



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
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November 14, 2016

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  
05000341/2016003

Dear Mr. Fessler:

On September 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Fermi Power Plant, Unit 2 (Fermi-2). On October 13, 2016, the NRC inspectors discussed the results of this inspection with Mr. K. Polson and other members of your staff. The inspectors documented the results of this inspection in the enclosed inspection report.

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

If you contest the violation or significance of the Non-Cited Violation, 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 copies to: (1) the Regional Administrator, Region III; (2) the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) the NRC Resident Inspector at the Fermi 2 Power Plant.

In addition, if you disagree with the cross-cutting aspect assignment to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Fermi 2 Power Plant.

P. Fessler

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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's Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Billy Dickson, Chief  
Branch 5  
Division of Reactor Projects

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

Enclosure:  
Inspection Report 05000341/2016003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000341/2016003

Licensee: DTE Energy Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Dates: July 1 through September 30, 2016

Inspectors: B. Kemker, Senior Resident Inspector  
P. Smagacz, Resident Inspector  
J. Bozga, Reactor Inspector  
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Approved by: B. Dickson, Chief  
Branch 5  
Division of Reactor Projects

Enclosure

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## SUMMARY

Inspection Report 05000341/2016003; 07/01/2016–09/30/2016; Fermi Power Plant, Unit 2; Operability Determinations and Functionality Assessments, Other Activities.

This report covers a 3-month period of inspection by the resident inspectors and announced baseline inspections by regional inspectors. Two Green findings, one of which had an associated Non-Cited Violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) regulations, were 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 October 8, 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 August 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated July 2016.

### **NRC-Identified and Self-Revealed Findings**

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

Green. The inspectors identified a finding of very low safety significance with an associated non-cited violation of Title 10 of the Code of Federal Regulation (10 CFR) 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to complete an operability determination as required by plant procedures. Specifically, the licensee failed to perform an operability determination for a degraded/non-conforming condition described in CARD 16-25608, "Division 1 RPV [Reactor Pressure Vessel] Reference Leg Backfill System Not Meeting Minimum Recommended Flow," to assess the impact on affected RPV level and pressure instrumentation when the minimum reference leg backfill flow rate could not be maintained. The licensee entered this violation into its CAP for evaluation and identification of appropriate corrective actions. An operability determination was subsequently documented in CARD 16-25608.

The finding was of more than minor safety significance because it was related to the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform an operability determination for the degraded/non-conforming condition could potentially have led to inoperable RPV level and pressure instruments without the licensee's knowledge. In this case, during an event involving a rapid depressurization of the RPV, the affected instruments may have caused later than expected initiation of the required automatic actuation signals for the reactor protection system and emergency core cooling system and may have provided operators with erroneous indications. The finding was determined to be of very low safety significance because it did not represent an actual loss of function of a single train for greater than its Technical Specification (TS) allowed outage time nor did it represent a loss of function of a non-TS train designated as high safety significant in accordance with the licensee's Maintenance Rule Program. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution and the cross-cutting aspect of

evaluation. The licensee did not thoroughly evaluate the problem after it was identified with respect to the effect the degraded/non-conforming condition would have on operability of the RPV level and pressure instruments commensurate with their safety significance [IMC 0310 P.2]. (Section 1R15.b.1)

Green. The inspectors identified a finding of very low safety significance when licensee personnel failed to follow the applicable procedure and design specification during concrete placement for installation of Diverse and Flexible Coping Strategies (FLEX) Buildings 1 and 2, identified as Flexible Storage Facility Buildings (FSF-1 and FSF-2). Specifically, the licensee failed to meet the requirements for limiting concrete pour heights and for treatment at cold joints. No violation of regulatory requirements was identified because construction of the FSF Buildings was not covered under 10 CFR 50, Appendix B.

The finding was of more than minor safety significance because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee failed to follow the instructions provided in the design specification and the plant procedure for concrete placement leading to potential degradation of the FSF building walls required for protection of the components needed for implementation of the FLEX in response to NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events." In accordance with the NRC staff guidance for disposition of findings associated with NRC Order EA-12-049, the finding was presented to a cross-regional panel, which determined the finding to be a licensee performance deficiency of very low safety significance based on a qualitative evaluation of the potential consequences of the issue. The inspectors concluded this finding affected the cross-cutting area of human performance and the cross-cutting aspect of procedure adherence because licensee personnel failed to review and follow the applicable procedures and instructions while performing concrete placement work [IMC 0310, H.8]. (Section 4OA5.1)

## **REPORT DETAILS**

### **Summary of Plant Status**

Fermi 2 Power Plant was operated at or near 100 percent power during the inspection period with the following exceptions:

- On July 6, 2016, the licensee reduced power to 91 percent due to an oil leak on a high pressure turbine stop valve unitized actuator. The unit was returned to 100 percent on July 7, following corrective maintenance.
- On August 13, 2016, the licensee reduced power to 90 percent to perform control rod testing. The unit was returned to 100 percent later that day.
- On August 25, 2016, the licensee reduced power to about 50 percent to identify and plug a main condenser tube leak, repair reactor recirculation motor-generator set 'A' speed control, replace a low pressure intercept valve unitized actuator, repair a high pressure turbine control valve unitized actuator, replace four control rod hydraulic control units, perform scram time testing of control rods, and perform control rod sequence exchanges. The unit was returned to 100 percent on September 6, 2016.
- On September 22, 2016, the licensee reduced power to about 80 percent to perform main turbine control, stop, and bypass valve testing, and replace two control rod hydraulic control units. The unit was returned to 100 percent on September 24, 2016.

### **1. REACTOR SAFETY**

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

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

##### **.1 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 (IPEEE) 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 Procedure 20.000.01, "Acts of Nature," Revision 49, 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 (CAP) with the appropriate characterization and significance. Selected Condition Assessment Resolution Documents (CARDs) were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted one external flooding readiness inspection sample as defined in Inspection Procedure (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 system (single train risk significant system);
- Division 2 core spray subsystem during planned maintenance on Division 1 core spray subsystem; and
- Division 1 core spray subsystem during planned maintenance on Division 2 core spray subsystem.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety cornerstones. The inspectors reviewed operating procedures, system diagrams, 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 problems associated with plant equipment alignment were entered into the licensee's CAP with the appropriate characterization and significance. Selected CARDs were reviewed to verify corrective actions were appropriate and implemented as scheduled.

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

b. Findings

No findings were identified.



.2 Semi-Annual Complete System Walkdown (71111.04S)

a. Inspection Scope

From July 9 through July 23, 2016, the inspectors performed a complete system alignment inspection of the emergency equipment cooling water (EECW) system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders (WOs) was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure EECW equipment alignment and material condition problems were being identified and appropriately resolved.

This inspection constituted one complete system walkdown inspection sample 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 focusing on the availability, accessibility, and condition of firefighting equipment in the following risk-significant plant areas:

- Reactor building basement & sub-basement, Division 2 RHR pump room;
- Auxiliary building basement, non-interruptible air system;
- Auxiliary building 5th floor, standby gas treatment (SGT) systems;
- Auxiliary building, control room relay room; and
- Reactor building 5th floor, refueling area.

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 IPEEE 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 problems associated with plant fire protection were entered into the licensee's CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted five 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 August 13 and September 3, 2016, the inspectors observed fire brigade activation for fire drills in the reactor building, 4th floor, reactor recirculation motor-generator sets area. Based on these observations, 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;
- 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.

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

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flooding analyses and design documents, including the UFSAR, engineering calculations, and plant response procedures, to identify licensee commitments. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the service water systems.

The inspectors performed a walkdown of accessible portions of the turbine building to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were functional, and the licensee complied with its commitments.

In addition, the inspectors verified internal flooding related problems were entered into the licensee's CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted one internal flooding inspection sample as defined in IP 71111.06.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

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

a. Inspection Scope

The inspectors observed licensed operators during simulator training on August 30, 2016. 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-evaluation critique to assess the ability of the licensee's evaluators to identify performance deficiencies. The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

This inspection constituted one quarterly licensed operator regualification 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 August 13, 2016, the inspectors observed licensed operators in the control room and locally in the reactor building perform power ascension while using local-manual adjustment of a reactor recirculation motor-generator scoop tube position with the installed hand crank. Also, on August 27, the inspectors observed licensed operators in the control room perform power reduction for main condenser tube leak isolation, north reactor recirculation pump flow control system repair, and other maintenance. These activities 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 problems related to licensed operator performance were entered into the licensee's CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

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)

.1 Periodic Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's latest 10 CFR 50.65(a)(3) periodic evaluation and verified the following attributes:

- The periodic evaluation was completed as required (i.e., once each refueling cycle, but not to exceed 24 months between evaluations);
- The licensee reviewed its (a)(1) goals, (a)(2) performance criteria, monitoring, and preventive maintenance activities, and effectiveness of corrective actions;

- The licensee incorporated industry operating experience into its Maintenance Rule Program, where practicable; and
- The licensee made appropriate adjustments to its Maintenance Rule Program as a result of the evaluation.

In addition, the inspectors verified problems associated with the effectiveness of plant maintenance for risk-significant structures, systems, and components (SSCs) were entered into the licensee's CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

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

b. Findings

No findings were identified.

.2 Quality Control

a. Inspection Scope

The inspectors reviewed a sample of activities under the licensee's commercial-grade dedication program to verify the program satisfies the requirements of Appendix B to 10 CFR 50 with regard to the procurement and acceptance of commercial-grade items for use as basic components in safety-related applications in accordance with 10 CFR 21 to provide reasonable assurance the commercial-grade items will perform their intended safety functions. The inspectors performed the following to assess whether the licensee's procedures for dedication activities were adequately planned and implemented:

- interviewed engineering and materials management staff;
- reviewed materials management procedures for the dedication of commercial-grade items;
- reviewed selected technical evaluations and equivalent replacement evaluations of commercial-grade items;
- reviewed selected test reports for acceptance of commercial-grade items;
- reviewed selected quality assurance surveillance reports of source verification of commercial-grade items at vendor or laboratory facilities; and
- observed selected receipt inspection activities of commercial-grade items.

In addition, the inspectors verified problems involving commercial-grade dedication of items were entered into the licensee's CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted one quality control maintenance effectiveness inspection sample 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 and risk management actions were performed prior to removing equipment for work:

- planned maintenance during the week of July 18 through 22, 2016, on the reactor core isolation cooling system;
- emergent maintenance from August 25 through 29, 2016, with a plant down power for main condenser tube leak isolation, north reactor recirculation pump flow control system repair, and other maintenance activities; and
- planned maintenance during the week of August 29 through September 2, 2016, on the Division 1 SGT and RHR systems, and emergent maintenance on the reactor water cleanup system.

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 CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted three 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)

### .1 Operability Determinations and Functionality Assessments

#### a. Inspection Scope

The inspectors reviewed the following issues:

- CARD 16–25608, Division 1 RPV Reference Leg Backfill System Mot Meeting Minimum Recommended Flow;

- CARD 16–26881, Unexpected Water Drained Between the Two RHR System Valves, E1150F016B and E1150F021B; and
- CARD 16–27041, Division 1 & 2 Battery Rooms Temperature Above Maximum Design Temperature Limit.

