accident; Revision 0
- Procedure 20.000.02; Abnormal Release of Radioactive Material; Revision 26
- Procedure 20.125.01; Loss of Vacuum; Revision 26
- Procedure 20.707.01; Loss of Reactor Water Cleanup; Revision 27

1R12 Maintenance Effectiveness

- Apparent Cause Evaluation, CARD 15–21424; Turbine HPSV 2 Closed, Isolating a Turbine Steam Lead, Then Cycled Open and Closed; April 13, 2015; Revision 0
- CARD 13–25241; NRC In 2013–13 Deficiencies With Effluent Radiation Monitoring System Instrumentation
- CARD 13–25528; 3D57 Circulating Water System Decant Line Radiation Monitor Trouble Due to Low Flow
- CARD 13–27453; Spurious Alarm 3D38 Received For D11–K837A
- CARD 13–28163; Division 2 Standby Gas Treatment System Sprint "Fail High" Alarm Received
- CARD 13–28593; Residual Heat Removal Heating, Ventilation, and Air Conditioning (RHRHVAC) System Near (a)(1) Maintenance Rule Due to Unit Heater Failures
- CARD 13–28647; Evaluate D1100 For Maintenance Rule (a)(1) Status
- CARD 14–20269; To Evaluate Whether RHRHVAC System Should be Classified (a)(1) Maintenance Rule Due to Unit Heater Failures
- CARD 14–20285; East Bypass Valve Unitized Actuator (UA) Performance Degrading
- CARD 14–20299; Insufficient UA Maintenance Scheduled For RF16
- CARD 14–20349; Received 3D57 For Circulating H20 System Decant Line Radiation Monitor Flow Low
- CARD 14–20418; Motor Control Center 72C-3A Position 5A Will Not Close in For E1150F003A
- CARD 14–20706; D1100 (a)(1) Common Cause Get Well Plan
- CARD 14–21194; Maintenance Rule Monthlies For U4100 Found an Issue Needing a Maintenance Rule Functional Failure (MRFF) Evaluation
- CARD 14–22294; E1100 RHR System Potentially Entering Maintenance Rule Near (a)(1) Status
- CARD 14–22570; North Division 1 CCHVAC Emergency Radiation Monitor Low Flow/Trouble Alarm
- CARD 14–22851; Failed Effectiveness Review For CARD 09–25934 and N3021 Get Well Plan
- CARD 14–22865; Division 1 South CCHVAC Emergency Air Inlet Radiation Monitor Green Operate Light On When CCHVAC In Normal
- CARD 14–23045; Manually Tripped Main Turbine Due to Vibrations on the Main Turbine Valve UA Deck and Multiple UA Alarms
- CARD 14–23123; Main Turbine Manually Tripped Due to Vibrations on the Main Turbine Valve UA Deck and Multiple UA Alarms
- CARD 14–23460; Combustion Turbine Generator 11–1 Output Breaker Tripped and Reclosed; Power Indication Surging
- CARD 14–23467; Friction Found on High Pressure Control Valve Number 4 During Valve Diagnostics
- CARD 14–23630; Received Circulating H20 Decant Line Radiation Monitor Trouble Due to Low Flow
- CARD 14–23778; Low Flow Alarm Decant Line Radiation Monitor
- CARD 14–23826; Received Circulating H20 Decant Line Radiation Monitor Trouble Due to Low Flow
- CARD 14–23860; Received 3D57 Circulating H20 System Decant Line Radiation Monitor Trouble
- CARD 14–24442; Standby Gas Treatment System Division 2 Accident Range Monitor Channel 4 Failed Weekly Surveillance
- CARD 14–24658; EDG 11 Diesel Room Outdoor Air Inlet Damper Not Opening to Maintain Temperature

