

January 27, 2003

Mr. William O'Connor, Jr.  
Vice President  
Nuclear Generation  
Detroit Edison Company  
6400 North Dixie Highway  
Newport, MI 48166

SUBJECT: FERMI 2 NUCLEAR POWER STATION  
NRC INTEGRATED INSPECTION REPORT 50-341/02-11

Dear Mr. O'Connor:

On December 28, 2002, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Fermi 2 Nuclear Power Station. The enclosed report documents inspection findings which were discussed on January 10, 2002, with you, Mr. Cobb, and other members of your staff.

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

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

Since the terrorist attacks on September 11, 2001, the NRC has issued two Orders (dated February 25, 2002, and January 7, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25<sup>th</sup> Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power reactors during calendar year (CY) '02, and the remaining inspections are scheduled for completion in CY '03. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls and conduct inspections, and will resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial nuclear power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adms.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Mark A. Ring, Chief  
Branch 1  
Division of Reactor Projects

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

Enclosure: Inspection Report 50-341/02-11

cc w/encl: N. Peterson, Director, Nuclear Licensing  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-341

License No: DPR-43

Report No: 50-341/02-11

Licensee: Detroit Edison Company

Facility: Fermi 2 Nuclear Power Station, Unit 2

Location: 6400 N. Dixie Hwy.  
Newport, MI 48166

Dates: October 1 through December 28, 2002

Inspectors: S. Campbell, Senior Resident Inspector  
J. Larizza, Resident Inspector  
D. Nelson, Radiation Specialist  
S. Orth, Senior Radiation Specialist  
G. Pirtle, Physical Security Inspector  
D. Schrum, Reactor Engineer  
R. Schmitt, Radiation Specialist

Approved by: Mark Ring, Chief  
Branch 1  
Division of Reactor Projects

## **SUMMARY OF FINDINGS**

IR 05000341-02-11, Detroit Edison Company, on 10/01-12/28/02, Fermi 2 Nuclear Power Station; Unit 2. Routine Baseline Inspection Report.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections on Maintenance Rule Implementation, Radiation Protection, and Security. The inspection was conducted by Region III inspectors and the resident inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

No findings of significance were identified.

## REPORT DETAILS

### Summary of Plant Status

At the start of the inspection period, Fermi 2 operated at 100 percent power. On October 2, 2002, the reactor automatically scrammed, and the main turbine generator tripped on loss of main condenser vacuum due to loss of the No. 2 circulating water pump and failure of its associated discharge valve to close. Following the execution of pre-planned forced-outage priority work requests while in hot shutdown, the reactor was then restarted and power was returned to 100 percent on October 6, 2002. On December 3, 2002, reactor power was decreased to 83 percent to remove the No. 3 circulating water pump from service due to increase in vibration. Reactor power was able to be increased to 100 percent on December 4, 2002, with three of the five circulating water pumps in service, due to low ambient temperature and low condenser back pressure. Reactor power was decreased to 55 percent on December 21, 2002, to perform control rod pattern adjustments, turbine control and stop valve testing, turbine bypass availability testing, control rod scram insert time testing and other planned maintenance activities. Reactor power was increased to 100 percent on December 22, 2002. On December 23, 2002, reactor power was decreased to 91 percent to complete a control rod pattern adjustment and returned to near 100 percent. On December 28, 2002, at 2:46 am, voltage regulation for distribution cabinet motor power unit (MPU) 3 began to fail, which impacted balance of plant equipment including control rod movement. The operators inserted a manual scram and entered Mode 3. A jumper was installed around the MPU No. 3 voltage regulator and forced-outage maintenance work was conducted. At the end of the inspection period, the plant remained shut down and in Mode 3.

### **1. REACTOR SAFETY**

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

#### 1R01 Adverse Weather (71111.01)

##### a. Inspection Scope

The inspectors toured the plant and used the Acts of Nature Abnormal Operating Procedure to verify that the licensee was prepared for seasonal readiness related to: 1) high winds and 2) extremely low temperatures. The inspectors used the Licensee Event Report Database to review seasonal issues that occurred at other sites and determined whether the licensee had addressed these issues at the site. Procedure 27.000.04, "Freeze Protection Lineup Verification," was used during the inspection.

##### b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

.1 Quarterly Inspection (711114.04Q)

a. Inspection Scope

The inspectors performed a partial walkdown of System Service Transformer 65, which is a risk-significant, mitigating system. The inspectors reviewed associated piping and instrumentation drawings, condition assessment resolution documents (CARDs) and used the system operating procedures lineup listed at the end of this document to verify the system standby alignment. The inspectors also examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies.

b. Findings

No findings of significance were identified.

.2 Semiannual Inspection (71111.04S)

a. Inspection Scope

The inspectors performed a complete walkdown of the compressed air (P5000) system. This system was selected because of its risk-significance in the licensee's probabilistic risk assessment. The inspection reviewed the following:

- Appropriate plant procedures
- Drawings
- Updated Final Safety Analysis Report (UFSAR) to identify proper system alignment
- System training manual
- Maintenance work requests
- Outstanding design issues and operator work arounds
- Control room logs

The inspectors used the documents to verify valves were positioned correctly and did not exhibit leakage that would impact the valve's function, availability of electrical power, proper labeling, lubrication and cooling of major equipment, and functionality of hangers and support systems.

b. Findings

No findings of significance were identified.



1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed Jobs TG 1202065 and TG 1302910 used to conduct performance testing on Divisions 1 and 2 emergency equipment cooling water (EECW) heat exchangers. The inspectors verified if deficiencies masked degraded performance. Also, the inspectors verified whether any potential common cause heat sink performance problems may have increased plant risk. Finally, the inspectors verified that the licensee had adequately identified and resolved heat sink performance problems (corrosion, fouling, silting) that could result in affecting multiple heat exchangers in mitigating systems and thereby increase risk.

a. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors observed a shift operating crew during the annual requalification examination in mitigating the consequences of events on the simulator. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Ability to take timely actions in the conservative direction
- Prioritization, interpretation, and verification of annunciator alarms
- Correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Ability to identify and implement appropriate Technical Specification actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12B)

Periodic Evaluation

a. Inspection Scope

The objective of the inspection was to:

- Verify that the periodic evaluation was completed within the time restraints defined in 10 CFR 50.65, the Maintenance Rule (once per refueling cycle, not to exceed 2 years), ensuring that the licensee reviewed its goals, monitoring, preventive maintenance activities, industry operating experience, and made appropriate adjustments as a result of that review;
- Verify that the licensee balanced reliability and unavailability during the previous refueling cycle, including a review of safety significant structures, systems, and components (SSC);
- Verify that (a)(1) goals were met, corrective actions were appropriate to correct the defective condition including the use of industry operating experience, and (a)(1) activities and related goals were adjusted as needed; and
- Verify that the licensee has established (a)(2) performance criteria, examined any SSCs that failed to meet their performance criteria, or reviewed any SSCs that have suffered repeated maintenance preventable functional failures including a verification that failed SSCs were considered for (a)(1).

The inspectors examined the last two periodic evaluation reports for the time frames May 1999 through September 2000, and October 2000 through April 2002. To evaluate the effectiveness of (a)(1) and (a)(2) activities, the inspectors examined (a)(1) action plans, justifications for returning SSCs from (a)(1) to (a)(2), and a number of CARDS (contained in the list of documents at the end of this report). In addition, the CARDS were reviewed to verify that the threshold for identification of problems was at an appropriate level and the associated corrective actions were appropriate. The inspectors focused the inspection on the following systems:

- Emergency Equipment Cooling Water
- Residual Heat Removal
- Residual Heat Removal Service Water
- Reactor Core Isolation Cooling

In addition, the inspectors reviewed three self-assessments that addressed maintenance rule implementation at Fermi.

b. Findings

No findings of significance were identified.