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 and/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 CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

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

b. Findings

(1) Failure to Perform an Operability Determination for Division 1 RPV Reference Leg Backfill System Not Providing Adequate Flow

Introduction: The inspectors identified a finding of very low safety significance with an associated non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to complete an operability determination as required by plant procedures. Specifically, the licensee failed to perform an operability determination for a degraded/non-conforming condition described in CARD 16–25608, "Division 1 RPV Reference Leg Backfill System Not Meeting Minimum Recommended Flow," to assess the impact on affected RPV level and pressure instrumentation when the minimum reference leg backfill flow rate could not be maintained.

Description: On June 16, 2016, CARD 16–24931, "Division 1 Backfill Metering Valve Is at the End of Its Adjustment," was written identifying the Division 1 RPV reference leg backfill metering valve was at the end of its adjustment and operators were no longer able to increase flow. At that time, flow was within the normal control band of 20 to 35 percent. Since flow was expected to continue to gradually decrease, an Operations Decision Making Issue (ODMI) evaluation was prepared to address the problem. ODMI 16–007, "Division 1 RPV Reference Leg Backfill Cannot Be Adjusted," Revision 0, was completed on June 23, 2016. The decision made was to monitor the reference leg

backfill flow rate and to perform repairs at the next available opportunity with the reactor shutdown. When the backfill flow rate reached 6 percent, then place the redundant Division 1 backfill train into service. Based on a Boiling Water Reactor Owners Group (BWROG) report, the licensee's engineering staff determined a flow rate of greater than 6 percent would be sufficient to preclude the buildup of non-condensable gases in the reference leg. However, there was a concern expressed in the ODMI with an increased risk of a reactor scram due to perturbation of the reference leg during a swap to the redundant backfill train with the reactor at power.

On July 13, 2016, the Division 1 reference leg backfill flow rate was at 5 percent. Operators logged this at 7:25 p.m. and began an 8-day timer based on guidance in operating procedure 27.000.02, "Shiftly, Daily, Weekly, and Situational Required Performance Evaluations," Revision 46. CARD 16-25608, "Division 1 RPV Reference Leg Backfill System Not Meeting Minimum Recommended Flow," was written on July 14, 2016, for this condition and requested revision to ODMI 16-007. Revision A to the ODMI was completed on July 15, 2016. The decision made was to continue monitoring the reference leg backfill flow rate and to perform repairs at the next available opportunity with the reactor shutdown, but not to place the redundant backfill train into service. The basis for this decision was the loss of the backfill panel with the reactor at pressure was not expected to adversely affect RPV level instrumentation because gases were expected to remain in solution and the risk of a reactor scram was considered too high to place the redundant backfill train into service or troubleshoot the problem with the reactor at power. However, it was also stated in the ODMI that the low reference leg backfill flow rate could no longer be credited as performing its function. It further stated that during RPV depressurization, this may lead to later than expected initiation of the required automatic actuation signals for the reactor protection system (RPS) and emergency core cooling system (ECCS) and may provide operators with erroneous water level indication.

The inspectors reviewed the revised ODMI and CARD 16-25608 and questioned whether the Division 1 RPV level and pressure instrumentation would remain operable with the degraded/non-conforming condition. Specifically, the inspectors questioned whether the instruments would continue to perform their safety function over their anticipated ranges for all normal operations, anticipated operational occurrences, and for accident conditions to assure adequate safety. Of primary concern was whether instrument response would be adversely affected during an event involving a rapid depressurization of the RPV when non-condensable gases in the reference leg could come out of solution. The inspectors noted there was no operability/functionality determination documented in the CARD. The CARD operability review section incorrectly indicated the condition was not license based (i.e., no operability determination required). The inspectors raised their concerns during a meeting on July 18, 2016, with the operations manager, operations superintendent, and licensing supervisor. In response to the inspectors' questions, the shift manager requested the CARD be returned to him for an operability/reportability review. An operability/reportability determination was subsequently documented by the shift manager on July 21, 2016, which concluded the Division 1 RPV level instruments would be "operable but degraded" after the BWROG evaluated 8-day period. The basis for this conclusion was the buildup of non-condensable gases was expected to be a "long term process" and the plant had had no previous history of instrumentation problems due to gas accumulation prior to installing the reference leg backfill system.



However, also on July 21, 2016, the operations superintendent informed the inspectors that the licensee would not be able to support a reasonable assurance of operability for the Division 1 RPV level and pressure instruments beyond the BWROG evaluated 8-day period, which would expire later that day at 7:25 p.m. Therefore, the licensee would put the redundant reference leg backfill train into service. That was accomplished on July 21, 2016, at 9:53 p.m. An initial attempt to put the redundant reference leg backfill train into service was unsuccessful and operators entered the applicable TS Limiting Condition for Operations (LCO) action requirements for inoperable instrumentation on July 21 at 7:25 p.m. Operators exited the TS LCO action requirements later that evening at 11:26 p.m. when the Division 1 reference leg backfill flow rate was stable at 30 percent on the redundant train. In response to the inspectors' questions, the shift manager updated the operability review of CARD 16-25608 on August 7, to state that operability of the Division 1 RPV level and pressure instruments could not be supported with reference leg backfill flow less than 6 percent after 8 days.

Quality Assurance Conduct Manual (MQA) -11, "Condition Assessment Resolution Document," Revision 41A, Step 5.2.1.2 stated, in part, that "If the identified issue represents a nonconforming or actual plant condition that reduces the functional capability of the plant equipment (i.e., degraded condition) and the equipment or activity is Licensed Based, mark 'Yes' in the Licensed Based box" and determine if the issue is then "operable, operable but degraded, operable but nonconforming, inoperable, functional, or non-functional." MQA-11 further specified for any determination other than inoperable or non-functional, justification needs to be provided. Operations Department Expectations (ODE) -11, "CARD Operability / Reportability Determination Expectations," Revision 21, also stated, in part, that "If the SSC is determined to be operable, then a definite statement to that effect shall be documented in the comment section in the 'Reportability/Operability' Review section of the CARD document." However, contrary to these procedure standards, the inspectors identified an operability determination was not performed for CARD 16-25608 when the reference leg backfill flow rate went below 6 percent until after the inspectors challenged it.

Analysis: The inspectors determined the licensee's failure to perform an operability determination in accordance with its procedure standards was contrary to the requirements of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," and was therefore a performance deficiency warranting a significance evaluation. Consistent with the guidance in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, the inspectors determined this performance deficiency was of more than minor safety significance, and thus a finding. This was because it was related to the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform an operability determination for the degraded/non-conforming condition could potentially lead to inoperable RPV level and pressure instruments without the licensee's

knowledge. In this case, during an event involving a rapid depressurization of the RPV, the affected instruments could have caused later than expected initiation of the required automatic actuation signals for the RPS and ECCS and could have provided operators with erroneous indications. The inspectors also reviewed the examples of minor issues in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," dated August 11, 2009, and found no similar examples.

In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Table 3, "SDP Appendix Router," dated June 19, 2012, the inspectors determined this finding affected the Mitigating Systems cornerstone, specifically the mitigating systems contributor, and would require review using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012. The inspectors performed a Phase 1 SDP review of this finding using the guidance provided in IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," and determined this finding was a licensee performance deficiency of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating SSC, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for greater than its TS allowed outage time OR two separate safety systems out-of-service for greater than its TS allowed outage time, and (4) did not represent an actual loss of function of one or more non-TS trains or equipment designated as high safety significant in accordance with the licensee's Maintenance Rule Program for greater than 24 hours.

The inspectors determined this finding affected the cross-cutting area of problem identification and resolution and the cross-cutting aspect of evaluation. The licensee did not thoroughly evaluate the problem after it was identified with respect to the effect the degraded/non-conforming condition would have on operability of the RPV level and pressure instruments commensurate with their safety significance (IMC 0310 P.2).

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and be accomplished in accordance with these instructions, procedures, or drawings. MQA-11, "Condition Assessment Resolution Document," Revision 41A, stated, in part, that "If the identified issue represents a nonconforming or actual plant condition that reduces the functional capability of the plant equipment (i.e., degraded condition) and the equipment or activity is Licensed Based, mark 'Yes' in the Licensed Based box" and determine if the issue is then "operable, operable but degraded, operable but nonconforming, inoperable, functional, or non-functional." MQA-11 further stated for any determination other than inoperable or non-functional, justification needs to be provided. ODE-11, "CARD Operability/Reportability Determination Expectations," Revision 21, also stated, in part, that "If the SSC is determined to be operable, then a definite statement to that effect shall be documented in the comment section in the 'Reportability/Operability' Review section of the CARD document."

Contrary to the above, following the identification of the problem on July 14, 2016, the licensee did not perform an operability determination for a degraded/non-conforming condition when the Division 1 RPV reference leg backfill flow rate (a licensed based function) could not be maintained, to assess the impact on safety-related RPV level and pressure instrumentation required to be operable by the plant's TS. Because this

violation was not repetitive or willful, was of very low safety significance, and was entered into the licensee's CAP, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy. The licensee entered this violation into its CAP as CARD 16-25925 for evaluation and identification of appropriate corrective actions. An operability determination was subsequently documented in CARD 16-25608. **(NCV 05000341/2016003-01, Failure to Perform an Operability Determination for Division 1 RPV Reference Leg Backfill System Not Providing Adequate Flow).**

## .2 Annual Review of Operator Workarounds

### a. Inspection Scope

The inspectors performed an in-depth review of operator workarounds and assessed the cumulative effect of existing workarounds and other operator burdens. The inspectors reviewed operator workarounds, Control Room deficiencies, temporary modifications, and lit annunciators. The inspectors verified operator workarounds were being identified at an appropriate threshold, the workarounds did not adversely impact operators' ability to implement abnormal and emergency operating procedures, and the cumulative effect of operator burdens did not adversely impact mitigating system functions.

In addition, the inspectors verified problems creating operator workarounds and other operator burdens were entered into the licensee's CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted one annual operator workaround review inspection sample 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 16-0011, Transient Voltage Monitoring for Transformer SS64 Secondary Voltage; and
- TM 16-0017, Install Locking Device on Reactor Recirculation Motor Generator 'A' Scoop Tube Control Arm.

The inspectors reviewed the temporary modifications and the associated 10 CFR 50.59 screening/evaluations 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 temporary modifications 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 CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

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

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors reviewed the engineering analyses, modification documents, and design change information associated with the following permanent plant modification:

- Engineering Design Package (EDP) 37518, Reactor Building Heating, Ventilation, and Air Conditioning System Damper Timing Modification.

During this inspection, the inspectors evaluated the implementation of the design modification and verified, as appropriate:

- The compatibility, functional properties, environmental qualification, seismic qualification, and classification of materials and replacement components were acceptable;
- The structural integrity of the SSCs would be acceptable for accident/event conditions;
- The implementation of the modification did not impair key safety functions;
- No unintended system interactions occurred;
- The affected significant plant procedures, such as normal, abnormal, and emergency operating procedures, testing and surveillance procedures, and training were identified, and necessary changes were completed;
- The design and licensing documents were either updated or were in the process of being updated to reflect the modifications;
- The changes to the facility and procedures as described in the UFSAR were appropriately reviewed and documented in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments;"
- The system performance characteristics, including energy needs affected by the modifications continued to meet the design basis;
- The modification test acceptance criteria were met; and
- The modification design assumptions were appropriate.

Completed activities associated with the implementation of the modification, including testing, were also inspected, and the inspectors discussed the modification with the responsible engineering and/or operations staff.