- CARD 14–25093; D11K836A (Division 1 Emergency Makeup Air Radiation Monitor) Causing 3D38 to be Alarmed While CCHVAC is in Recirculation
- CARD 14-25725; Partial Completion of WO F210110100
- CARD 14–26785; Received 3D31 (Divisions 1 and 2 Fuel Pool Ventilation Radiation Monitor Upscale) in Main Control Room
- CARD 14–26786; Power Supply Has Excessive Ripple on -24vdc (900mvAC)
- CARD 14–27416; AB5 Division 1 Standby Gas Treatment System Exhaust Fan Motor
- CARD 14–27536; Foreign Material Exclusion Bag Inside Number 2 HPSV Position Camshaft Assembly Housing
- CARD 14–27638; Number 2 High Pressure Control Valve UA Filter Plugged
- CARD 14–27797; Division 2 Standby Gas Treatment System Accident Range Monitor Channel 3 Failed Low
- CARD 14–28158; E1100 System Entering Maintenance Rule Near (a)(1) Status
- CARD 14–28371; Division 2 Accident Range Monitor Unit Channel Fail Low
- CARD 14–29640; 3D57: Circulating Water Decant Radiation Monitor Trouble Alarm Due to Low Flow
- CARD 15–20812; Circulating Water Decant Radiation Monitor Clogging - Repeat Failures
- CARD 15–21008; Division 1 South CCHVAC Emergency Air Inlet Radiation Monitor Operate Light Lit With CCHVAC in Normal Mode
- CARD 15–21217; Trips 1 and 2 Lights Found Lit on Division 2 CCHVAC Normal Makeup Radiation Monitor
- CARD 15–21424; Number 2 HPSV Went Closed and Then Open to 22 Percent Multiple Times
- CARD 15–22334; Troubleshoot/Repair HPSV 2 Valve Control Module Alarm Reset Circuit
- CARD 15–22595; Main Steam Line Radiation Monitor Did Not Produce HI-HI Trip Outputs During Surveillance 44.010.028
- CARD 15–23539; Failure Testing of Circuit Card Related to HPSV 2 Failure
- Common Cause Analysis For CARD 14–20706; D1100 (a)(1) Common Cause Get Well Plan; February 20, 2014
- Equipment Apparent Cause Evaluation For CARD 15–21424; Number 2 HPSV Went Closed and then Open to 22 Percent Multiple Times
- Expert Panel Presentation (a)(2) System Classification Review; System D1100; Process Radiation Monitoring; July 15, 2013
- Fault Tree/Failure Modes; CARD 21424 HPSV 2 Closed. 4D91 Electric Governor Trouble and All Three Cubic Centimeter Highway Alarms For HPSV 2 Valve Control Module; Revision 2
- Get Well Plan (a)(1) SSC; D1100 Process Radiation Monitoring System; Revision 6
- Get Well Plan (a)(1) SSC; D1100 Process Radiation Monitoring System; Revision 7
- NRC Information Notice 2013–13, Revision 1; Deficiencies with Effluent Radiation Monitoring System Instrumentation; April 15, 2015
- System Health Report D1100; Process Radiation Monitoring System; First Quarter 2015
- WO 38184514; North Division 1 CCHVAC Emergency Radiation Monitor Low Flow/Trouble Alarm

1R13 Maintenance Risk Assessments and Emergent Work Control

- CARD 13–25652; Approximately Six to Eight Inches of the Lower Sweep For T3–6 Has Come Loose From the Door Sweep
- CARD 15–20194; High Risk Work Delayed
- CARD 15–20197; High Risk Work Exited Due to Emergent Plant Impact Concerns
- CARD 15–20519; Improper Risk Designation for Plan of the Day Scheduled Activity
- CARD 15–23209; Received Trip of Division 2 CCHVAC Chiller On High Condenser Pressure During Startup of System

- CARD 15–23264; NRC Identified Concern
- ODE–20; Protected Equipment; Revision 14
- Risk Management Plan; 36838925 - Replace EESW Pump B (P4500C002B) - 38578668 (Contingency) - Reinstallation of Original EESW Pump B (Old Pump); March 23, 2015
- Risk Management Plan; Perform 44.030.252 Reactor Water Level (Levels 1, 2, and 8) Division 2 Channel B Functional Test; April 29, 2015
- Risk Management Plan; Perform 44.030.254 Reactor Water Level (Levels 1, 2, and 8) Division 2 Channel D Functional Test; April 29, 2015
- Scheduled Risk Profile Summary; Week of April 20, 2015
- Scheduled Risk Profile Summary; Week of May 25, 2015

1R15 Operability Determinations and Functionality Assessments

- CARD 06-24989; Water Spray From Room Cooler (Due to High Humidity) Wetting Turbine Components NRC Concern
- CARD 14–21236; Results From the BADGER Test Report Indicate Three Fuel Storage Rack Panels Have Boron Density Less Than That Assumed
- CARD 15-24202; Water Spray Due to High Humidity From Room Cooler Spraying On HPCI Turbine Components
- Procedure 57.000.19; Spent Fuel Storage Rack Management Guidelines; Revision 6
- Project Initiation Request 2014061; Inserts For the Boraflex Fuel Storage Racks