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

Emergent Work Activities

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of risk, activity scheduling, configuration control, and emergent work to ensure that plant risk was appropriately

managed. The inspectors verified that licensee actions, such as establishing compensatory actions, minimizing the duration of the activity, obtaining appropriate management approval, and informing appropriate plant staff to address increased online risk during these periods were accomplished when needed. The following work week activities were reviewed:

<b>Work Week Reviewed</b>	<b>Systems Out-of-Service During Work Week</b>
Week of November 17, 2002	Potential Part 21 Reportable Condition: Non-Conservative T-Min Setpoint in Oscillating Power Range Monitor System
Week of November 24, 2002	High Bearing Temperature Division 2 Control Center Heating Ventilation and Air Conditioning (CCHVAC) Return Air Fan Inboard Bearing
Week of December 1, 2002	Unexpected Closure of No. 3 High Pressure Control Valve
Week of December 1, 2002	Motor Generator Set Brushes Sticking in Brush Boxes

b. Findings

No findings of significance were identified.

1R14 Nonroutine Plant Evolutions (71111.14)

1. Automatic Scram from a Loss of Circulating Pump No. 2

a. Inspection Scope

On October 2, 2002, the inspectors observed control room personnel respond to the failures of circulating water pump No. 2 and its associated discharge valve to close. These failures caused most of the condenser cooling flow to be diverted to the circulating water pond. The loss of cooling flow caused a loss of condenser vacuum and the turbine tripped followed by an automatic scram of the unit. The inspectors determined by direct observation and a review of procedural requirements, that proper procedures (emergency operating, abnormal operating and annunciator response) were followed, operator actions were independently verified, repeat-backs were performed, operations personnel were complying with procedures and Technical Specifications, and that plant parameters were as expected for each operating condition.

b. Findings

No findings of significance were identified.

2. Manual Plant Scram due to a Loss of Motor Power Unit (MPU) No. 3

a. Inspection Scope

On December 28, 2002, the voltage regulator inside MPU No. 3 power distribution cabinet failed impacting several balance-of-plant equipment indicators, alarms and recorders. Operations personnel decided to conduct a controlled shutdown of the unit. However, insufficient voltage from MPU No. 3 prevented the insertion of Control Rod 22-47. In response, the operators placed the mode switch in shutdown, scrambled the unit from about 73 percent power and entered Mode 3. The inspectors reviewed drawings, procedures, Technical Specifications, system training manuals, the UFSAR, any available trend recorders and data to determine whether operator response to the event was appropriate and if equipment responded as expected.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Drywell Cooling Fans Vibration Alarm Setpoint Change

a. Inspection Scope

During the next refueling outage, the licensee plans to implement a technical service request to change the drywell cooling fans vibration alarm setpoint. Recently, the drywell cooling fans have been sending nuisance alarms to the control room. The alarm setpoints of drywell vibration detectors T47N001A through D, G, and H through N appear to be set too low. The vibration switches sense acceleration and are sensitive to higher frequency such as blade pass. These switches can only be adjusted during refueling outages at a time when the drywell temperature is much lower than during plant operation. The switches are set above background vibration which then changes with an increase in ambient temperature. The fan casing to blade clearances can change which affects the vibration at pass frequency. The switches can therefore be set too close to normal background vibration while at power. Engineering evaluations of vibration parameters indicate that a real vibration issue does not exist. Condition Assessment Resolution Document 02-12902 was written to document the concern.

The inspectors reviewed documents associated with the drywell cooling fan vibration alarm setpoint change. The inspectors reviewed the licensee's operability determination and future actions for eliminating the cause of the high vibration nuisance alarms.

b. Findings

No findings of significance were identified.

.2 High Pressure Coolant Injection Engineering Functional Analysis, Potential Opening Transient on Turbine Stop Valve E4100F067

a. Inspection Scope

During a surveillance run of the high pressure coolant injection (HPCI), the system engineer noted a loud mechanical noise. Review and discussions with the system supplier design engineer indicated the evidence of a stop valve opening transient on E4100F067, HPCI turbine stop valve. The phenomenon was characterized by the valve being “catapulted” open and then closed due to the setpoint of the valve balancing chamber being too low. The phenomenon occurs quickly and does not significantly affect the system response time. However, repetitive operation under these conditions can result in damage to the valve seat, stem and hydraulic cylinder seal. Safety function analysis of this condition indicated that the HPCI system remained capable of meeting the single failure criterion and thus capable of event mitigation. In the interim, until the balance chamber pressure can be increased, the engineering functional analysis specified that no planned auto initiation of the HPCI system should be performed.

b. Findings

No findings of significance were identified.

.3 Part 21 Reportable Condition: Non-Conservative T-Min Setpoint in Oscillating Power Range Monitor System

a. Inspection Scope

On November 21, 2002, General Electric notified the licensee that the oscillating power range monitor could be set non-conservatively. The Fermi 2 oscillating power range monitor system was set at 1.4 seconds, meaning that any oscillation having a period of less than 1.4 seconds would not be detected by the oscillating power range monitor system as a potential thermal hydraulic instability. The inspectors reviewed CARD 02-18019 to determine if the evaluation was technically adequate and justifiable. The inspectors reviewed immediate actions of declaring the system inoperable and verified that the setpoint changes were done per plant procedures.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

The inspectors reviewed an operator workaround to manually control feedwater heater levels to compensate for poor performance of feedwater heater level controls. Further, the inspectors reviewed the cumulative effects of operator workarounds that could affect multiple mitigating systems. The cumulative effects of operator workarounds on the

ability of operators to respond in a correct and timely manner to plant transients and accidents were also evaluated.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

Engineering Design Package 29475, "Install Service Water Orifice Plate," was reviewed for adequacy of the evaluation, disposition, and conclusion. The modification was to reduce the number of operating service water pumps to maintain the EECW makeup system operable while on the service water cooling tower bypass mode.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed and observed the following post-maintenance testing activities involving risk significant equipment in the Mitigating Systems cornerstones:

- Procedure 24.413.03, "Division 2 CCHVAC 10-Hour Operability Test"
- Procedure 24.409.01, "Division 2 Post Loss of Coolant Accident Thermal Recombiner Functional Test"
- Procedure 24.220.04, "Division 2 Hydrogen Recombiner Heater Test and Inspection," observed 11/16/02
- Procedure 24.220.04, "Division 2 Hydrogen Recombiner Heater Test and Inspection," observed 12/7/02
- PEP-016, "Reactor Vessel Internals Management Program"
- 000Z014374, "Center Turbine Building Heating, Ventilation and Air Conditioning Fan Vibration"
- 000Z014716, "Division 1 Auxiliary Building Switchgear Air Conditioning Unit Not Working Properly"
- 000Z023372, "Division 1 Thermal Recombiner Failed to Reach 1150 Degrees F within 75 minutes"
- 000Z021716, "Reroute Standby Feed Water Pump B Lube Oil Supply Piping per TSR-31835, Revision B"

The inspectors verified that the post-maintenance test was adequate for the scope of the maintenance work performed, acceptance criteria were clear, and operational readiness consistent with design and licensing basis documents was demonstrated. The inspectors also verified that the impact of the testing had been properly characterized in the risk assessment, the test was performed as written, the testing

prerequisites were satisfied, and that the test data was complete. Following the completion of the test, the inspectors verified that the system was returned to its normal standby configuration.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