In addition, the inspectors verified problems associated with the installation of permanent plant modifications were entered into the licensee's CAP with the appropriate

characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted one permanent modification inspection sample 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 44762335, Replace Reactor Core Isolation Cooling Pump Bearings;
- WO 31785930, P8000F142 Does Not Provide Isolation Capability;
- WO 45860919, Repair Reactor Recirculation Pump A Speed Controller; and
- WO 36022747, Test Control and Equipment Power Circuits for Division 2 SGT System.

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 CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

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 functions and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- 28.504.09, Electric Fire Pump Monthly Operability Test;
- 24.404.04, Division 2 SGT System Filter and Secondary Containment Isolation Damper Operability Test;
- 24.307.33, Emergency Diesel Generator 14 24–Hour Run Followed by Hot Restart; and
- 24.324.01, Combustion Turbine Generator (CTG) 11 Unit 1 Monthly Operability Check.

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 CAP with the appropriate characterization and significance. Selected CARDS were reviewed to verify corrective actions were appropriate and implemented as scheduled.

This inspection constituted one in-service test and three routine surveillance tests, for a total of four surveillance testing 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 two scheduled licensee emergency drills on July 12 and July 26, 2016, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The drills were planned to be evaluated and were included in the PI 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 CAP. As part of the inspection, the inspectors reviewed the drill package and other documents.

This inspection constituted two emergency preparedness drill inspection samples as defined in IP 71114.06.

b. Findings

No findings were identified.

2. **RADIATION SAFETY**

**Cornerstone: Public Radiation Safety**

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

.1 Instrumentation and Equipment

a. Inspection Scope

The inspectors assessed calibration and availability for select effluent monitors used for triggering emergency action levels or for determining protective action recommendations.

These inspection activities constituted one partial inspection sample as defined in IP 71124.06.

b. Findings

Introduction: The inspectors identified an Unresolved Item (URI) associated with the licensee's ability, during an accident, to accurately quantify radioactive releases, potentially having an adverse impact on the licensee's ability to effectively implement its Emergency Plan.

Description: During a walkdown of the facility and discussions with licensee staff, the inspectors identified that the SGT system accident range monitor (AXM) noble gas detector did not utilize the fluctuating background subtraction feature of the unit and only subtracted a fixed background rate. The inspectors questioned this set-up because the physical location of the monitor was in close proximity to the SGT system filtration system, which could significantly change dose rates in the area during an accident. The function of the AXM is to assess radioactivity being released from the plant during accident conditions. These readings are used for various purposes, including accident classification and off-site dose assessment, both of which can affect the protective action recommendations made by the licensee. On September 29, 2016, the licensee provided the inspectors an assessment of the potential impact of fluctuating background from the filtration system on the AXM noble gas detector. This URI remains under review by the inspectors to determine if there is an impact to the AXM noble gas detector that could affect the licensee's ability to implement its Emergency Plan and whether any violation of regulatory requirements occurred. **(URI 05000341/2016003-02, Fluctuating Background Effect on Accident Range Noble Gas Monitor)**

## 2RS7 Radiological Environmental Monitoring Program (71124.07)

### .1 Site Inspection

#### a. Inspection Scope

The inspectors walked down select air sampling stations and dosimeter monitoring stations to determine whether they were located as described in the Offsite Dose Calculation Manual (ODCM) and to determine the equipment material condition.

The inspectors reviewed calibration and maintenance records for select air samplers, dosimeters, and composite water samplers to evaluate whether they demonstrated adequate operability of these components.

The inspectors assessed whether the licensee had initiated sampling of other appropriate media upon loss of a required sampling station.

The inspectors observed the collection and preparation of environmental samples from select environmental media to determine if environmental sampling was representative of the release pathways specified in the ODCM and if sampling techniques were in accordance with procedures.

The inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Regulatory Guide 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants," and licensee procedures. The inspectors assessed whether the meteorological data readout and recording instruments were operable.

The inspectors evaluated whether missed and/or anomalous environmental samples were identified and reported in the Annual Environmental Monitoring Report. The inspectors selected events that involved a missed sample, inoperable sampler, lost dosimeter, or anomalous measurement to determine if the licensee had identified the cause and had implemented corrective actions. The inspectors reviewed the licensee's assessment of any positive sample results and reviewed any associated radioactive effluent release data that was the source of the released material.

The inspectors selected SSCs that involve or could reasonably involve a credible mechanism for licensed material to reach ground water, and assessed whether the licensee had implemented a sampling and monitoring program sufficient to detect leakage to ground water.

The inspectors evaluated whether records important to decommissioning, as required by 10 CFR 50.75(g), were retained in a retrievable manner.

The inspectors reviewed any significant changes made by the licensee to the ODCM as the result of changes to the land census, long-term meteorological conditions, or modifications to the sampler stations since the last inspection. The inspectors reviewed technical justifications for any changed sampling locations to evaluate whether the licensee performed the reviews required to ensure the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.



The inspectors assessed whether the appropriate detection sensitivities with respect to the ODCM were used for counting samples. The inspectors reviewed the Quality Control Program for analytical analysis.

The inspectors reviewed the results of the licensee's Interlaboratory Comparison Program to evaluate the adequacy of environmental sample analyses performed by the licensee. The inspectors assessed whether the interlaboratory comparison test included the media/nuclide mix appropriate for the facility. The inspectors reviewed the licensee's determination of any bias to the data and the overall effect on the Radiological Environmental Monitoring Program.

These inspection activities constituted one complete inspection sample as defined in IP 71124.07.

b. Findings

No findings were identified.

.2 Groundwater Protection Initiative Implementation

a. Inspection Scope

The inspectors reviewed monitoring results of the groundwater protection initiative to evaluate whether the licensee had implemented the program as intended and to assess whether the licensee had identified and addressed anomalous results and missed samples.

The inspectors evaluated the licensee's implementation of the minimization of contamination and survey aspects of the groundwater protection initiative and the Decommissioning Planning Rule requirements in 10 CFR 20.1406 and 10 CFR 20.1501.

The inspectors reviewed leak and spill events and 10 CFR 50.75(g) records and assessed whether the source of the leak or spill was identified and appropriately mitigated.

The inspectors assessed whether unmonitored leaks and spills were evaluated to determine the type and amount of radioactive material that was discharged. The inspectors assessed whether the licensee completed offsite notifications in accordance with procedure.

The inspectors reviewed evaluations of discharges from onsite contaminated surface water bodies and the potential for ground water leakage from them. The inspectors assessed whether the licensee properly accounted for these discharges as part of the Effluent Release Reports.

The inspectors assessed whether on-site ground water sample results and descriptions of any significant on-site leaks or spills into ground water were documented in the Annual Radiological Environmental Operating Report or the Annual Radiological Effluent Release Report.

The inspectors determined if significant new effluent discharge points were updated in the ODCM and the assumptions for dose calculations were updated as needed.

These inspection activities constituted one complete inspection sample as defined in IP 71124.07.

b. Findings

No findings were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors assessed whether problems associated with the Radiological Environmental Monitoring Program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involved the Radiological Environmental Monitoring Program.

These inspection activities constituted one complete inspection sample as defined in IP 71124.07.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index—Residual Heat Removal Systems

a. Inspection Scope

The inspectors reviewed a sample of plant records and data against the reported MSPI-RHR Systems performance indicator (PI). To determine the accuracy of the PI data reported, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used. The inspectors reviewed the mitigating systems performance index (MSPI) derivation reports, control room logs, Maintenance Rule database, Licensee Event Reports (LERs), and maintenance and test data from July 2015 through June 2016 to validate the accuracy of the PI 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 CAP database to determine if any problems had been identified with the PI data collected or transmitted for this PI.

This inspection constituted one MSPI - RHR systems PI verification inspection sample as defined in IP 71151.

b. Findings

No findings were identified.

## .2 Mitigating Systems Performance Index—Cooling Water Systems

### a. Inspection Scope

The inspectors reviewed a sample of plant records and data against the reported MSPI - Cooling Water Systems PI. To determine the accuracy of the PI data reported, PI 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 2015 through June 2016 to validate the accuracy of the PI 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 CAP database to determine if any problems had been identified with the PI data collected or transmitted for this PI.

This inspection constituted one MSPI - Cooling Water Systems PI verification inspection sample as defined in IP 71151.

### b. Findings

No findings were identified.

## .3 Mitigating Systems Performance Index—Heat Removal System

### a. Inspection Scope

The inspectors reviewed a sample of plant records and data against the reported MSPI - Heat Removal System Performance Indicator. To determine the accuracy of the PI data reported, PI 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 2015 through June 2016 to validate the accuracy of the PI 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 CAP database to determine if any problems had been identified with the PI data collected or transmitted for this PI.

This inspection constituted one MSPI - Heat Removal System PI verification inspection sample as defined in IP 71151.

### b. Findings

No findings were identified.

.4 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System Specific Activity PI from October 2015 through June 2016. The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's reactor coolant system chemistry samples, TS requirements, selected CARDS, event reports and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample.

This inspection constituted one Reactor Coolant System Specific Activity PI verification inspection sample as defined in IP 71151.

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness PI from October 2015 through June 2016. The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if the indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very-high radiation area entrances to determine the adequacy of the controls in place for these areas.

This inspection constituted one Occupational Exposure Control Effectiveness PI verification inspection sample as defined in IP 71151.

b. Findings

No findings were identified.

.6 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specification/ODCM Radiological Effluent Occurrences PI from October 2015 through June 2016. The inspectors used PI definitions and guidance contained in the NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's CAP database and selected CARDS generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose.

This inspection constituted one Radiological Effluent Technical Specification/ODCM Radiological Effluent Occurrences PI 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 CAP 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 CAP 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 issue for in-depth review:

- CARD 15-26439, Evaluation of Rigging Configuration for 125 Percent Load Test Reactor Building Main Crane.

As appropriate, the inspectors verified the following attributes during their review of the licensee's corrective actions for the above CARD 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.

This inspection constituted one annual in-depth review inspection sample as defined in IP 71152.

b. Findings and Observations

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors reviewed repetitive or closely related issues documented in the licensee's CAP to look for trends not previously identified. This included a review of the licensee's quarterly trending reports to assess the effectiveness of the licensee's trending process. The inspectors also reviewed selected CARDS regarding licensee-identified potential trends to verify corrective actions were effective in addressing the trends and were implemented in a timely manner commensurate with the significance.

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

b. Assessment and Observations

No findings were identified.

(1) Overall Effectiveness of Trending Program

The inspectors determined the licensee's trending program remained marginally effective at identifying, monitoring, and correcting adverse performance trends. This has been reflected in the licensee's quarterly trending reports. The inspectors noted the licensee completed both the first and second quarter trending reports significantly later than the 35 business days stipulated in its procedure MQA-13-100, "CARD Trend Coding and Analysis," Revision 2. This negatively affected the timely review of trending data for the first half of the year and the timely implementation of corrective actions.

Furthermore, the inspectors noted several station level adverse performance trends have remained open for well over a year, with some of these adverse performance trends being categorized as continuing trends since early in 2014. For example, human performance and industrial safety trends have been open for over two years with slight improvement, and equipment reliability and work preparation trends have been open since early in 2015 with little to no improvement.

The inspectors reviewed several common cause evaluations performed by the licensee to evaluate potential adverse performance and equipment trends. In general, these evaluations were performed well and identified appropriate corrective actions to address adverse trends that were identified. The inspectors noted that aside from the eighteen common cause evaluations performed over the past twelve months, the licensee's analysis of adverse performance trends was often performed at the lowest level with minimal evaluation, with many issues simply "closed to trend."