1R18 Plant Modifications

- 50.59 Screen No. 13–0252; TM for Lifted Output Switch Contact Leads From Main Turbine Low Pressure Center Exhaust Hood Temperature Switch N30K902C; Revision 0
- 50.59 Screen No. 15–0035; TM for Lifted Output Switch Contact Leads From Main Turbine Low Pressure Center Exhaust Hood Temperature Switch N30K902B; Revision 0
- CARD 13–24667; Received 2D36 Nuclear Steam Supply Shutoff System (NSSSS) Isolation Chiller Blowdown Trip in the Main Control Room
- CARD 13–27431; Spurious 4D4, Turbine Trip Protection Fault Alarm
- CARD 13–27512; TM 13–0042 Needs Installation and Removal WOs
- CARD 14–21471; Replace N30N500A Center Low Pressure Thermocouple Next Time Center Low Pressure Is Disassembled
- CARD 15–20954; Received 2D36 NSSSS Isolation Chiller Blowdown Trip Alarm
- CARD 15–21733; Received 4D4 Turbine Trip Protection Fault in the Main Control Room
- CARD 15–22278; Open Input on Low Pressure Exhaust Thermocouple
- Drawing 6I721–2045–19; Internal - External Wiring Diagram Reactor Protection System Trip System B CAB H11P611 PT. 1; Revision T
- Drawing 6I721–2095–11; Schematic Diagram NSSSS Annunciator and Computer Circuits; Revision Q
- Drawing 6I721–2155–15; Schematic Diagram Reactor Protection System Testability Modification; Revision J
- ODMI 15–001a; Spurious Half Main Steam Isolation Valve Channel D Isolation; Revision A
- TM 13–0042; TM Low Pressure Exhaust Temperature Thermocouple Failed; Revision 0
- TM 15–0033; Monitor the A71BK010D and A71BK007D Trip Strings; Revision 0
- TM 15–0035; TM Low Pressure Exhaust Temperature Thermocouple Failed; Revision 0
- WO 37500446; Turbine Trip Protection Fault Due to Low Pressure Exhaust Hood Temperature High Fault
- WO 37533111; Install TM 13–0042
- WO 42668631; Received 4D4 Turbine Trip Protection Fault in the Main Control Room

- WO 42671681; Install TM 15–0035
- WO 42671683; Troubleshoot Thermocouple N30N556B

1R19 Post-Maintenance Testing

- CARD 15–22935; NRC Observation
- CARD 15–23282; Quality Assurance Concern Noted During Motor Cable Terminations For Motor on Pump P4500C002B
- CARD 15–23319; Nuclear Quality Assurance - Review of WO 36838925 - Replace EESW Pump B Lower End
- Procedure 24.203.03; Division 2 CSS Pump and Valve Operability, and Automatic Actuation; Revision 52
- Procedure 24.208.03; Division 2 EESW and EECW Makeup Pump and Valve Operability Test; Revision 73
- Procedure 24.413.04; Division 1 Control Room Emergency Filter Auto Transfer Test; Revision 37
- Procedure 35.208.001; EESW Pump Rotating Assembly Removal and Installation; Revision 26
- Procedure 47.000.03; Inservice Testing Pump Reference Value Testing Instruction; Revision 25
- Risk Management Plan; 36838925 - Replace EESW Pump B (P4500C002B) - 38578668 (Contingency); Re-installation of Original EESW Pump B (Old Pump); March 23, 2015
- Sequence of Events 14–07; Baseline Pump Performance Test for P4500-C002B; Revision 0
- WO 36838925; Replace EESW Pump B Lower End
- WO 37482707; Replace Division 1 CCHVAC Exhaust Air Inboard Isolation Damper Solenoid Valve
- WO 37929167; Perform 24.203.03 Section 5.1 Division 2 CSS Pump and Valve Operability Test
- WO 42469214; Perform 64.020.105 Fuel Pool Vent Exhaust Rad Monitor Division 1 Channel A Calibration
- Work Request Revision Form 37927982; Revised to Determine Why Barton E21N006B Contact Appears To Be Open When It Should Be Closed; June 24, 2015; Revision 2