On December 18, 2002, the inspectors reviewed Field Modification Request 7679 describing that the economizer mode was temporarily removed from the CCHVAC system in 1984 to facilitate balancing the CCHVAC before initial fuel load. The inspectors identified that the UFSAR stated that the CCHVAC operation was demonstrated by proper integrated operation that included the economizer. The inspectors reviewed the field modification request, applicable sections of the UFSAR, central system component database, temporary modification control procedures, several CCHVAC systems, technical service requests, drawings, work requests, and CARD 02-12754, which had been written for this issue. Also, the inspectors reviewed CARD 01-14004, "Emergency Diesel Generator 14 High Temperature on Generator Outboard Bearing Resulted in Engine Shutdown, Fire, and Alert Declaration," to determine whether all site field modification requests, which was a process used that contributed to the emergency diesel generator bearing failure, were reviewed as an extent-of-condition corrective action in the CARD.

b. Findings

No findings of significance were identified

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiological Boundary Verifications

a. Inspection Scope

The inspectors conducted walkdowns of the radiologically restricted area to verify the adequacy of radiological area boundaries and postings. Specifically, the inspectors walked down numerous radiologically significant work area boundaries (high and locked high radiation areas) in the Reactor Building, the Turbine Building, and the Radwaste Building and performed confirmatory radiation measurements to determine if these areas and selected radiation areas were properly posted and controlled in accordance with 10 CFR Part 20, licensee procedures, and Technical Specifications. The inspectors

also evaluated the radiological condition of those areas walked down to assess the radiological housekeeping and contamination controls.

b. Findings

No findings of significance were identified.

2. High Radiation Area and Very High Radiation Area Access Controls

a. Inspection Scope

The inspectors reviewed the licensee's procedures, practices and associated documentation for the control of access to radiologically significant areas (high, locked high, and very high radiation areas) and assessed compliance with Technical Specifications, procedures and the requirements of 10 CFR 20.1601 and 20.1602. In particular, the inspectors reviewed the licensee's practices and records for the control of keys to locked high radiation areas and very high radiation areas, the use of access control guards to control entry into such areas, and the licensee's methods for independently verifying proper closure and latching of locked high radiation area and very high radiation area doors upon area egress. Additionally, radiological postings were reviewed, and access control boundaries were challenged by the inspectors throughout the plant to verify that high, locked high and very high radiation areas were properly controlled.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable Planning and Controls (71121.02)

1. ALARA Planning

a. Inspection Scope

The inspectors examined the station's procedures for radiological work/As-Low-As-Reasonably-Achievable (ALARA) planning and scheduling and evaluated the dose projection methodologies and practices implemented for Calendar Year (CY) 2002 to verify that sound technical bases for dose estimates existed. The inspectors reviewed the station's collective exposure histories from 1990 to the present, current exposure trends for ongoing plant operations, and completed radiological work activities for CY 2002 to assess current performance and radiation exposure challenges. The inspectors selected a number of CY 2002 high exposure or high radiation area work activities and evaluated the ALARA plans and the licensee's use of ALARA controls for each activity. The inspectors examined the work planning packages and the Pre-Job and In-Progress ALARA Review packages developed for work on the reactor water cleanup and the heater drain systems. The inspectors evaluated the licensee's use of engineering controls to achieve dose reductions. Specifically, the inspectors reviewed the work planning packages to verify that adequate person-hour estimates, job history



files, lessons learned, and industry experiences were utilized in the ALARA planning process. Additionally, work packages were evaluated for protective clothing requirements, respiratory protection concerns, electronic dosimetry alarm set points, use of remote telemetry dosimetry, radiation protection hold points, and ALARA considerations, to verify that work instructions and controls had been adequately specified and that electronic dosimeter set points were in conformity with survey indications.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning and ALARA Implementation

a. Inspection Scope

The inspectors reviewed radiation work permits and ALARA plans developed for the following CY 2002 work activities:

- Reactor water cleanup repair work
- Heater drain repair work

The inspectors assessed the adequacy of the radiological controls and work planning for each of the activities. The inspectors examined the radiological engineering controls and other dose mitigation techniques specified in these documents and reviewed job dose history files to verify that licensee and industry lessons learned were adequately integrated into each work package. The inspectors reviewed the exposure results for the selected activities to evaluate the accuracy of exposure estimates in the ALARA plan.

b. Findings

No findings of significance were identified.

.3 Verification of Exposure Goals and Exposure Tracking System

a. Inspection Scope

The inspectors evaluated the licensee's effectiveness in exposure tracking for CY 2002 to verify that the licensee could identify problems with its collective exposure and take actions to address them. The inspectors compared exposure estimates, exposure goals, job dose rates, and person-hour estimates for consistency to verify that the licensee could project, and thus better control radiation exposure. The inspectors examined job dose history files and dose reductions anticipated through the licensee's implementation of lessons learned to verify that the licensee could accurately forecast yearly exposure dose goals.

b. Findings

No findings of significance were identified.

.4 Job Site Inspections, Radiation Worker Performance, and ALARA Controls

a. Inspection Scope

The inspectors observed a work activity in the radiologically restricted area, that was performed in a radiation area, to evaluate the use of ALARA controls. Specifically, the inspectors reviewed the adequacy of radiation work permits and radiological surveys to assess job site ALARA controls, in part, for the transfer of condensate resin to a high integrity container for eventual transport and disposal. The inspectors examined instructions to the workers involved in the transfer, as well as engineering controls to minimize dose exposures, to verify that the licensee had maintained the radiological exposure for these work activities ALARA. The inspectors evaluated radiation protection technician performance for the aforementioned work evolution, as well as observed and questioned the workers at the job location, to verify that they had adequate knowledge of radiological work conditions and exposure controls.

b. Findings

No findings of significance were identified.

.5 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed the controls implemented by the licensee for two workers who voluntarily declared their pregnancy during CY 2002. The inspectors reviewed the licensee's adherence to the requirements contained in 10 CFR 20.1208 and station procedures and reviewed the licensee's evaluation of the dose to the workers' embryos/fetuses. Specifically, the inspectors examined the licensee's program to ensure that the declared pregnant workers' monthly and cumulative exposure for the gestation period were controlled so as not to exceed regulatory limits.

b. Findings

No findings of significance were identified.

.6 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed audits and self assessments performed by the licensee since January 2002 and CARDS generated in January 2002 thru November 2002 relative to the access control and ALARA programs. These reviews were conducted to determine if the licensee adequately identified individual problems and trends, evaluated

contributing causes and extent of condition, and developed corrective actions to prevent recurrence.

b. Findings

No findings of significance were identified.

**Cornerstone: Public Radiation Safety**

2PS3 Radiological Environmental Monitoring Program and Radioactive Material Control Programs (71122.03)

.1 Radiological Environmental Monitoring Annual Reports and Data Evaluation

a. Inspection Scope

The inspectors reviewed the 2001 Annual Radiological Effluent Release and Radiological Environmental Operating Report and the results of monthly radiological environmental monitoring analyses for January through September 2002. As part of this review, the inspectors evaluated the licensee's results for any positive sample results and evaluated the description of any missed samples, inoperable sampling equipment, or anomalous measurements. The inspectors also reviewed the results of the most recent land use census and changes made to the Offsite Dose Calculation Manual relative to the radiological environmental monitoring program (REMP). These reviews were conducted to verify that the REMP was implemented as required by Technical Specifications and the licensee's Offsite Dose Calculation Manual; that the licensee adequately assessed the impact of radiological releases on the environment, as identified by the REMP; and that any changes to the program did not affect the licensee's ability to monitor the impacts of radioactive effluents on the environment.

b. Findings

No findings of significance were identified.

.2 Walkdowns of the Radiological Environmental Monitoring Stations and Meteorological Tower

a. Inspection Scope

The inspectors walked-down 3-of-5 environmental air sampling stations, 7-of-67 thermoluminescence dosimeter locations, and 2-of-8 composite water sampling units to verify that they were located as described in the Offsite Dose Calculation Manual; to assess equipment material condition and operability; and to verify that monitoring station orientation, vegetation growth control, and equipment configuration allowed for the collection of representative samples. The inspectors also performed a visual inspection of the meteorological tower and associated instrumentation to verify that the tower was sited adequately and that instrumentation was installed consistent with Regulatory Guide 1.23, "Onsite Meteorological Programs." The inspectors observed and compared

primary and secondary meteorological sensor indications in the control room to determine if the instrumentation was operable.

b. Findings

No findings of significance were identified.