As discussed below, the inspectors identified adverse performance trends associated with unrestrained materials near the switchyards, unacceptable control of transient combustible and flammable materials, and inadequate evaluation of degrading/nonconforming plant conditions for functionality, operability, and/or reportability. Because examples of these adverse performance trends had been entered into the licensee's CAP and separate findings had been documented when the associated performance issues had risen to a more than minor significance threshold, no additional finding of significance was identified at this time.

(2) Adverse Performance Trend with Unrestrained Materials Near the Switchyards

In April 2016, the inspectors walked down the 120-kilovolt and 345-kilovolt switchyards and identified numerous loose items in and around the switchyards. The issue of concern was the loose materials combined with high velocity winds would increase the potential for the loss of the offsite power sources because the materials could become missiles and damage switchyard equipment. The licensee entered this issue of concern into its CAP and promptly removed or restrained the loose items. The inspectors concluded the issue was of minor significance.

In the fourth quarter of 2014, the inspectors documented a finding of very low safety significance for the licensee's failure to adequately control loose materials near the 345-kilovolt and 120-kilovolt switchyards (NRC Inspection Report 05000341/2014005). The associated cross-cutting aspect of the finding was in the area of human performance and involved the "avoid complacency" aspect. On the surface, it appeared to the inspectors that in April 2016 the licensee was once again complacent to the presence of loose materials in and around the switchyards. The licensee initiated CARD 16-23628, "Trend of Housekeeping Issues Near 120-Kilovolt and 345-Kilovolt Switchyard," to identify this problem as an adverse performance trend. The CARD referenced four NRC-identified issues and two licensee-identified issues during the past two years. The licensee's evaluation of the problem determined the cause to be non-compliance with procedure standards and inadequate procedure guidance.

(3) Adverse Performance Trend with Unacceptable Control of Transient Combustible and Flammable Materials

During fire protection walkdowns in safety-related and risk-significant areas of the plant in April and May 2016, the inspectors identified multiple instances of the licensee's

failure to follow its procedural requirements for the controls of combustible materials. Accordingly, the inspectors documented a finding of very low safety significance with an associated NCV of TS 5.4, "Procedures," in NRC Inspection Report 05000341/2016002 for this issue. The inspectors noted the licensee's quality assurance department also identified several issues with the control and storage of flammable liquids during this time. The licensee initiated CARD 16-24413, "Emerging Trend with Transient Combustible Storage," to identify this problem as an adverse performance trend. The CARD referenced three of the NRC-identified issues captured in the finding. The licensee's evaluation of the problem determined the cause to be poor work quality and failure of site leadership to reinforce procedure standards for the control of transient combustible materials.

(4) Adverse Performance Trend in Evaluating Degraded/Nonconforming Plant Conditions for Functionality, Operability, and/or Reportability

During the first three quarters of this year, the inspectors observed an adverse performance trend in the licensee's evaluation of degraded/nonconforming plant conditions for functionality, operability, and/or reportability. The inspectors identified and documented an adverse performance trend specific to the licensee's failure to correctly complete required event notifications and reports to the NRC as required by 10 CFR 50.72(a)(1), "Immediate Notification Requirements for Operating Nuclear Reactors," and 10 CFR 50.73(a)(1), "Licensee Event Report System," in the first quarter of this year (NRC Inspection Report 05000341/2016001). The inspection report documented three Severity Level IV NCVs for the licensee's failure to satisfy the NRC's reporting requirements. In addition, the inspectors documented a finding with an associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to correctly evaluate and implement TS LCO requirements for inoperable high pressure stop valve closure and high pressure control valve fast closure functions during a plant transient.

During the Component Design Basis Inspection (CDBI) completed this quarter, NRC inspectors identified multiple examples wherein the quality of operability determinations and the timeliness of their performance did not meet the guidance in IMC 0326, "Operability Determinations & Functionality Assessments for Conditions Adverse to Quality or Safety." (NRC Inspection Report 05000341/2016007). The inspection team documented a finding of very low safety significance with an associated NCV of 10 CFR 50, Appendix B, Criterion V, for the licensee's failure to promptly identify, document, and evaluate conditions adverse to quality with respect to functionality and/or operability in accordance with its procedure standards. The inspection team also documented a finding of very low safety significance with an associated NCV of 10 CFR 50, Appendix B, Criterion V, for the licensee's failure to correctly evaluate TS LCO requirements for inoperable mechanical draft cooling tower fans when fan brakes were non-functional.

Additionally, during this quarter, the inspectors documented a finding of very low safety significance with an associated NCV of 10 CFR 50, Appendix B, Criterion V, for the licensee's failure to perform an operability determination in accordance with its procedure standards for a degraded/non-conforming condition affecting the Division 1



RPV reference leg backfill system to assess the impact on affected RPV level and pressure instrumentation when the minimum reference leg backfill flow rate could not be maintained. This issue was discussed in more detail in Section 1R15.1.b.1 of this inspection report.

In response to the inspectors' identification of the reporting issues during the first quarter of this year, the licensee initiated CARD 16-21857, "Adverse Trend in Reportability Related Issues," to evaluate the problem and identify appropriate corrective actions. In response to the inspectors' identification of the incorrect TS application issues, the licensee initiated CARD 16-26798, "Inadequate Interpretation of Technical Specifications Identified by NRC," to evaluate the problem and identify appropriate corrective actions. In response to the inspectors' identification of the issues with quality and timeliness of operability determinations, the licensee initiated CARD 16-26633, "2016 CDBI – NRC Concern for Operability Determination Justifications and Timeliness," to evaluate the problem and identify appropriate corrective actions.

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

##### .1 (Closed) Licensee Event Report 05000341/2016-003-00, "Secondary Containment Pressure Exceeded Technical Specification Due to Adverse Weather"

On July 8, 2016, a severe thunderstorm warning was issued for Monroe County including the Fermi-2 site. Due to the high winds encountered, the TS limiting pressure for the secondary containment pressure boundary was not met two times for a total duration of 2 seconds. TS 3.6.4.1.1 requires that secondary containment pressure be less than or equal to -0.125 inches water column for operability. The Fermi-2 UFSAR states that high winds may create a negative pressure change on the leeward side of the reactor building, which results in a higher indicated pressure inside the reactor building. All plant equipment responded as required to the changing environmental conditions and the reactor building heating, ventilation, and air conditioning system returned secondary containment pressure below the TS limit.

The licensee completed an 8-hour notification call (Event Notification No. 52076) on July 8 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 05000341/2016-003-00 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 inspectors concluded there was no finding associated with this event since the performance issue was determined not to be within the licensee's ability to reasonably foresee and prevent. Although 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 SGT 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 that bound the effects of a postulated ground level release.

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

Licensee Event Report 05000341/2016–003–00 is closed.

#### 4OA5 Other Activities

##### .1 Diverse and Flexible Coping Strategies Building Wall Concrete Placement Deficiencies

###### a. Inspection Scope

The inspectors reviewed the licensee’s resolution of the deficiencies associated with the concrete placement work for the FSF buildings documented in CARD 15–25395. Specifically, the inspectors reviewed the licensee’s investigation and engineering evaluations performed to demonstrate adequacy of the structures upon identification of construction practice irregularities/deficiencies pertaining to concrete pours for the FSF building exterior walls. The inspection scope included in-office reviews as well as on-site reviews/walkdowns on May 31 and June 1, 2016.

###### b. Findings

##### (1) Failure to Follow Procedures During Concrete Placement of the Diverse and Flexible Coping Strategies Storage Buildings

Introduction: The inspectors identified a finding of very low safety significance when licensee personnel failed to follow the procedure and design specification during concrete placement for installation of FSF Buildings 1 and 2, identified as FSF–1 and FSF–2.

Description: Previously, the licensee had performed an engineering evaluation of the records for the FSF concrete because of an issue raised regarding adequacy of the concrete mix used in construction. This evaluation identified numerous failures to follow applicable procedure, specification, and industry standards pertaining to concrete batching, placing, and testing. The evaluation concluded the FSF concrete quality was acceptable.

Subsequently, the NRC raised concerns related to potential voids and cold joints formed during concrete placement. As a result, the licensee performed more review and confirmed the existence of additional construction practice irregularities/deficiencies. Specifically, the configuration of observed concrete pour lines, as noted during walkdowns and captured in photographs, indicated the pour height limitations per concrete specification and procedure were violated during concrete placement. In particular, the inspectors noted the following deficient practices involving the concrete pour:

- Specification 3071–396, Revision G:

Section 3.6.4.H requires that, “All concrete shall be placed in continuous, normally horizontal layers, the depth of which generally shall not exceed 20 inches.” The licensee investigations indicated the average distance between the pour lines for FSF–1 and FSF–2 were 50 inches and 62.5 inches

respectively, while the maximum distances were 125 inches and 89.25 inches respectively.

Section 3.6.5.B states that when a cold joint is formed, the procedure used for placing concrete shall be the same as for a construction joint. Section 3.5.4 specifies the requirements for treatment of construction joints that include cleaning and roughening to a minimum ¼-inch amplitude using high-pressure water blasting or green cutting fresh concrete with low-pressure water and hand tools. Additionally, Section 3.5.5 requires wetting of the surfaces when new concrete is placed against hardened concrete. The cold joints discussed above did not receive such treatments.

- Procedure 35.CON.010, “Concrete Placement,” Revision 30.

Attachment 3, line item C4, requires verification that the lift thickness does not exceed 20 inches. This checklist was included in the work order and line item C4 was signed off on May 28, 2015, (the day of FSF–2 walls concrete pour) even though, as described above, the lift heights far exceeded the 20 inch limit.

These construction deficiencies suggested the possibility of inadequate vibration and existence of voids and cold joints. As a result, the licensee performed additional walkdowns and engineering evaluation, and contracted outside consultants to perform impact echo tests (to identify significant voids) and independent and third party engineering evaluations. Using the results of the tests and engineering evaluations, the licensee adequately demonstrated the deficiencies described above did not result in significant voids and the wall structural design had sufficient design margins to ensure the walls would be able to perform their intended design function of maintaining structural integrity and protecting the FLEX equipment. The licensee documented the condition and the evaluation in its CAP under CARD 15–25395.

Analysis: The inspectors determined the licensee’s failure to meet the concrete pour heights and to adequately treat the cold joints before the subsequent pour in accordance with the requirements of Specification 3071–396, Revision G, and Procedure 35.CON.010, Revision 30, was a performance deficiency warranting a significance evaluation. In particular, the failure to limit the pour heights could lead to inadequate vibration resulting in voids and cold joints and inadequate treatment of cold joints can affect bonding between the concrete layers. All of these conditions can have an adverse impact on the structure’s ability to perform its intended design function. A proper review of the procedure and the specification by the associated personnel would have avoided the deficiencies. Consistent with the guidance in IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated September 7, 2012, the inspectors determined this performance deficiency was of more than minor safety significance, and thus a finding, because it was related to the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to follow the instructions provided in the design specification and the plant procedure for concrete placement leading to potential degradation of the FSF Building walls required for protection of the components needed for implementation of the FLEX in response to NRC Order EA–12–049, “Order Modifying Licenses with Regard to Requirements for

Mitigation Strategies for Beyond-Design- Basis External Events.” The inspectors also reviewed the examples of minor issues in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," dated August 11, 2009, and found no similar examples.