1R22 Surveillance Testing

- 19 Week Look-Ahead Report - Week 0; June 14, 2015
- Archive Equipment Log; June 15, 2015 to June 21, 2015
- Archive Limiting Condition for Operation Log; June 15, 2015 to June 21, 2015
- Archive Procedure Log; June 15, 2015 to June 21, 2015
- Archive Start/Stop Log; June 15, 2015 to June 21, 2015
- CARD 14–25103; Inservice Testing Program Self-Assessment Deficiencies (TMIS–14–0064)
- Fermi Inservice Testing Program for Pumps and Valves; Part 5: Inservice Testing Valve Scope Table; May 18, 2012; Revision 0
- Procedure 23.203; CSS; Revision 58
- Procedure 24.203.02; Division 1 CSS Pump and Valve Operability, and Automatic Actuation; Revision 50
- Procedure 24.205.08; Division 1 RHR Cooling Tower Fan Operability and RHRSW Valve Line-Up Verification; Revision 31
- Procedure 24.207.08; Division 1 EECW Pump and Valve Operability Test; Revision 77
- Procedure 24.307.15; EDG 12 - Start and Load Test; Revision 56

- Procedure 44.030.252; ECCS - Reactor Vessel Water Level (Levels 1, 2, and 8), Division 2, Channel B Functional Test; Revision 49
- Procedure 44.030.254; ECCS - Reactor Vessel Water Level (Levels 1, 2, and 8), Division 2, Channel D Functional Test; Revision 48
- Procedure 44.120.051; Drywell Floor Drain Sump Level, Flow and Pump Run Time Functional Test; Revision 36
- Procedure 44.120.053; Drywell Equipment Drain Sump Level Functional Test; Revision 34
- Procedure 44.210.030; RCS - Primary Containment Radiation Monitoring System Functional Test; Revision 31
- WO 37773223; Perform 24.307.15 SEC–5.1 EDG 12 Start and Load
- WO 38561191; Calibrate Division 1 CS Discharge Flow Switch Per NE–6.6–EQMS.080

2RS3 In-Plant Airborne Radioactivity Control and Mitigation

- 65.000.541; Filter Leak Testing of Portable HEPA Ventilation Units and HEPA Vacuums; Revision 5
- 65.000.707; Inspection of MSA Respiratory Equipment; Revision 11
- 65.000.718; Maintenance and Repair of MSA Respiratory Protection Equipment; Revision 8
- Alpha Contamination Analysis; 2009 through April 2015
- CARD 13–24247; NRC - Lack of Process for Control of Respirator Cartridge Shelf Life; June 14, 2013
- CARD 13–26532; Westinghouse Fit Test Data Not Entered Into Radiation Protection Monitoring System; September 16, 2013
- CARD 14–21892; Unsatisfactory Pre-Check for HEPA Unit; March 2, 2014
- CARD 14–24185; Safety Concern With Radioactive Waste Control Room Operators Ability to Evacuate in the Event of Fire; May 15, 2014
- CARD 14–28414; Incorporate the Delta Suit Into the Fermi 2 Respirator Program; October 28, 2014
- CARD 15–22406; Quick Hit Self- Assessment Gap – Alpha Counting of Smears Per 67.000.101; April 2, 2015
- CARD 15–23510; CLO – Overdue Rebuild Requirement on Spare Regulators; May 19, 2015
- CARD 15–23531; Procedure Enhancements - Add Annual and 15 Year Requirements to Applicable Respiratory Procedures; May 20, 2015 SCBA Qualification Records; Various Records
- Grade D Air Testing Analysis; July 2013 through January 2015
- Licensed Operator SCBA Qualification Records; Various Records
- Letter; Request for Use of MURUROA Supplied Air Suits; February 6, 2015
- MRP09; Radiation Protection Conduct Manual – Respiratory Protection; Revision 10
- MSA Flow Test and Overhaul Requirements – TAL 3011; Revision 16
- Quick Hit Self-Assessment Radiation Protection In-Plant Airborne and Radioactivity Control; March 20, 2015
- SCBA Inspection Records; Various Records
- SCBA Maintenance Records; Various Records
- WI-RH-022; Work Instruction For Testing Respiratory Devices Using Breathing Apparatus Testers; Revision 0

2RS4 Occupational Dose Assessment

- 65.000.200; Initiating Personnel Radiation Monitoring; Revision 31
- 65.000.201; Assembly, Issuance, and Return of Multiple Whole Body and Extremity Dosimetry; Revision 14