.3 Radiological Environmental Monitoring Equipment Testing and Maintenance

a. Inspection Scope

The inspectors reviewed meteorological tower sensor calibration and maintenance records (June 2001 through September 2002) to verify that the testing and maintenance programs for the equipment were implemented consistent with procedural requirements. During this review, the inspectors compared the recorded sensor indications at the meteorological tower and in the control room to identify any line loss differences. The inspectors also reviewed calibration and maintenance records for REMP air sampling equipment to verify that the activities were performed in accordance with the licensee's program and to verify that the equipment was properly maintained.

b. Findings

No findings of significance were identified.

.4 Environmental Sample Collection and Laboratory Quality Assurance

a. Inspection Scope

The inspectors accompanied a technician and observed the individual exchange air particulate filters and cartridges at three of five environmental air sampling stations. The observations were performed to determine whether samples were collected in accordance with the licensee's sampling procedure and to determine if appropriate analytical practices were used to ensure sample integrity. The inspectors also assessed the analytical detection capabilities and quality control practices of the contract laboratory used by the licensee to analyze its environmental samples. In particular, the inspectors reviewed the results of the laboratory's inter-laboratory comparison program to ensure that the program was implemented consistent with the Offsite Dose Calculation Manual and to verify that the vendor was capable of performing adequate radiological measurements.

b. Findings

No findings of significance were identified.

.5 Unrestricted Release of Material From Radiologically Controlled Areas

a. Inspection Scope

The inspectors evaluated the licensee's procedures and practices for the unrestricted release of material from radiologically controlled areas, for the survey of personnel leaving the Radiologically Controlled Areas and the site, and for responding to personnel contamination monitor alarms. Specifically, the inspectors reviewed the licensee's personnel survey and unconditional release program to verify that: (1) radiation monitoring instrumentation used to perform surveys of personnel and for unrestricted release of materials and equipment were appropriate; (2) instrument sensitivities were consistent with NRC guidance contained in Inspection and Enforcement Circular 81-07, "Control of Radioactively Contaminated Material," and Health Physics Positions in NUREG/CR-5569, "Health Physics Positions Database," for both surface contaminated material and material in volumetric form; (3) criteria for survey and unconditional release conformed to NRC requirements; and (4) licensee procedures were technically sound and provided appropriate guidance for survey techniques. The inspectors reviewed the licensee's most recent 10 CFR Part 61 analyses and its assessment of the plant's radio nuclide mix to determine if the potential impact of difficult to detect contaminants (such as those that decay by electron capture) was adequately evaluated and factored into the unrestricted release survey program.

b. Findings

No findings of significance were identified.

.6 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed audits and self assessments performed by the licensee since January 2001 and CARDS generated in January 2001 thru October 2002 relative to the REMP and radioactive material control programs. These reviews were conducted to determine if the licensee adequately identified individual problems and trends, evaluated contributing causes and extent of condition, and developed corrective actions to prevent recurrence.

b. Findings

No findings of significance were identified.

**3. SAFEGUARDS**

**Cornerstone: Physical Protection**

3PP4 Security Plan Changes (71130.04)

a. Inspection Scope

The inspector reviewed Revision 41 to the Physical Security Plan, submitted by licensee letter dated November 27, 2002. The review was conducted to verify that the changes did not decrease the effectiveness of the security plan. The revision was submitted in accordance with 10 CFR 50.54(p).

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator Verification (71151)

Radiological Effluent Technical Specification Offsite Dose Calculation Manual  
Radiological Effluent Occurrence Performance Indicators

a. Inspection Scope

The inspectors reviewed data associated with the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Performance Indicators to determine if these indicators were accurately assessed and reported since last reviewed in September 2001. Specifically, the inspectors reviewed the licensee's records to identify any potential occurrences that were not recognized by the licensee.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

1. Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors routinely review issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action system at an appropriate level, that corrective actions were performed in a timely manner and that adverse trends were identified and addressed. The inspectors selected the following documents to determine if problem characterization was accurate and to verify that extent of condition reviews were adequately completed or were in the process of being performed.

- CARD 02-16969, Simultaneous opening of E2150F005B while E2150F004B was open during testing

- CARD 02-14502, Increased activation products in reactor building super particulate iodine noble gas samples
- CARD 02-19051, Inadequate corrective action plan for CARD 02-10236 resulted in being out of compliance with MES08 procedure requirement for 2 years.
- Plan of the day line item No. 207, Division 1 CCHVAC cable tray cooling fan switch.
- CARD 02-14776; Rejectable Indications on Control Rod Drive Collets; August 22, 2002
- Several CARDS on Lubrication/Oil Corrective Actions

b. Findings

No findings of significance were identified.

.2 Condition Assessment Resolution Document 02-12595, Questions Raised Regarding Methodology Employed in Design Calculation DC-6086 Analysis of the Fuel Handling Accident

a. Inspection Scope

The inspectors reviewed CARD 02-12595, "Questions Raised Regarding Methodology Employed in Design Calculation DC-6086 Analysis of the Fuel Handling Accident." Because TS Amendment 144 was issued using this design calculation as a basis for the amendment, the inspectors reviewed for the following aspects:

- 1) If a fuel handling accident had occurred in Refueling Outage 8, would have the consequential thyroid dose to the operators been exceeded given that secondary containment was not intact before the waiting period for moving irradiated fuel had elapsed (i.e. 4 days vice 4 days, 8 hours)
- 2) If the findings in CARD 02-12595 should have been reported to the NRC for degraded plant safety barriers during Refueling Outage 8
- 3) Whether the Technical Specifications and associated Bases were deficient as described in Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety"
- 4) Whether the requirements of 10 CFR 50.9, "Completeness and Accuracy of Information," were met

b. Findings

No findings of significance were identified.

.3 CARD 02-19263; EECW Flow to T4100B019 was Left Lower than Design

a. Inspection Scope

In December 2002, the inspectors noted a test where low flow conditions occurred in the Division 2 EECW system similar to a low flow condition that occurred in December of 2001. The inspectors reviewed CARD 02-19263, "EECW Flow to T4100B019 was Left Lower than Design," and other CARDS involving low flow conditions in the EECW system. The inspectors reviewed work requests and interviewed station personnel to verify the operability of the system over a period of 1 year, extent of condition on the CARD and the effectiveness of the associated corrective actions.

b. Findings

The licensee discovered low flow conditions in December of 2001 on Division 2 EECW. Then, valves were adjusted on system loads to be brought within tolerance. In May of 2002, a CARD was written documenting that the flow meter used to determine the EECW Division 2 flows was out of tolerance by about 7 percent. This prompted the licensee to take two actions.

First, the licensee reviewed the as-left flows from the December 2001 test and incorporated the out of tolerance to determine if the system was inoperable. The licensee determined that the system remained operable.

Second, the licensee conducted a flow balance on Division 2 in December 2002 using newly purchased ultrasonic flow meters. The results of that test demonstrated that the Division 2 battery charger room cooler TB4100B044 was 1.5 gpm (6.5 gpm too low), the Division 2 hydrogen recombiner space cooler T4100B0037 was 4.8 gpm (7.2 gpm too low), and core spray space cooler was 45.9 gpm (5.1 gpm too low). To correct the problem, the licensee manipulated T4100B0037 and flows increased significantly. The licensee flushed the residual heat removal cooler, the thermal recombiner cooler and the battery room cooler and found black iron oxide corrosion. Black iron oxide had been found in a leaking non-interruptible air supply room cooler during Refueling Outage 7 while repairing the leaking cooler. The licensee stated that no instances of low flow conditions occurred as a result of corrosion in the EECW system in the past.