In accordance with the NRC staff guidance for disposition of findings associated with NRC Order EA-12-049, the finding was presented to a cross-regional panel. Based on the panel's recommendation, the finding was screened using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," dated April 12, 2012, as informed by a draft version of Appendix O, "Significance Determination Process for Mitigating Strategies and Spent Fuel Instrumentation (Orders EA-12-049 and EA-12-051)." The inspectors performed a qualitative evaluation by answering "No" to all five screening questions in Appendix O because the finding did not involve spent fuel pool level instrumentation, failure or unavailability of plant equipment, deficient procedures or training for mitigating strategies, external event exposure time or frequency, or programmatic issues. The inspectors concluded the finding was of very low safety significance (Green) based on the answers to the screening questions and considering the licensee's investigations and evaluations demonstrated the ability of the affected structures to perform their intended design function of protecting the FLEX equipment.

The inspectors concluded this finding affected the cross-cutting area of human performance and the cross-cutting aspect of procedure adherence because licensee personnel failed to review and follow the applicable procedures and instructions while performing concrete placement work (IMC 0310, H.8).

**Enforcement:** No violation of regulatory requirements was identified because construction of the FSF Buildings were not covered under 10 CFR 50, Appendix B. This issue was determined to be a finding. **(FIN 05000341/2016003-03, Failure to Follow Procedures During Concrete Placement of Flexible Storage Facility Buildings)**

.2 Review of Nuclear Industry Evaluation Program Report

The inspectors reviewed the Nuclear Industry Evaluation Program audit report of the Fermi-2 Nuclear Oversight (Quality Assurance) organization conducted in July 2016. During this review, the inspectors did not identify any new safety significant issues.

.3 Operation of an Independent Spent Fuel Storage Installation at Operating Plants (60855.1)

a. Inspection Scope

The inspectors reviewed documents, interviewed plant personnel, and performed in-field observations to assess the licensee's performance as it relates to the operation of the ISFSI. The inspectors evaluated whether changes made to the programs and procedures since the last inspection were consistent with the license or certificate of compliance, and did not reduce the effectiveness of the program. The inspectors also reviewed whether changes were evaluated in accordance with the requirements stated in 10 CFR 72.212(b), 10 CFR 50.59, and 10 CFR 72.48. The inspectors independently assessed whether dry cask storage activities were performed in a safe manner and in

compliance with approved procedures. The inspectors verified the licensee has identified each fuel assembly placed in the independent spent fuel storage installation (ISFSI), has recorded the parameters and characteristics of each fuel assembly, and has maintained a record of each fuel assembly as a controlled document.

Specifically, the inspectors observed the licensee perform the following activities: remove the transfer cask from the spent fuel pool; remove water from the cask; decontaminate the cask; perform closure welding operations; conduct hydrostatic testing; conduct vacuum drying; and prepare for helium backfill. The inspectors also reviewed the following documents: periodic radiological surveys; environmental monitoring reports that demonstrate radiological conditions were in accordance with the TSs and 10 CFR 72.104 limits; and records of fuel assemblies and physical inventories.

A review of selected CARDS written since the last ISFSI inspection indicated the licensee was effectively identifying and correcting conditions adverse to quality.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Resident Inspectors' Exit Meeting

The inspectors presented the inspection results to Mr. K. Polson and other members of the licensee's staff on October 13, 2016. 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 exit meetings were conducted for:

- The review of the FSF building concrete placement deficiencies resolution were presented to Mr. C. Wolfe, Jr., and other members of the licensee's staff on July 28, 2016. The licensee acknowledged the issues presented. The inspectors confirmed none of the potential report input discussed was considered proprietary.
- The results of the ISFSI inspection were presented to Mr. K. Polson and other members of the licensee's staff on July 21, 2016. The licensee acknowledged the information presented. The inspectors confirmed none of the potential report input discussed was considered proprietary.
- The results of the Radiation Safety Program inspection were presented to Mr. R. Laburn and other members of the licensee's staff on September 29, 2016. The licensee acknowledged the information presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

L. Bennett, Manager, Nuclear Operations  
M. Caragher, Director, Nuclear Production  
W. Colonnello, Director, Nuclear Work Management  
K. Dittman, Supervisor – Electrical I&C, Plant Support Engineering  
D. Domski, Engineer, Plant Systems Engineering  
J. Haas, Supervisor, Licensing  
D. Hemmele, Superintendent ILO/NLO, Nuclear Operations  
K. Hullum-Lawson, Manager, Plant Support Engineering  
L. Kantola, Manager, Outage and Work Management  
E. Kokosky, Director, Organization Effectiveness  
J. Konrad, Superintendent, Reactor Services  
R. LaBurn, Manager, Radiation Protection  
K. Locke, General Supervisor - Electrical, Plant Systems Engineering  
S. Maglio, Manager, Licensing  
R. Matuszak, Manager, Plant Systems Engineering  
J. May, Manager, Chemistry  
D. Noetzel, Director, Nuclear Engineering  
K. Polson, Site Vice President  
W. Raymer, Manager, Maintenance  
B. Rumans, General Supervisor, Radiation Protection Technical Services  
P. Southwell, General Supervisor, Radiation Protection ALARA  
S. Ward, Senior Engineer, Licensing

#### U.S. Nuclear Regulatory Commission

B. Dickson, Chief, Reactor Projects Branch 5

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000341/2016003-01	NCV	Failure to Perform an Operability Determination for Division 1 RPV Reference Leg Backfill System Not Providing Adequate Flow (Section 1R15.b.1)
05000341/2016003-02	URI	Fluctuating Background Effect on Accident Range Noble Gas Monitor (Section 2RS6.1)
05000341/2016003-03	FIN	Failure to Follow Procedures During Concrete Placement of Flexible Storage Facility Buildings (Section 4OA5.1)

### Closed

05000341/2016003-01	NCV	Failure to Perform an Operability Determination for Division 1 RPV Reference Leg Backfill System Not Providing Adequate Flow (Section 1R15.b.1)
05000341/2016-003-00	LER	Secondary Containment Pressure Exceeded Technical Specification Due to Adverse Weather (Section 4OA3.1)
05000341/2016003-03	FIN	Failure to Follow Procedures During Concrete Placement of Flexible Storage Facility Buildings (Section 4OA5.1)

### Discussed

05000341/2014005-01	FIN	Potential Missile Hazards from Unrestrained Equipment Near the 345-Kilovolt and 120-Kilovolt Switchyards (Section 4OA2.3.2)
05000341/2016002-01	NCV	Failure to Control Combustible Materials (Section 4OA2.3.3)
05000341/2016001-03	NCV	Failure to Satisfy 10 CFR 50.72 and 10 CFR 50.73 Reporting Requirements for Loss of RPS Trip Safety Functions (Section 4OA2.3.4)
05000341/2016001-05	NCV	Failure to Satisfy 10 CFR 50.73 Reporting Requirements for a Condition Prohibited by the Plant's Technical Specifications (Section 4OA2.3.4)
05000341/2016001-10	NCV	Failure to Satisfy 10 CFR 50.72 and 10 CFR 50.73 Reporting Requirements for Primary Containment Isolation Valve Actuations (Section 4OA2.3.4)
05000341/2016001-02	NCV	Failure to Correctly Interpret and Implement TS Requirements for RPS Trip Functions (Section 4OA2.3.4)
05000341/2016007-16	NCV	Failure to Timely Identify, Document, and Evaluate Conditions that Challenge Operability (Section 4OA2.3.4)
05000341/2016007-01	NCV	Inadequate Procedure for Addressing Non-Functional Mechanical Draft Cooling Tower Fan Motor Brake System (Section 4OA2.3.4)

## 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

- CARD 16-25780; NRC Identified - Damaged Roofing Material
- Drawing 6A721-2001; Reactor Building First Floor – Elevation 583'-6"; Revision BA
- Drawing 6A721-2003-02; Reactor Building Auxiliary Roof Plan; Revision F
- Fermi 2 Updated Final Safety Analysis Report; Revision 20
- NRC Information Notice 2015-01; Degraded Ability to Mitigate Flooding Events; January 9, 2015
- Procedure 20.000.01; Acts of Nature; Revision 49
- Report 95-R102-59-01; Individual Plant Examination of External Events (IPEEE) for High Winds, Floods, and Transportation and Nearby Facility Accidents for Enrico Fermi Unit 2; Revision 0

### 1R04 Equipment Alignment

- CARD 15-22320; Normal Makeup to Division 1 Emergency Equipment Cooling Water Has Been Isolated for Extended Period of Time
- CARD 15-27990; P4400F614 Will Not Stay in Manual Operation
- CARD 15-28566; NQA Audit Deficiency- Two Motor Operated Valve Work Orders Did Not Identify the Steps or Procedure for Limitorque Spring Pack Maintenance
- CARD 15-30270; Degraded Grease Condition Found in Valve During Mini Motor Operated Valve Inspection
- Diagram 6M721-2035; High Pressure Coolant Injection System Reactor Building; Revision BN
- Diagram 6M721-2043; High Pressure Coolant Injection System Barometric Condenser, High Pressure Coolant Injection Reactor Building; Revision A1
- Drawing 6M721-5707; Core Spray System Functional Operating Sketch; Revision AF
- Drawing 6M721-5729-2; Emergency Equipment Cooling Water (Division II) Functional Operating Sketch; Revision AZ
- Procedure 24.207.06; Emergency Equipment Cooling Water/ Emergency Equipment Service Water Actuation Functional Test- Division 1; Revision 37
- Procedure 24.207.07; Emergency Equipment Cooling Water/ Emergency Equipment Service Water Actuation Functional Test- Division 2; Revision 39
- Procedure 24.207.08; Division 1 Emergency Equipment Cooling Water Pump and Valve Operability Test; Revision 79
- Procedure 24.207.09; Division 2 Emergency Equipment Cooling Water Pump and Valve Operability Test; Revision 41
- Procedure 23.127; Reactor Building Closed Cooling Water/Emergency Equipment Cooling Water System; Revision 140
- Procedure 23.202; High Pressure Coolant Injection System; Revision 109
- Procedure 23.203; Core Spray System; Revision 60

### 1R05 Fire Protection

- CARD 16-26506; NRC Concern Identified on Relay Room Storage Cabinet During Walkdown



- CARD 16-27222; NRC Question on Frenchtown Fire Department Participation in Fire Drills
- Design Calculation DC-4921 Volume 1; Appendix R Compliance; Revision H
- Fermi 2 Updated Final Safety Analysis Report, 9A.4-28, 9A.4-29, 9A.4-30; Revision 20
- Fire Protection Pre Plan FP-AB-2-8; Relay Room, Zone 8, Elevation Level 613'6"; Revision 6
- Fire Protection Pre Plan FP-AB-5-16a; Auxiliary Building, North SGT System Room, Zone 16, Elevation Level 677'6"; Revision 3
- Fire Protection Pre Plan FP-AB-5-16b; Auxiliary Building, South SGT System Room, Zone 16, Elevation Level 677'6"; Revision 3
- Fire Protection Pre Plan FP-AB-BMT-4; Control Air Compressor Room, Zone 4, Elevation 551'0"; Revision 3
- Fire Protection Pre Plan FP-RB-4-17b; Reactor Building Recirculation System Motor-Generator Area, Zone 17, Elevation 659'6"; Revision 4
- Fire Protection Pre Plan FP-RB-B-3b; Reactor Building Basement Southwest Corner Room, Zone 3, Elevation Level 562'0"; Revision 3
- Fire Protection Pre Plan FP-RB-SB-3a; Reactor Building Sub-Basement Southwest Corner Room, Zone 3, Elevation Level 540'0"; Revision 4
- Procedure 28.507.01; Fire Barrier Inspection; Revision 10
- Procedure 28.507.03; Fire Door Inspection – Balance of Plant; Revision 29