- 65.000.211; Bioassay Sample Collection and Processing; Revision 10
- 65.000.256; Collection, Processing, and Reporting Personnel Dose Records; Revision 11
- 65.000.262; Operation of Whole Body Counters with Abacos 2000 Software; Revision 5
- 65.000.267; Whole Body Count Protocol and Evaluation of Bioassay Results; Revision 5
- Analysis of the Current Fermi 2 Radionuclide Mix; December 4, 2014
- Area Thermoluminescent Dosimeter Summary Reports; 2013-2014
- CARD 13–24430; Reporting Effective Dose Equivalent For External Exposures on NRC Form 4 and Form 5; June 20, 2013
- CARD 13–24883; Individual With Expired Radworker Training Was Issued Dosimeter of Legal Record; July 12, 2013
- CARD 14–20086; Dosimeter of Legal Records Received From Vendor Were Not Labeled Correctly; January 6, 2014
- NVLAP Landauer Inc. Report; Effective Dates of January 1, 2015 Through December 31, 2015
- RB5 Dose Gradient Monitoring; February 25, 2014
- Revision of Electronic Dosimeter Correction Factor; November 5, 2014
- WI-RH-028; Exchange of Personnel and Area Dosimeters; Revision 3
- Whole Body Counts; Various Records

4OA1 Performance Indicator Verification

- Apparent Cause Evaluation Template, CARD 13–25574; EDG 14 Was Manually Shutdown During a 24-Hour Run Surveillance
- CARD 13–25574; EDG 14 Was Manually Shutdown During 24-Hour Run Surveillance
- CARD 13–25574–01; Complete MRFF Review and Attach Copy
- CARD 15–20928; Potential EDG 12 World Association of Nuclear Operators Fault Exposure Unavailability
- CARD 15–22005; Re-Evaluate MRFF Evaluation in CARD 13–25574
- MSPI Basis Document; June 21, 2013; Revision 4
- Performance Indicator BI02; RCS Identified Leak Rate; April 30, 2015
- Performance Indicator MS06; MSPI Emergency AC Power System; April 30, 2015
- Performance Indicator MS07; MSPI High Pressure Injection System; April 30, 2015

4OA2 Problem Identification and Resolution

- Apparent Cause Evaluation Template, CARD 14–21802; Control Rod Blade on Top of Spent Fuel Pool Rack
- CARD 14–20971; RF16 Critical Path Delay Due to Incomplete Rigging Setup For Drywell Head
- CARD 14–20984; Valve Mispositioning – G4100F015 (Fuel Pool Cooling and Cleanup Condensate Supply to West Skimmer Surge Tank Isolation Valve) Opened Instead of P1100F195 (Condensate to Fuel Pool Cooling and Cleanup Isolation Valve)
- CARD 14–21185; Human Performance Error During Core Shuffle No. 1 (RF16)
- CARD 14–21342; Human Performance Error During Core Shuffle No. 1 (RF16)
- CARD 14–21729; Foreign Material Dropped In Spent Fuel Pool
- CARD 14–21769; Wristband Dropped Into Spent Fuel Pool
- CARD 14–21802; Control Rod Blade on Top of Spent Fuel Pool Rack
- CARD 14–21809; Double Blade Guide Inadvertently Lifted From Core Location 46–31
- CARD 14–21815; Potential Adverse Trend in Human Performance Involving RF16 Refuel Floor Activities
- CARD 14–22470; Control Rod Drive Mechanism 34–39 Excessive Leakage Undervessel During Hydraulic Control Unit 34–39 Restoration