This item will be an unresolved item (**URI 50/341-02-001**) pending the inspectors' review of the following: 1) the licensee resolution to EECW corrosion issue, 2) the CARD database to identify previous occurrences of low flow due to corrosion and, 3) the past operability evaluations on the coolers with low flows mentioned above.

4OA3 Event Followup (71153)

(Closed) Unresolved Item 50-341/01-005-02: Risk Associated with Operation in Torus Cooling Mode Beyond Original Design Assumptions. This item involved the discovery that use of the residual heat removal system in the torus cooling mode had a higher risk than originally assumed. The issue screened out of the NRC's significance determination process on the basis that there was not a performance deficiency (i.e., the



system was operable). After consultation with NRR and the region's senior risk analysts, the issue was determined to be primarily a generic concern regarding how design issues are handled under the significance determination process. Therefore, this specific issue is being closed out and the underlying issue will be handled under an NRC internal process. This item is closed.

#### 4OA5 Other Activities

##### Completion of Appendix A to TI 2515/148, Revision 1

The inspectors completed the pre-inspection audit for interim compensatory measures at nuclear power plants, dated September 13, 2002.

#### 4OA6 Meetings

##### .1 Exit Meeting

The inspectors presented the inspection results to Mr. O'Connor and other members of licensee management at the conclusion of the inspection on January 10, 2002. The inspectors asked the licensee whether any material examined during the inspection should be considered proprietary. No proprietary information was identified.

##### .2 Interim Exit Meetings

Interim exits were conducted for:

- Maintenance Rule Implementation with Mr. W. O'Connor on October 3, 2002
- Radiation Protection inspection with Mr. R. Libra on October 25, 2002
- Radiation Protection inspection with Mr. D. Cobb on December 18, 2002.

## KEY POINTS OF CONTACT

### Licensee

D. Cobb, Director, Nuclear Production  
D. Craine, Supervisor, Radiological Engineering  
H. Higgins, Manager, Radiation Protection  
K. Hlavaty, Manager Maintenance/Acting Plant Manager  
M. Koenemann, Maintenance Rule Engineer/Performance Engineering  
J. Korte, Security Manager  
T. Lashley, Radiological Engineering  
W. O'Connor, Vice President Nuclear Generation  
N. Peterson, Manager - Nuclear Licensing  
J. Tibai, Supervisor, Performance Engineering  
D. Williams, Radiation Protection Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-341/02-11-01      URI    EECW Corrosion Issue

Closed

50-341/01-005-02      URI    Operation in Torus Cooling Mode

## LIST OF ACRONYMS USED

ALARA	As-Low-As-Reasonably-Achievable
CARD	Condition Assessment Resolution Document
CCHVAC	Control Center Heating Ventilation Air Conditioning
CFR	Code of Federal Regulations
CY	Calendar Year
EECW	Emergency Equipment Cooling Water
HPCI	High Pressure Coolant Injection
MPU	Motor Power Unit
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
REMP	Radiological Environmental Monitoring Program
SSC	Structures, Systems, and Components
UFSAR	Updated Final Safety Analysis

## LIST OF DOCUMENTS REVIEWED

### 1R01 Adverse Weather

Procedure 27.000.04; Freeze Protection Lineup Verification; Revision 23

Detroit Edison Letter GP-86-0014; "CTG Fuel Oil Warmer Installation"; dated December 10, 1986

CARD 02-01859; Transformer #1 LTC Heater not Working;" dated November 2, 2002.

LER 255-94001; "Ice and Snow Clog Control Room Heating Ventilating and Air Condition Intake;" dated January 21, 1994.

CARD 02-19576; "OTH 02-133: Ice and Snow Clog Control Room Heating Ventilating and Air Condition Intake at Palisades;" dated November 7, 2002

Cold Weather Report; dated October 29, 2002

Abnormal Operating Procedure 20.000.01, "Tornado;" Revision 32.

### 1R04 Equipment Alignment

CARD 02-01695; "Holes in Fencing to Isolation Transformers;" dated October 12, 2002

Job ID EN57021014; "Perform Environmental Protection Weekly/Monthly Checks - Inside Protected Area;" dated October 14, 2002.

CARD 02-19545; "Transformer 2B Needs Resample for Oil Analysis;" October 11, 2002

CARD 02-01696; "EPA Checks Unsat."

CARD 02-19589; "EECW Piping to Control Air Compressors Rusty."

Licensee Event Report: 315/97-026; "Lack of Overpressure Protection on Control Air Headers;" dated September 25, 1997

Drawing 6M721-5730-1, "Station Air System Functional Operating Sketch;" Revision Y

### 1R07 Heat Sink Performance

Division 1 EECW Heat Exchanger Performance Test Results Trend; dated September 24, 2002

Division 2 EECW Heat Exchanger Performance Test Results Trend; dated September 24, 2002

Job TG1202065; Perform 47.207.01 Division 1 EECW Heat Exchanger Performance Test; dated September 24, 2002

Job TG1302910; Perform 47.207.02 Division 2 EECW Heat Exchanger Performance Test; dated September 11, 2002

Procedure 47.207.01; EECW Division 1 Heat Exchanger Performance Test; Revision 30  
Procedure 47.207.02; EECW Division 2 Heat Exchanger Performance Test; Revision 31

#### 1R11 Licensed Operator Regual

SS-OP-904-1020; CRD Pump Trip / Loss of FW / LOCA; Revision 0

SS-OP-904-1051; Act of Nature / Loss of Air / ATWS; Revision 0

#### 1R12 Maintenance Rule Implementation

MMR01; Fermi 2 Maintenance Rule Conduct Manual - Introduction; Revision 0

MMR02; Fermi 2 Maintenance Rule Conduct Manual - Maintenance Rule Program Description; Revision 0

MMR03; Fermi 2 Maintenance Rule Conduct Manual - Scoping; Revision 0

MMR04; Fermi 2 Maintenance Rule Conduct Manual - Determination of Risk Significance; Revision 0

MMR05; Fermi 2 Maintenance Rule Conduct Manual - Determination of SSC Functions; Revision 0

MMR06; Fermi 2 Maintenance Rule Conduct Manual - Establishing Performance Criteria; Revision 0

MMR07; Fermi 2 Maintenance Rule Conduct Manual - Expert Panel; Revision 0

MMR08; Fermi 2 Maintenance Rule Conduct Manual - SSC Classification; Revision 0

MMR09; Fermi 2 Maintenance Rule Conduct Manual - Establishment of Get Well Plans; Revision 0

MMR10; Fermi 2 Maintenance Rule Conduct Manual - Monitoring; Revision 0

MMR11; Fermi 2 Maintenance Rule Conduct Manual - Periodic Assessment; Revision 0

MMR12; Fermi 2 Maintenance Rule Conduct Manual - Equipment Out of Service Risk Management; Revision 0

MMR13; Fermi 2 Maintenance Rule Conduct Manual - Self Assessment of Practices and Processes Effectiveness; Revision 0

MMR14; Fermi 2 Maintenance Rule Conduct Manual - Structures Monitoring; Revision 0

MMR Appendix A; Fermi 2 Maintenance Rule Conduct Manual - Forms; Revision 0

MMR Appendix B; Fermi 2 Maintenance Rule Conduct Manual - Terms and Definitions; Revision 0

MMR Appendix C; Fermi 2 Maintenance Rule Conduct Manual - Maintenance Rule Scoping Summary Report; Revision 0

MMR Appendix D; Fermi 2 Maintenance Rule Conduct Manual - Guidelines for Determining Functional Failures (FF) and Maintenance Preventable Functional Failure (MPFF); Revision 0