#### 1R06 Flood Protection Measures

- CARD 13-26016; Manhole Cover Is Not Watertight Leaving a Pathway for Liquids/Air Out of the Radiologically Restricted Area
- CARD 14-26514; Drain Needs to Be Unclogged/ Housekeeping Is Required of Reactor Core Isolation Cooling Trench
- CARD 15-25188; Drain DO75-43 Found Clogged
- CARD 15-27416; Drain Clogged
- CARD 15-27422; Plugged Floor Drain and Contaminated Area in Condenser Pump Bay Causing Work Stoppage
- CARD 15-27737; Reactor Building Equipment Drain Sump Check Valve Exceeded Leakage Limit
- CARD 15-28448; Reactor Building Floor Drain Sump Check Valve Exceeded Leakage Limit
- CARD 15-28653; RF 17 LLRT: LLRT 47.000.84 G1101F1407, Still Leaking Past Seat.
- CARD 15-28876; Drain Needs to Be Cleared
- CARD 15-29772; Manhole Cover Is Not Watertight Leaving a Pathway for Liquids/Air Out of the Radiologically Restricted Area
- CARD 16-22182; The Reactor Building Rounds Southwest Corner Sump, G1101D076, Level Indication Is Failing Intermittently
- CARD 16-25890; NRC Observation Regarding Floor Drain Covers
- Design Calculation DC-4948 Volume 1; Internal Flooding Study of the Turbine Building; Revision B
- Diagram 6M721-2031; Sump Pump Diagram Sheet #1 Radiation Waste System; Revision AN
- Diagram 6M721-2534; Equipment Drains All Floors Turbine Building; Revision G
- Diagram 6M721-2535; Floor Drains All Floor- Turbine Building; Revision I
- Fermi 2 Updated Final Safety Analysis Report; Revision 20
- Flood Protection System Study; Report 8433.001-S-M-001; July 18, 1994
- Information Notice 83-44; Potential Damage to Redundant Safety Equipment as a Result of Backflow Through the Equipment and Floor Drain System, July 1, 1983
- NUREG-0800, 3.6.1 "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment," Revision 3
- WO 30205451; Remove Cement Blocks to Allow Security to Change Padlocks

- WO 34567793; Perform a Visual Inspection of the East Condenser Inlet/Outlet Expansion Joints
- WO 35241635; Contingency Fukushima Flooding Door Reactor Building 1 Seal Repair
- WO 35334258; Fukushima Flood Inspection of Watertight Door Reactor Building 1
- WO 37582413; Perform 47.000.84 Section 6.2 LLRT for Equipment Drain Check Valves - G1101F1410 & 1411
- WO 38117563; LLRT Failure Rework G1101F1407
- WO 38568389; Drain Needs to be Unclogged/ Housekeeping is Required of Reactor Core Isolation Cooling Trench
- WO 42774699; Drain Has Backed Up Resulting in 2 Inches of Water Above Grating
- WO 44131585; LLRT Failure Reactor Building Equipment Drain Sump Check Valve G1101F1411 Exceeded Leakage Limit
- WO 44132136; Perform 47.000.84 Section 6.2 LLRT for Equipment Drain Check Valves- Partial for G1101F1411
- WO 44230646; Perform 47.000.84 Section 6.4 Only
- WO 34567791; Perform a Visual Inspection of the West Condenser Inlet/Outlet Expansion Joints
- WO 37582415; Perform 47.00084 Section 6.4 LLRT for Floor Drain Check Valves - G1101F1407 & 1408

#### 1R12 Maintenance Effectiveness

- Application Evaluation Document 38570826; Block GE Part CR151A8 and Barrier GE CAT CR151A12; Revision 9
- CARD 15-30172; 10CFR50.65(a) Assessment Recommendation, F-CRMP Documentation
- CARD 15-30177; Maintenance Rule Periodic Assessment Potential Crew Learning Opportunity, Get Well Plan Goals
- CARD 15-30195; 10CFR50.65(a) Assessment Recommendation, Improve Get Well Plan Revision Timeliness
- CARD 15-30220; 10CFR50.65(a) Assessment Recommendation, Evaluate Gaps in Incorporating Operating Experience into the Preventive Maintenance Program
- CARD 15-30322; 10CFR50.65(a) Assessment Deficiency, System Engineering PPRN Reviews for Maintenance Rule Impacts
- CARD 16-22704; Division 1 Hydrogen/Oxygen Sample Pump Motor Does Not Meet NUREG 0588 Category I Requirements
- CARD 16-23005; Review of Commercial-Grade Item Dedication Program Based on Information Notice 2016- 01
- Commercial Grade Survey NAQA-15-0053 from Gayle Landers; DTE Energy Commercial Grade Survey 15-010 of Praxair Distribution, Inc.; October 21, 2015
- DTE Energy Memorandum from Paul Roelant; Cycle 17 Maintenance Rule Periodic Assessment; January 05, 2016, TMIS-16-0002
- DTE Engineering Support Organization Report 16J075-0024; From James Owens and Gary Dupuy, Perform Functional Testing of Coil for Fermi 2; March 24, 2016
- DTE Quality Assurance Survey NAQA-16-0043 from John Spurr; DTE Energy Quality Assurance Survey 16-007, Revision 1 of Cetane Testing at Paragon Laboratories, Inc.; July 29, 2016
- Engineering Evaluation Disposition 17514; Commercial-Grade Item Dedication Evaluation Requested of Kit; Revision 0
- Engineering Evaluation Disposition 17723; Hold Evaluation Requested of Air Hose Assembly; Revision 0

- Engineering Evaluation Disposition 17747; Emergency Support Organization Report 16J075-0013, Ten Hoses Failed Pressure Testing; Revision 0
- Engineering Evaluation Disposition 17759; Commercial-Grade Item Dedication Evaluation of Contactor; Revision 0
- Equivalent Replacement Evaluation 31966; Evaluate Substitute Replacement for the Emergency Diesel Generator Flexible Hose; Revision A
- Equivalent Replacement Evaluation 34301; Thermowell for High Pressure Coolant Injection and Reactor Core Isolation Cooling Oil Temperature Switches; Revision 0
- Materials Management Conduct Manual MMM11; Dedication of Commercial Grade Items; Revision 15
- Materials Management Conduct Manual MMM12; Receipt and Source Inspections; Revision 26
- Memorandum From Jim Low, Meggitt Safety Systems; Refurbishment Report for Pump Motor Assembly; April 21, 2016
- NRC Information Notice 2016-09; Recent Issues Identified When Using Reverse Engineering Techniques in the Procurement of Safety-Related Components; July 15, 2016
- NUPIC Report NAQA-14-0031 from Rhea Fightmaster; DTE Energy Closure of the NUPIC Joint Survey Report of Parker Hannifin Corporation, O-Ring Division, NUPIC Survey No. 23537, DTE Energy Survey No. 13-012; May 16, 2014
- NUPIC Report NAQA-14-0075 from Daniel Geist; NUPIC Commercial Grade Survey Report of Analytical Reference Material, International – (NUPIC No. 23658, and DTE Energy Survey No. 14-008); November 25, 2014
- NUPIC Report NAQA-14-009 from Rhea Fightmaster; DTE Energy Initial Review of Responses to Address Findings Issued as a Result of the NUPIC Joint Survey Report of Parker Hannifin Corporation, O-Ring Division, NUPIC Survey No. 23537, DTE Energy Survey No. 13-012; February 26, 2014
- NUPIC Survey Report NAQA-13-0068 from Rhea Fightmaster; NUPIC Joint Survey Report of Parker Hannifin Corporation, O-Ring Division, NUPIC Survey NO. 23537, DTE Energy Survey No. 13-012; November 26, 2013
- Replacement Installation Document 78476; Replacement Reactor Core Isolation Cooling Lube Oil Relief Valve E5100F104; Revision 0
- Technical Evaluation Document 100030399; Thermostat Part Number 54-8178-817-8174; Revision 18
- Technical Evaluation Document 100030967; Micro Switch: BZ-2RW822T; Revision 18
- Technical Evaluation Document 100310875; Elbow, Nut, Ferrule Part Number B-1010-8-8, B-1012-1, B1013-1, B1014-1; Revision 18
- Technical Evaluation Document 38493022; O-Ring Shamban Part S11732-028/Gould Part 70721-64; Revision 18
- Technical Evaluation Document 42339991; Resistor Ohmite L50J25R, Newark 02F2311; Revision 18
- Technical Service Request 30785; Generic Evaluation of Aluminum Electrolytic Capacitors Replacement for Various Fermi 2 Plant Applications; Revision 0
- WO 29942887; 02-Damaged Capillary Shielding
- WO 42038328; Received 2D68, High Pressure Coolant Injection Turbine Oil Cooler Discharge Temperature High Alarm Multiple Times, Calibrate/Replace E41N203
- Work Request B980060100; Replace Electrolytic Capacitors In Residual Heat Removal Complex Love Controllers

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

- CARD 16-25721; Operations Caused Delay in Reactor Core Isolation Cooling Safety System Outage
- CARD 16-26959; South Reactor Water Clean Up Pump Seal Failure
- CARD 16-26960; South Reactor Water Clean Up Pump Seal Leak
- CARD 16-26975; Reactor Water Clean Up Isolation Logic A Failed to Initiate as Expected
- Fermi 2 Nuclear Plant Radiation Work Permit 161055; 2016 ISFSI Campaign; Revision 00
- Fermi 2 Operations Department Expectation ODE-20; "Outage Protected Equipment Form Protecting Fuel Pool Cooling System," Attachment 32; Revision 19
- Fermi 2 Operations Department Expectation ODE-20; "Protected Equipment"; Revision 19
- Fermi 2 Control Room Log; September 01, 2016
- ODMI 15-006; Drywell Temperature Control, December 11, 2015; Revision 0