- CARD 14–23076; Adverse Human Performance Trend of Refueling Activities During RF16
- CARD 14–23887; T2500 Evaluated by the Maintenance Rule Expert Panel as (a)(1)
- CARD 15–21505; WOs Needed to Install and Remove TM 15–0034
- CARD 15–22773; Refuel Bridge Mast Camera Intermittently Loosing Picture
- CARD 15–22777; Obsolete Refuel Bridge Operating Control System
- CARD 15–23987; Refueling Platform Get Well Plan WOs Carryover Into Work Week 1524
- Common Cause Analysis for CARD 14–23076; Adverse Human Performance Trend of Refueling Activities During RF16
- Common Cause Analysis Report for CARD 14–23887; T2500 Evaluated by the Maintenance Rule Expert Panel as (a)(1)
- Correspondence, DTE Memo Number NPSC–12–0040; From J. Konrad to J. Ellis; Subject: Cycle 15 Refueling Outage (RF15) Refuel Floor Performance HIT Post Outage Critique; May 31, 2012
- Correspondence, DTE Memo Number NPSC–14–0019; From J. Konrad to S. Berry; Subject: Post Outage Team Critique: RF16 Refuel Floor Execution; May 30, 2014
- F1500; Refueling Bridge; Fourth Quarter 2014
- Get Well Plan; (a)(1)SSC: T2500, Reactor Building Storage Buildings (Refuel Bridge) Revision 7
- Procedure 23.710; Fuel Handling System; Revision 39
- RF15 Outage Critique Report; March 26, 2012 Through May 05, 2012
- RF16 Post Outage Critique Report; February 10, 2014 Through April 5, 2014; Revision 1
- T2500; Spent Fuel Pool; Fourth Quarter 2014
- Temporary Change Notice 35.710.023; Refueling Platform Preoperational Maintenance Inspection; Revision 38
- Temporary Change Notice 35.710.024; Refueling Platform Preoperational Electrical Inspection; Revision 3
- TM 15–0034; Display Refueling Platform Motor Drive Fault Codes on Main Computer; Revision 0
- WO 37026573; Perform Refueling Preoperational Inspection and Lubrication
- WO 38549829; Replace Reels and Their Associated Cables Prior to Cycle 17 Refueling Outage
- WO 38549832; Remove the Main Hoist Mast, Clean It, and Replace the 3 and 4 Transition Rollers

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

- Apparent Cause Evaluation, CARD 15–21792; Failure of Motor Control Center 72CF to Throwover
- CARD 15–21207; Tip of RBHVAC From Freeze-Stat H
- CARD 15–21350; RBHVAC Tripped From Freeze-Stat H
- CARD 15–21792; 72CF Failed to Throwover
- CARD 15–21818; Request Licensing Review of Industry and NRC Required Actions and Guidance For TS 3.03
- Correspondence, DTE Letter; DTE NRC–15–0051, V. Kaminskas to USNRC D.C., Subject: LER 2015–002; May 5, 2015
- Correspondence, DTE Letter; DTE NRC–15–0053, V. Kaminskas to USNRC D.C., Subject: LER 2015–001; April 20, 2015
- Correspondence, DTE Letter; DTE NRC–15–0069, V. Kaminskas to USNRC D.C., Subject: Revision to LER 2015–001; June 15, 2015
- Equipment Apparent Cause Evaluation, CARD 15–21792; 72CF Failed to Throwover
- Fermi Control Room Log - Unit 2; February 19, 2015

- Fermi Control Room Log - Unit 2; March 9, 2015
- Fermi Control Room Log - Unit 2; March 10, 2015

LIST OF ACRONYMS USED

10 CFR	Title 10 of the *Code of Federal Regulations*
AC	Alternating Current
ADAMS	Agencywide Documents Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
CARD	Condition Assessment Resolution Document
CCHVAC	Control Center Heating, Ventilation, and Air Conditioning
CLO	Crew Learning Opportunity
CS	Core Spray
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EECW	Emergency Equipment Cooling Water
EESW	Emergency Equipment Service Water
HEPA	High-Efficiency Particulate Air
HPCI	High Pressure Coolant Injection
HPSV	High Pressure Stop Valve
IMC	Inspection Manual Chapter
IP	Inspection Procedure
LER	Licensee Event Report
LPCI	Low Pressure Coolant Injection
MRFF	Maintenance Rule Functional Failure
MSA	Mine Safety Appliance
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
NSSSS	Nuclear Steam Supply Shutoff System
ODE	Operations Department Expectation
PARS	Publicly Available Records System
RBCCW	Reactor Building Closed Cooling Water
RBHVAC	Reactor Building Heating, Ventilation, and Air Conditioning
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RHRHVAC	Residual Heat Removal Heating, Ventilation, and Air Conditioning
RHRSW	Residual Heat Removal Service Water
RF15	Cycle 15 Refueling Outage
RF16	Cycle 16 Refueling Outage
SCBA	Self-Contained Breathing Apparatus
SCS	Supplemental Cooling Water
SSCs	Structures, Systems, and Components
TM	Temporary Modifications
TS	Technical Specification
TSO	Transmission System Operator
UA	Unitized Actuator
UFSAR	Updated Final Safety Analysis Report
WO	Work Order

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Sincerely,

/RA/

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

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