MMR Appendix E; Fermi 2 Maintenance Rule Conduct Manual - Maintenance Rule SSC Specific Functions; Revision 0

MMR Appendix F; Fermi 2 Maintenance Rule Conduct Manual - Maintenance Rule Performance Criteria; Revision 0

MMR Appendix G; Fermi 2 Maintenance Rule Conduct Manual - Risk Significance List; Revision 0

MMR Appendix H; Fermi 2 Maintenance Rule Conduct Manual - On-line Maintenance Risk Matrix; Revision 0

Enrico Fermi 2 Maintenance Rule Periodic Assessment Report - October 2000 through April 2002; July 25, 2002

Enrico Fermi 2 Maintenance Rule Periodic Assessment Report - May 1999 through September 2000; January 17, 2001

List of Work Requests 5/01/1999 to 4/30/2002 for EECW, RHR, RHRSW, and RCIC

List of Open and Closed CARDS 5/01/1999 to 4/30/2002 for EECW, RHR, RHRSW, and RCIC

Self-Assessment Report - 2001 EDG Reliability Review (5/03/01 to 06/28/01); July 6, 2001

Program Health Report Fermi 2 - Maintenance Rule Program (2<sup>nd</sup> Quarter 2002); July 2002

Performance Engineering Group Reports (May 1999 - June 2001)

Self-Assessment of Maintenance Rule Functional Failure Reviews; December 29, 2000

Self-Assessment of System Engineering Monitoring of Maintenance Rule; June 26, 2002

Self-Assessment of 10 CFR 50.65 (a)(4) Implementation; December 29, 2000

Performance Criteria Changes (5/1/99-4/30/02); October 1, 2002

Maintenance Rule Functional Failure Evaluations (May 1999 - September 2002);  
October 1, 2002

Log No. 01-001; Maintenance Rule Program Position - RHR and RHRSW OOS Hours  
Guidelines and CP Calculations; June 15, 2001

TMIS-99-0043; Summary of Expert Panel Meeting 89 Conducted May 4, 1999; May 7,  
1999

TMIS-99-0124; Summary of Expert Panel Meeting 97 Conducted October 5, 1999;  
October 14, 1999

TMIS-00-0083; Summary of Expert Panel Meeting 105 Conducted June 6, 2000;  
June 29, 2000

TMIS-00-0087; Summary of Expert Panel Meeting 106 Conducted June 27, 2000;  
July 5, 2000

TMIS-00-0150; Summary of Expert Panel Meeting 122 Conducted October 5, 2000;  
October 19, 2000

TMIS-01-0002; Summary of Expert Panel Meeting 111 Conducted October 31, 2000;  
January 8, 2001

TMIS-01-0038; Summary of Expert Panel Meeting 115 Conducted February 6, 2001;  
April 19, 2001

TMIS-01-0076; Summary of Expert Panel Meeting 120 Conducted May 1, 2001;  
May 1, 2001

TMIS-01-0110; Summary of Expert Panel Meeting 122 Conducted July 3, 2001; July 6,  
2001

TMIS-01-0204; Summary of Expert Panel Meeting 129 Conducted December 18, 2001;  
December 26, 2001

TMIS-02-0023; Summary of Expert Panel Meeting 130 Conducted January 8, 2002;  
January 28, 2002

TMIS-02-0093; Summary of Expert Panel Meeting 135 Conducted April 16, 2002, and  
July 3, 2002

List of Systems in the Maintenance Rule By PIS# and System Name; October 1, 2002

PSA Basis for the Maintenance Rule (MR) Performance Criteria for EECW, RHR,  
RHRSW, and RCIC; October 1, 2002



System Health Reports for EECW, RHR, RHRSW, and RCIC.(2nd Quarter); July 2002

LER No. 00-005; Pressure Isolation Valve Leak Test Failure; May 8, 2000

LER No. 01-003; Pressure Isolation Valve Leak Test Failure; November 9, 2001

CARD 98-10631; Refueling Platform Get Well Plan; July 25, 2000

CARD 98-11001; PASS Get Well Plan; May 28, 1999

CARD 98-12369; General Service Water Get Well Plan; July 24, 2000

CARD 98-12433; Rockwell Edwards Lift Check Valves Get Well Plan; December 17, 1998

CARD 98-16353; N3021 Turbine Control Valves Get Well Plan; June 8, 2000

CARD 98-18706; Reactor Recirculation System Get Well Plan; July 28, 2000

CARD 98-12413; Reactor Safety Relief Valves Get Well Plan; December 17, 1998

CARD 98-12691; Emergency Diesel Generator Get Well Plan; September 21, 2001

CARD 00-19481; Residual Heat Removal Get Well Plan; April 10, 2001

CARD 01-20794; Feedwater and RHR Injection Check Valves Get Well Plan; February 26, 2002

CARD 02-11761; Untimely Maintenance Preventable Determinations; May 22, 2002

#### CARDs Issued as a Result of Inspection

CARD 02-19535; Excess Plant System Leakage as a Functional Failure; October 2, 2002

CARD 02-19537; Use of MPFFs may Under Estimate Actual Risk Conditions; October 3, 2002

CARD 02-19538; Containment Hatches and Air Locks Scoped into the Maintenance Rule; October 3, 2002

#### 1R13 Maintenance Risk Assessment and Emergent Work

Event Notification Report, U.S. Nuclear Regulatory Commission, Operation Center; Event Number: 39236; November 18, 2002

CARD 02-18019; Potential Part 21 Reportable Condition, Non-Conservative T-Min Setpoint in OPRM System; November 21, 2002.

CARD 02-21178; High Bearing Temperature Div 2 CCHVAC Return Air Fan Inboard Bearing; November 25, 2002

CARD 02-19753; Bearing Failure; November 25, 2002

WR 000Z023643; High Bearing Temperature Div 2 CCHVAC Return Air Fan Inboard Bearing; November 25, 2002

CARD 02-16572; Unexpected Closure of HPCV #3; December 4, 2002

WR 000Z023745; Unexpected Closure of HPCV #3, Troubleshoot and Repair; December 4, 2002

CARD 02-21249; MG Set Brushes are Sticking in Brush Boxes; December 3, 2002

AD27021202; Perform Recirc MG Set Exciter Brush and Collector Ring Wear Inspection; December 4, 2002

EDP 30764; Revise MG Set Brush Assembly; Revision 0

#### 1R14 Nonroutine Plant Evolutions

Circulating Water Pumps # 1 through 5 Vibration data

CARD 02-19481; Evaluate Circ Water Pump Discharge Valve Shear Pin Material; October 4, 2002

CARD 02-16210; Reactor Scram Due to #2 Circ Water Pump Failure; October 3, 2002

Post Scram Data Evaluation 02-01 for Circulating Water Pump #2 Failure; dated October 2, 2002

MES11; Post Event Investigations; Revision 10

Transient Analysis Program Report for Reactor Scram 02-01(ISEG Report 02-007); dated October 22, 2002.

Drawing E4220M; Model Xline Butterfly Valve

Control Room Logs for October 2, 2002

Vendor Manual VMC2-34; Triton Rubber Seat Butterfly Valves; Revision A

Design Calculation DC 5413; Torque and TSS Evaluation; Revision O

Drawing 6SD721-2530-2; 12VAC Instrument and Control Power Feeders, BOP-1 and -2 Reactor Building; Revision R

Drawing 6I721-2115-01; Schematic Diagram of Reactor Manual Control System, Relay Switch and Connector Tabulation; Revision O

Drawing 6I721-2115-11; Schematic Diagram of Reactor Manual Control System Rod Control Relays and Circuits

Vendor Manual VMC 6-5; Solid State Timer - GEK-34652B; Revision A

Control Room Logs for December 28, 2002.