### 1R15 Operability Determinations and Functionality Assessments

- CARD 16-24931; Division 1 Backfill Metering Valve is at the End of its Adjustment
- CARD 16-25608; Division 1 Reactor Pressure Vessel Reference Leg Backfill System Not Meeting Minimum Recommended Flow
- CARD 16-25852; Request a Review of the Eight Day Requirement to Restore Reference Leg Backfill When Out of Service
- CARD 16-25925; Review Organizational Response to Division 1 Reactor Pressure Vessel Reference Leg Backfill System Issues
- CARD 16-26076; Division 1 and Division 2 Backfill Are Being Adjusted More Frequently Than They Are Normally Adjusted During a Fuel Cycle Run
- CARD 16-26370; Nuclear Safety Review Group 16-02-11, Operations Subcommittee Recommendation, Perform and Aggregate Assessment of Equipment Issues Currently Affecting the Operating Crew
- CARD 16-26506; NRC Concern Identified on Relay Room Storage Cabinet During Walkdown
- CARD 16-26881; Unexpected Water Drained Between the E1150F016B and E1150F021B
- CARD 16-27041; Division One and Two Battery Rooms Temperature Above Maximum Design Temperature Limit
- CARD 16-28050; Proposed NRC Violation for Operability Evaluation of Division 1 RPV Reference Leg Backfill
- Fermi 2 Control Room Log; July 14, 2016 through July 22, 2016
- Fermi 2 Operations Department Expectation ODE-11; CARD Operability/Reportability Determination Expectations; Revision 21
- Fermi 2 Unit Condition Assessment; July 2016
- Fire Protection Pre-Plan FP-AB-5-16b; Auxiliary Building, North SGT Room, Zone 16 Elevation 677'6"; Revision 3
- Fire Protection Procedure 28.507.01; Fire Barrier Inspection; Revision 10
- Generic Letter 92-04; Resolution of the Issues Related to Reactor Vessel Water Level Instrumentation in Boiling Water Reactors Pursuant to 10 Code of Federal Regulation 50.54(f); August 19, 1992
- Letter from Detroit Edison to U.S. Nuclear Regulatory Commission; Detroit Edison Response to Generic Letter 92-04; September 28, 1992
- NRC Bulletin 93-03; Resolution of Issues Related to Reactor Vessel Water Level Instrumentation in Boiler Water Reactors
- NRC Information Notice 2002-06; Design Vulnerability in Boiler Water Reactor Vessel Level Instrumentation Backfill Modification; January 18, 2002

- NRC Information Notice 92-54; Level Instrumentation Inaccuracies Caused by Rapid Depressurization; July 24, 1992
- NRC Information Notice 93-27; Level Instrumentation Inaccuracies Observed During Normal Plant Depressurization; April 8, 1993
- NRC Information Notice 93-89; Potential Problems with Boiler Water Reactor Level Instrumentation Backfill Modifications; November 26, 1993
- ODMI 16-007; Division One Reactor Pressure Vessel Reference leg Backfill Cannot Be Adjusted; Revision B
- ODMI 16-007; Division 1 Reactor Pressure Vessel Reference Leg Backfill Cannot Be Adjusted; Revision B
- ODMI 16-007; Division 1 Reactor Pressure Vessel Reference Leg Backfill Cannot Be Adjusted; Revision A
- ODMI 16-007; Division 1 Reactor Pressure Vessel Reference Leg Backfill Cannot Be Adjusted; Revision 0
- ODMI 16-009; Reactor Recirculation Motor Generator Set 'A' Scoop Tube Lock; Revision 0
- ODMI 16-010; Elevated Vibrations on Both Gland Seal Exhausters; Revision 0
- ODMI 16-013; Spurious Half Main Stem Isolation Valve Channel D Isolation; Revision 0
- Potential Design Change 13751; Potential Modifications to Reactor Water Level Measurement Cold Reference Legs; Revision 0
- Problem Statement E1150F016B; Approximately 25-40 Gallons of Water Drained Between the Division 2 RHR Drywell Spray Line Isolation
- Procedure 27.000.02; Shiftly, Daily, Weekly, and Situation Required Performance Evaluations; Revision 46
- Sketch 6M721-5701-2; Nuclear Boiler System Functional Operating Sketch; Revision P
- TP FP-AB-5-16a; Auxiliary Building, North SGT Room, Zone 16 Elevation 677'6"; Revision 3

#### 1R18 Plant Modifications

- CARD 16-26669; Temporary Modification for Scoop Tube Locking Clamp Calculation Did Not Include Seismic Loads
- CARD 16-26794; Temporary Modification Installation Stopped Due to Fastener Length
- Diagram 6I721-2315-08; Relaying and Metering Diagram 4160V System Service BUS #64V
- Engineering Design Package 37518; Reactor Building HAVAC System Setpoint Change and Replace Trip Relay
- Evaluation 16-0169; TM 16-0017, "Installation of a Mechanical Locking Clamp on the Positioner Arm of the Reactor Recirculation Motor-Generator (RRMG) Set A Scoop Tube to Allow Actuator Repairs/Maintenance With Continued Operation of the RRMG Set A in a Scoop Tube Locked Condition"; Revision 0
- Infrequently Performed Test or Evaluation 16-05; Perform Repairs of "A" Reactor Recirculation Motor Generator Scoop Tube Positioner with Use of a Clamp; August 11, 2016
- TM 16-0011; Transient Voltage Monitoring for Transformer SS64 Secondary Voltage; Index Item 01, Revision B
- TM 16-0011; Transient Voltage Monitoring for Transformer SS64 Secondary Voltage; Screen Number 16-0095, Revision 0
- TM 16-0017; Install Locking Device on Scoop Tube Control Arm; Revision 0
- WO 44499215; Engineering Design Package 37518 Reactor Building HVAC System Change Relay in Panel H21P527
- WO 44525257; Engineering Design Package 37518 Reactor Building HVAC System Setpoint Change at Panel H21P528 (DTE)
- WO 45860897; Install TM 16-0017 for Scoop Tube Clamp. Loop A Scoop Tube Position Demand/Position Deviation

- WO 45873375; Remove TM 16-0017 for Scoop Tube Clamp. Loop A Scoop Tube Position Demand/Position Deviation

#### 1R19 Post-Maintenance Testing

- CARD 16-25827; Pump Inboard and Outboard Bearings Analyses Results Abnormal
- CARD 16-26260; Diesel Fire Pump Angle Drive Inspection Findings
- CARD 16-26309; Diesel Fire Pump Fuel Oil Tank Has Visible Debris in Sample
- Procedure 24.404.04; Division 2 Standby Gas Treatment System Filter and Secondary Containment Isolation Damper Operability Test; Revision 43
- Procedure 28.501.04; Fire Suppression and Sprinkler System Valve Operability Test; Revision 18
- TP 28.504.02; Diesel Fire Pump Engine Weekly Operability Test; Revision 35
- WO 36022747; Test Control and Equipment Power Circuits for Division 2 SGT System
- WO 42678277; Perform 28.504.02 Diesel Fire Pump Weekly Operability
- WO 42753360; Calibrate Diesel Fire Pump Discharge Pressure Switch
- WO 44762335; Replace Reactor Core Isolation Cooling Pump Bearings
- WO 45827051; Fire Suppression, Sprinkler System Valve Operability for P8000F142 Only
- WO 45860919; On-Line Repairs. Loop A Scoop Tube Position Demand/Position Deviation Step Change Increase
- WO 31785930; P8000F142 Does Not Provide Isolation Capability, Request Repair/ Replacement As Necessary

#### 1R22 Surveillance Testing

- CARD 16-21037; NRC Comments Regarding SGT System Monthly Surveillance
- CARD 16-26203; Emergency Diesel Generator 14 Output Breaker Did Not Close at Top 12 Noon During the First Attempt for Breaker Sync (24.307.33) 24-Hour Run
- CARD 16-26206; Excessive Leakage Past Trap R3001D088 Preventing Shutdown of Emergency Diesel Generator 14 Starting Air Compressor
- CARD 16-26228; Interface Computer for CTG 11-1 Mark V Would Not Allow Operator to Execute Functions
- Procedure 28.504.09; Electric Fire Pump Monthly Operability Test; Revision 8
- Procedure 20.300.SBO; Loss of Offsite and Onsite Power; Revision 22
- Procedure 23.404; Standby Gas Treatment System; Revision 54
- Procedure 24.307.33; Emergency Diesel Generator No. 14 – 24-Hour Run Followed by Hot Fast Restart; Revision 39
- Procedure 24.324.01; CTG 11 Unit 1 Monthly Operability Check; Revision 45
- Procedure 24.404.04; Division 2 Standby Gas Treatment System Filter and Secondary Containment Isolation Damper Operability Test; Revision 43
- Procedure 43.404.002; Standby Gas Treatment Filter Performance Test Division 2; Revision 40
- UFSAR Section 8.4-1; Station Blackout; Revision 19
- WO 42645918; Perform 28.504.09 Electric Fire Pump Monthly Operability Test
- WO 42676724; Perform 24.324.01 CTG 11-1 Monthly Operability and Meter Chiller Check (Section 5.2)

#### 2RS6 Radioactive Gaseous and Liquid Effluent Treatment

- CARD 16-23995; NRC Question – Radiological Emergency Response Preparedness Noble Gas Accident Range Monitor Response During Design Base Accident

- CARD 16-28049; NRC Unresolved Issue: Evaluation of Effect of SGT Systems Filter Shine on AXM Monitor Readings in DBA
- EP-101 T, Classification of Emergencies; Revision 41
- EP-545; Protective Action Recommendations; Revision 26
- NPRP-16-0105; Effect of Shine from SGT Systems Filter Train on AXM Readings; September 28, 2016
- Procedure 78.000.67; Transfer Calibration of the Eberline AXM-1 Monitor; November 14, 1984
- Vendor Manual VMC1-151; Eberline AXM-1 Accident Range Monitor; Revision 0
- WO 37849495; Perform 64.120.027 SGT System DIV 2 Exhaust ACC Range Rad Monitoring CAL/FUNC (AXM)

## 2RS7 Radiological Environmental Monitoring Program

- CARD 14-26665; Evaluate Current Air Sampler Locations with ODCM Table 3.12.1-1 Requirements
- CARD 15-24693; Nuclear Quality Assurance (NQA) – Dose Assessment to Member of the Public Is Not Being Implemented As Required by the TRM Volume 2 ODCM
- CARD 15-26164; Benchmark Recommendations: ODCM – Land Use Census and Critical Receptor
- Fermi II ODCM – TRM Volume II; Revision 22
- MRP30; Integrated Ground-Water Protection Program; Revision 5
- Procedure 62.000.200; Land Use Census; Revision 5
- Procedure 62.000.201; Airborne Particulate and Iodine Sampling Using RADECO Model AVS-28A Air Sampler; Revision 3
- Procedure 62.000.203; REMP Results Analysis – Review and Action; Revision 5
- Procedure 62.000.208; Direct Radiation Monitoring Thermoluminescent Dosimeters; Revision 4
- RADECO Model AVS-28A Calibration Form; Various Dates
- WO 42280053; Perform 44.100.003 Met Monitoring Primary Air Temperature Diff Cal
- WO 42281751; Perform 44.100.001 Met Monitoring Primary Wind Speed Channel Cal
- WO 42284573; Perform 44.100.002 Met Monitoring Primary Wind Direction Channel Cal

## 4OA1 Performance Indicator Verification

- Maximum I-131 Performance Indicator Packages; 4<sup>th</sup> Quarter 2015 through 2<sup>nd</sup> Quarter 2016
- MSPI RHR Systems Performance Indicator Packages; 3<sup>rd</sup> Quarter 2015 through 2<sup>nd</sup> Quarter 2016
- MSPI Cooling Water Systems Performance Indicator Packages; 3<sup>rd</sup> Quarter 2015 through 2<sup>nd</sup> Quarter 2016
- MSPI Heat Removal Systems Performance Indicator Packages; 3<sup>rd</sup> Quarter 2015 through 2<sup>nd</sup> Quarter 2016
- NEI 99 02; Regulatory Assessment Performance Indicator Guideline; Revision 7
- Occupational Exposure Controls Effectiveness Performance Indicator Packages; 4<sup>th</sup> Quarter 2015 through 2<sup>nd</sup> Quarter 2016
- RETS/ODCM Radiological Effluent Occurrences Performance Indicator Packages; 4<sup>th</sup> Quarter 2015 through 2<sup>nd</sup> Quarter 2016