CARD 02-16674; Degrade Voltage from MPU 3 Cabinet 2; dated December 28, 2002

### 1R15 Operability Evaluations

CARD 02-12902; Drywell Cooling Fan Vibration Alarm Setpoint Change; March 7, 2002

TSR - 31866; Drywell Cooling Fan Vibration Alarm Setpoint Change; April 13, 2002

WR 000Z020343; Implement TSR 31866 to change vibration setpoint on DW cooling fans #1, #2 and #7 (vibration detectors T47N001A, T47N001B and T47N001G); October 24, 2002

WR 000Z020419; Implement TSR 31866 to change vibration setpoint on DW cooling fans #3, #4, #10, #11, #12, #13 and #14 (vibration detectors T47N001C, T47N001D, T47N001J, T47N001K, T47N001L, T47N001M and T47N001N); October 24, 2002

CARD 02-11585; Potential "Jack Rabbit Start" of HPCI Steam Stop Valve E4100F067; January 12, 2002.

LCO 02-0404; HPCI EFA Potential Opening Transient on E4100F067; October 18, 2002.

EFA-E41-02-005; MES 27 Operability Evaluation; Potential Opening Transient on E4100F067; Revision 2

Event Notification Report, U.S. Nuclear Regulatory Commission, Operation Center; Event Number: 39236; November 18, 2002

CARD 02-18019; Potential Part 21 Reportable Condition, Non-Conservative T-Min Setpoint in OPRM System; November 21, 2002.

Technical Service Request 32279; Change OPRM Tmin and Tmax Values in CSCCD-C51K625/C51R809A, CSCCD-C51K610/C51R809B, CSCCD-51K614/C51R809A and CSCCD-51K618/C51R809B; Revision O.

Work Request 000Z023654; OPRM #1 has non-conservative Tmin Setpoint, change Tmin and Tmax per TSR 32279; dated December 18, 2002

Work Request 000Z023657; OPRM #2 has non-conservative Tmin Setpoint, change Tmin and Tmax per TSR 32279; dated December 18, 2002

Work Request 000Z023658; OPRM #3 has non-conservative Tmin Setpoint, change Tmin and Tmax per TSR 32279; dated December 18, 2002

Work Request 000Z023659; OPRM #4 has non-conservative Tmin Setpoint, change Tmin and Tmax per TSR 32279; dated December 18, 2002

#### 1R16 Operator Workarounds

Operator Work Around 02-009; Poor Performing Feedwater Heater Level Controls have Complicated Power Transients and Power Maneuvers; April 8, 2002

ODE-006; Open Operator Work Arouns; July 2002

Aggregate Assessment of Operator Work Arouns; July 19,2002

Risk Assessment of Revised Operator Work Arouns; July 2002

CARD 02-13661; Feedwater Heater Level Controls are Challenging Operations; April 4, 2002.

#### 1R17 Permanent Plant Modifications

VMS22; Gould Vertical Pump RHRSW Pump Curves; dated August 19, 1975

VMS22; Gould Vertical Pump EESW Pump Curves; dated June 24, 1977

VMS22; Gould Vertical Pump DGSW Pump Curves; dated October 27, 1977

Design Calculation 5893; Cold Water Bypass Orifice Sizing; Revision 00

SOE 96-06; Test Results (no orifice), One Run Through Bypass and Multiple Runs through Towers; dated April 16, 1996

EDP 29475; EECW Makeup Tank Operation - Bypass Orifice; Revision 0

#### 1R19 Post Maintenance Testing

24.413.03; Division 2 CCHVAC 10 Hour Operability test; Revision 31

24.409.01; Division 2 Post LOCA Thermal Recombiner Functional Test; Revision 31

24.220.04; Division 2 Hydrogen Recombiner Heater Test and Inspection; Revision 26

000Z014374; Center TBHVAC Fan Vibration

000Z014716; Div 1 Auxiliary Building Switchgear A/C unit Not Working Properly

000Z023372; Div 1 Thermal Recombiner Failed to Reach 1150 Degrees F within 75 minutes

CARD 02-16354; Division 1 Thermal Recombiner System Failed Surveillance; dated November 2, 2002

Job 0212021112, Perform 42.220.04 Division 2 Hydrogen Recombiner Heater Test and Inspection, dated 11/16/02

### 1R23 Temporary Plant Modifications

CARD 02-12754; BCDDs not Updated after Removal of the CCHVAC Economizer Mode; dated October 2, 2002.

FMR S-7679; Disconnect Economizer Cycle from the Control Center HVAC System; dated January 18, 1985

UFSAR Section 14.1.3.2.46; Main Control Room Heating, Ventilation, and Air Conditioning System Preoperational Test; Revision A

CARD 01-14004; EDG 14 High Temperature on Generator Outboard Bearing Resulted in Engine Shutdown, Fire, and Alert Declaration; dated March 21, 2001

MES 12; Performing Temporary Modifications; Revision 8

WR 000Z021520; Division 1 CCHVAC Return Air Modulating Damper Limit Switch Cal Requested; dated May, 2, 2002

TSR 26904; T41N463B Setpoint Change; dated August 25, 1994

WR 000Z011799; Replace Diaphragm with Silicone Diaphragm

Drawing 6I721-2611-14; Reactor Building Main Control Room A/C Isolation Dampers Division 1; Revision R

Drawing 6I721-2611-15; Reactor Building Main Control Room A/C Isolation Dampers Division 2; Revision Q

Drawing 5I721-2612-80; Connection Diagram Auto Temp Control System for Control Center-Reactor Building Pneumatic Piping Panel H21P296B; Revision L

Drawing 5I721-2612-78; Auto Temp Control System for Control Center-Reactor Building Pneumatic Piping Conn Dia Panel H21-P296A; Revision K

### 2OS1 Access Control to Radiologically Significant Areas

Audit Report 02-0112; Nuclear Quality Assurance Audit of Radiation Protection, Radioactive Effluent Monitoring, Radiological Material, Transfer and Disposal, and

Non-Radiological Environmental Protection Programs; dated October 7 through November 25, 2002

FME Material Log for the Spent Fuel Pool; dated December 18, 2002

Fermi 2 RPM System Special Material Report; dated December 18, 2002

MMM10; Radioactive Material Procurement and Accountability; Revision 7

MMM07; Foreign Material Exclusion (FME); Revision 4

MRP04; Accessing and Working in the Radiologically Restricted Area (RRA); Revision 10

MRP06; Accessing and Control of High Radiation, Locked High Radiation, and Very High Radiation Areas; Revision 5

63.000.100; Radiation Work Permits; Revision 18

67.000.100; Posting and De-Posting of Radiological Hazards; Revision 11

CARD 02-10730; Worker Entered Radiation Area on Wrong RWP; dated September 5, 2002

CARD 02-18940; Evaluate Eliminating Use of General RWPs; dated September 12, 2002

## 2OS2 ALARA Planning and Control

CARD 02-14162; Enhancements to 63.000.200; ALARA Reviews

CARD 02-19126; Review Instructions for Post-Job ALARA Reviews; dated November 6, 2002

CARD 02-21278; Ambient Radiation Dose Discrepancies Found in Station Office Areas; dated December 11, 2002

Detroit Edison Fermi 2 2002 Radiological Performance Charts; Includes 1985 to Present Data and Breakdown by Work Groups

Graphic of Hydrogen Water Chemistry Injection Versus Radiation Dose Rate for 6 South Work Locations at 100% Power

MRP 05; Radiation Protection Conduct Manual, ALARA/RWPS; Revision 3

MRP 10; Radiation Protection Conduct Manual, Fetal Protection Program; Revision 3

MRP 10002; Radiation Protection Conduct Manual, Fetal Protection Program, Pregnancy Notification Form for two (2) workers; Revision 3