## 4OA2 Problem Identification and Resolution

- ACE 15-27112; Adverse Trend Identified with Overhead Cranes; October 28, 2015
- ACE Template; CARD 16-21835, Maintenance Department; Revision 0
- CARD 15-27112; Adverse Trend Identified with Overhead Cranes

- CARD 15-28528; NQA – Adverse Trend Noted with Preparation and Installation of Raychem During Refueling Outages
- CARD 15-28681; Potential Trend in Risks to Defect Free Operation in Cycle 18
- CARD 15-29308; NQA Audit Finding, Repeat Performance Errors/Events During RF17 Refueling Activities
- CARD 15-29359; RF17 Trend, Equipment Issues with Switchgear, Breakers, and Motor Control Centers
- CARD 15-29548; Request Aggregate Review of Sequence of Events and Infrequently Performed Test or Evolution Implementation Challenges
- CARD 15-29698; Nuclear Safety Review Group Suggestion for Senior Nuclear Safety Culture Review Panel Follow-up
- CARD 15-30191; NQA Trend, Diesel Fire Pump Not Cranking Within 30 Seconds
- CARD 16-20021; 2015 Aggregate Industrial Safety Review
- CARD 16-20583; NQA Audit Deficiency, Third Quarter 2015 Station Trending Report Gaps in Trend Characterization and Close-Out Actions
- CARD 16-20669; T3100 Evaluated by the Maintenance Rule Expert Panel (MREP) as (a)(1)
- CARD 16-20669; T3100 Evaluated by the MREP as (a)(1)
- CARD 16-21238; Adverse Trend Associated with Effectiveness of Corrective Actions
- CARD 16-21835; Adverse Trend in Maintenance Work Order Quality
- CARD 16-22175; Management Review Committee Identified Potential Cognitive Trend, Fire Door Degradation
- CARD 16-22215; Adverse Trend, Increase in Random Fuse Failures During Year 2015
- CARD 16-22264; Nuclear Safety Culture (NSC) Monitoring Process Identifies Adverse NSC Trend in Operations
- CARD 16-22265; Nuclear Safety Culture (NSC) Monitoring Process Identifies Degrading NSC Trend in Maintenance
- CARD 16-22266; Nuclear Safety Culture (NSC) Monitoring Process Identifies Degrading NSC Trend in WP-1 Work Management Attribute
- CARD 16-22291; Trend in Serveron CARDS
- CARD 16-23628; Trend of Housekeeping Issues Near 120 kV and 345 kV Switchyards
- CARD 16-24400; NQA Audit Deficiency, Non-compliances with Flammable Liquids Locker Controls, Repeat Audit Deficiencies
- CARD 16-24413; Emerging Trend with Transient Combustible Storage
- CARD 16-25188; Diesel Fire Pump Hold Point Greater Than 30 Seconds
- CARD 16-26633; 2016 CDBI- NRC Concern for Operability Determination Justifications and Timeliness
- CARD 16-26678; 2016 CDBI: CARD Timeliness and Condition Description Quality
- CARD 16-26778; Station Trend Report Not Issued in Accordance with MQA-13-100
- CARD 16-26798; Inadequate Interpretations of Technical Specifications Identified by NRC
- CARD 16-27110; NRC Residents Observations on PI & R Trends
- CCA Report Card 16-20021; 2015 Aggregate Industrial Safety Review; Revision 1
- CCA Report; Adverse Trend Associated with Effectiveness of Corrective Actions; Revision 1
- CCA Report; NQA – Adverse Trend Noted with Preparation and Installation of Raychem During Refueling Outages; Revision 0
- CCA Report; NQA Audit Finding, Repeat Performance Errors/Events During RF17 Refueling Activities; Revision 2
- CCA Report; Operations Performance Trend Less Than Adequate
- CCA Report; RF17 Trend, Equipment Issues with Switchgear, Breakers, and Motor Control Centers; Revision 0
- CCA Report; T3100 Evaluated by the MREP as (a)(1); Revision 0



- CARD 15-26439; Evaluation of Rigging Configuration for 125 Percent Load Testing of the Reactor Building Main Crane per MMA07 Section 3.6
- Fermi 2 Nuclear Generating Station; Nuclear Safety Culture Senior Review Panel Minutes; Second Semester 2015
- Fermi 2 Nuclear Safety Culture Monitoring Panel; 2015 First Quarter Meeting Report
- Fermi 2 Nuclear Safety Culture Monitoring Panel; 2015 Fourth Quarter Meeting Report
- Fermi 2 Nuclear Safety Culture Monitoring Panel; 2015 Second Quarter Meeting Report
- Fermi 2 Nuclear Safety Culture Monitoring Panel; 2015 Third Quarter Meeting Report
- Fermi 2 T3100; (a)(1) Action Plan; Revision 0
- First Quarter 2016 Station Trend Report; June 20, 2016
- Second Quarter 2016 Station Trend Report; September 8, 2016
- NQA Audit Report 16-0108; Quality Assurance Audit of the Training Program and Qualification of Unit Staff; Audit Exit Conducted on July 18, 2016
- TCE Report 16-23300; Emerging Trend in Maintenance, Release of all Protective Tagging Prior to Completion of Work
- Technical Evaluation T31-15-040; RB-1 Floor Loading Evaluation for RB5 Crane Load Test; Revision A
- WO 43674621; Load Test RB-5 Cane T3100E002

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

- CARD 16-25499; Secondary Containment Technical Specification Not Met Due to High Winds During Thunderstorm
- Event Notification 52076; Secondary Containment Technical Specification Not Met
- LER 05000341/2016-003-00; Secondary Containment Pressure Exceeded Technical Specification Due to Adverse Weather

#### 4OA5 Other Activities

- 50.59 Screen No. 14-0183; Flex Storage Facilities; Revision G
- 50.59 Screen No. 15-0173; Evaluation of Rigging Configuration for 125 Percent Load Testing of the Reactor Building Main Crane per MMA07; Revision 0
- 72.48 Screen No. 14-0033; FLEX Storage Facilities; Revision 0
- 72.48 Screen No. 14-0034; HI-TRAC Lift Link Inspection; Revision 0
- 72.48 Screen No. 14-0035; 10 CFR 72.212 Evaluation Report; Revision 0
- 72.48 Screen No. 16-0005; HI-TRAC Lift Yoke Inspection; Revision 0
- ALARA Package No. 161055; 2016 ISFSI Campaign; Revision 0
- CARD 15-21894; VCT High Strength Structural Bolts
- CARD 15-21895; VCT Upper Block Equalizer Pins
- CARD 15-25395; Compliance to 35.CON.10
- CARD 15-26439; Evaluation of Rigging Configuration for 125 Percent Load Testing of the Reactor Building Main Crane per MMA07, Section 3.6
- CARD 16-20669; T3100 Evaluated by the Maintenance Rule Expert Panel as (a)(1)
- CARD 16-25049; Generate New PST Event for Structural Inspection of ISFSI Storage Pad and Cask Transfer Facility (CTF)
- CARD 16-25575; Left Tower on VCT Would Not Lower
- Design Specification 3071-396; Fermi 2 Electric Duct Bank Concrete; Revision G
- EVAL-194-8692-01; Neutron Field Characterization and Correction Factor Evaluation for Femi 2; April 2016
- Fermi 2 10 CFR 72.212 Report; Revision 1

- GQP-9.2; High Temperature Liquid Penetrant Examination and Acceptance Standards for Welds, Base Materials and Cladding; Revision 9
- GQP-9.6; Visual Examination of Welds; Revision 15
- MPR Report 0021-0043-RPT-002; FSF Building #2 Construction – Independent Third Party Review; Revision 0
- NQA Audit Report No. 16-0104; Quality Assurance Audit of the Independent Spent Fuel Storage Installation Program; April 27, 2016
- NQA Audit Report 16-0109; Fermi 2 Quality Assurance Program Evaluation; July 11, through July 15, 2016
- PI-CNSTR-OP-DEC-G-01; Closure Welding of Multi-Purpose Canisters at Fermi Station; Revision 1
- Procedure 35.710.043; Blowdown, Drying, Sealing, and Backfill of the MPC; Revision 8
- Procedure 35.710.047; Responding to ISFSI Abnormal Conditions; Revision 2
- Procedure 35.710.054; HI-STORM Annual Inspection; Revision 2
- Procedure 35.710.055; HI-STORM Monthly Screen Inspection; Revision 1
- Procedure 35.CON.010; Concrete Placement; Revision 30
- Quick Hit Self-Assessment Report; Readiness for ISFSI Campaign #2
- Radiological Survey; HI-TRAC Survey After Blowdown; July 20, 2016
- Radiological Survey; ISFSI Pad; December 23, 2015
- Report; Engineering Evaluation of Flex Storage Facility Pour Lines (CARD 15-25395-05); February 29, 2016
- Radiation Work Permit No. 161055; 2016 ISFSI Campaign; Revision 0
- SNM-STG-18-01-01; SNM Transfer Form Change Request; July 6, 2016
- WO 3795565; Perform HI-TRAC Trunnion Inspection per 35.710.063
- WO 37955656; Perform HI-STORM Lifting Bracket Inspection per Procedure 35.710.056
- WO 37955658; Perform MPC Lift Cleats Inspection per Procedure 35.710.067
- WO 37955660; Perform HI-TRAC Lift Yoke Inspection per Procedure 35.710.057
- WO 37955662; Perform HI-TRAC Lift Links Inspection per 35.710.062
- WO 38563731; Perform 35.710.055; HI-STORM Monthly Screen Inspection
- WO 42052838; Implement EDP-37124 Erect Flex Storage Facility – 2
- WO 42280688; RB Overhead Crane PM Inspections
- WO 43987650; Perform 35.710.054 HI-STORM Annual Screen Inspection
- WO 44939352; Thorough Inspection of RB5 Crane Drive Components and Replace Wheel Bearings
- WO 45149379; HI-STORM Lifting Beam Inspection per 35.710.058
- WO 45149635; ISFSI-Dry Cask Storage Lift Lock Assembly Inspection
- WO 45605888; South Main Hoist Gear Box Input Shaft Seal Leak

## LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
ALARA	As-Low-As-Reasonably-Achievable
AXM	Accident Range Monitor
BWROG	Boiling Water Reactor Owners Group
CAP	Corrective Action Plan
CARD	Condition Assessment Resolution Document
CDBI	Component Design Basis Inspection
CFR	<i>Code of Federal Regulations</i>
CTG	Combustion Turbine Generator
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EDP	Engineering Design Package
EECW	Emergency Equipment Cooling Water
FLEX	Diverse and Flexible Coping Strategies
FSF	Flexible Storage Facility
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
ISFSI	Independent Spent Fuel Storage Installation
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MQA	Quality Assurance Conduct Manual
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NQA	Nuclear Quality Assurance
NRC	U.S. Nuclear Regulatory Commission
NUPIC	Nuclear Procurement Issues Committee
ODCM	Offsite Dose Calculation Manual
ODE	Operations Department Expectations
ODMI	Operations Decision Making Issue
PARS	Publicly Available Records System
RHR	Residual Heat Removal
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
SDP	Significance Determination Process
SGT	Standby Gas Treatment
SSC	Structure, System, and/or Component
TM	Temporary Modification
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order

P. Fessler

-2-

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Sincerely,

/RA/

Billy Dickson, Chief  
Branch 5  
Division of Reactor Projects

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