RWP 02-1009; Surveillance, tours, and walkdowns by the NRC; Revision 0

RWP 02-0002; General Access to RRA for Inspections; Revision 0

RWP 02-1034; Heater Drain Work; Revision 1

RWP 02-1047; RWCU Work, RWP Activity Summary tasks Listing

RWP 02-1047; RWCU work, Anticipated work area hazards and Radiological Planning Checklist

RWP 02-1047; RWCU Work, Pre-job ALARA Reviews, Parts I and II; dated July 17, 2002

RWP 02-1047; RWCU Work, Job in Progress Reviews; dated August 21, September 18, and November 11, 2002

RWP 02-1047; Heater Drain work, Radiological Pre-Briefing Forms

RWP 02-1047; Heater Drain work, Shielding Authorization Form; dated July 18 and October 11, 2002

RWP 02-1047; Heater Drain work, Very High and Locked High Radiation Area, Stay Time Log sheets; dated September 18 and 19, 2002

RWP 02-1047; Heater Drain work, RWP Job Coverage Record, dated September 17, 2002

RWP 02-1034; Heater Drain Work, RWP Activity Summary tasks listing

RWP 02-1034; RWCU work, Anticipated Work Area Hazards and Radiological Planning Checklist

RWP 02-1047; RWCU work, Pre-job ALARA Reviews, Parts I and II; dated February 26, 2002

RWP 02-1047; RWCU Work, Job in Progress Reviews; dated January 23, March 23, May 17, September 6, September 12, September 24, and December 3, 2002

RWP 02-1034; Heater Drain Work;, Radiological Pre-Briefing Forms

63.000.200; Plant Technical Procedure - Fermi 2, ALARA Procedure; Revision 14

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

24.000.02; Shiftly/Daily -- Mode 1, 2, 3 -- Control Room; performed on October 13, 2002 through October 24, 2002

44.100.001; Meteorological Monitoring -- Wind Speed Channel Calibration; Revision 29 (performed on October 17, 2001; October 24, 2001; April 17, 2002; and April 18, 2002)

44.100.002; Meteorological Monitoring -- Wind Direction Channel Calibration; Performed on October 17, 2001; October 19, 2001; April 17, 2002; and April 18, 2002

44.100.003; Meteorological Monitoring -- Air Temperature Difference Channel Calibration; Revision 31 (performed on October 17, 2001; October 18, 2001; April 17, 2002; and April 18, 2002)

45.100.001; Meteorological Computer System Preventative Maintenance; Revision 6 (performed on January 1, 2002 through August 2, 2002)

45.614.008; Meteorological Monitoring -- Primary System Maintenance; Revision 5 (performed on October 17 - 18, 2001 and April 15 - 16, 2002)

45.614.009; Meteorological Monitoring -- Secondary System Maintenance; Revision 3 (performed on October 17 - 18, 2001 and April 15 - 16, 2002)

66.000.223; Calibration of the Eberline PCM-1B Personnel Contamination Monitor; Revision 3 (performed on September 16, 2002 (Serial No. 877) and October 7, 2002 (Serial No. 337))

66.000.232; Calibration of the Hydro Nuclear Services Model ATF-1 Automated Tool Frisker; Revision 5 (performed on October 4, 2002 (Serial No. 8907029) and October 8, 2002 (Serial No. 8906025))

66.000.245; Calibration of the NE SAM11 Small Articles Monitor; Revision 0 (performed on March 27, 2002 (Serial No. 281); April 30, 2002 (Serial No. 310); September 3, 2002 (Serial No. 281); September 5, 2002 (Serial No. 306); and September 5, 2002 (Serial No. 308))

66.000.419; Calibration of the Eberline Personnel Contamination Monitor (PCM-2); Revision 4 (performed on September 23, 2002 (Serial No. 216))

CARD 01-19790; Contaminated Tool Found Outside of RRA; dated October 12, 2001

CARD 02-15061; Radioactive Material Found Outside of RRA; dated May 24, 2002

CARD 02-15175; REMP Surveillances Do Not Clearly Reflect ODCM Requirements; dated June 26, 2002

CARD 02-18672; NEI HP Forum Trip Report -- Evaluate Performing Dumpster Surveys; dated August 27, 2002

CARD 02-18893; Site Sweep Survey Results Using the Small Articles Monitor (SAM); dated September 9, 2002



CARD 02-18930; Investigate Improvements to Air Monitoring Stations; dated September 10, 2002

CARD 02-18931; Investigate Improvements to Groundwater Monitoring Stations; dated September 11, 2002

CARD 02-18942; Contaminated Items Found with Small Article Monitor (SAM); dated September 12, 2002

CARD 02-19675; Items Surveyed Outside the RRA Alarmed the Small Articles Monitor (SAM); dated October 2, 2002

CARD 02-19897; REMP Procedures Reference Performance Form (PF) Instead of Surveillance Performance Form (SPF); dated October 9, 2002

CARD 02-19921; Vegetation Surrounding REMP Air Sampling Locations; dated October 23, 2002

CARD 02-19925; SAM-11 Detector Efficiency Determination; dated October 24, 2002

CARD 02-19926; Minor Problems Found in 2001 Annual Environmental Operating Report During NRC Inspection; dated October 23, 2002

EL 161/02; Analytical Services, Semi-Annual Quality Assurance Status Report, January - June 2002; October 4, 2002

MRP 02; Administrative Controls; Revision 6

MRP 04; Accessing and Working in the Radiologically Restricted Area (RRA); Revision 10

MRP 18; Release of Potentially Clean Fluids; Revision 8

MRP 25; Release of Potentially Clean Bulk Solids; Revision 3

MRP 18001; Oil Release Checklist; Revision 9 (performed for release Nos. L02-0058, L02-0060, L02-0061, and L02-0062)

MRP 18002; Non-Oil Release Checklist; Revision 2 (performed for release Nos. L02-0065 and L02-0066)

MRP 18005; Gamma Spectrometry LLD [lower limit of detection] Assessment; Revision 2 (performed on July 26, 2002; August 23, 2002; September 17, 2002; and October 1, 2002)

MRP 18006; Gamma Spectrometry Critical Level Assessment; Revision 2 (performed on July 26, 2002; August 23, 2002; September 17, 2002; and October 1, 2002)

Nuclear Generation Memorandum NPRC-99-0206; Documenting the Selection of Alarm Setting for Eberline Personnel Contamination Monitors (PCM) and Automatic Tool Frisker (ATF) Operation at Fermi 2; dated June 7, 1999

Nuclear Generation Memorandum NPRC-00-0372; Fermi's Site-Specific Internal Sensitivity Check for the PCM-1B; dated November 16, 2000

Nuclear Generation Memorandum NPRC-02-0083; Evaluation of Setpoint, Check Source, and Self-Shielding for SAM11; dated March 7, 2002

Nuclear Generation Memorandum NPRC-02-0237; The Impact of the Current Fermi 2 Radionuclide Mix on Radiation Surveys; dated July 22, 2002

Nuclear Quality Assurance (NQA) Audit Checklist and Plan 02-0112; Radiation Protection Program; Performed on October 7, 2002 through November 15, 2002

NQA Audit Report 01-0101; Radiological Effluents and Radioactive Material Transfer and Disposal; dated March 8, 2001

NQA Audit Report 01-0115; Radiation Protection Program; dated December 10, 2001

NUPIC Audit No. 17944; dated May 2, 2001

NUPIC Audit Close-Out, Audit No. 17944; dated March 12, 2002

Radiological Surveys Nos. 01373R02; 01521R02; 01649R02; 02043R02; 02070R02; 02282R02; 02396R02; and 02754R02.

System Health, Fermi 2, D400, Meteorological Monitoring System; 3rd and 4th Calendar Quarters 2001 and 1st, 2nd, and 3rd Calendar Quarters 2002

#### 3PP4 Security Plan Changes

Fermi 2 Physical Security Plan; Revision 41, dated November 27, 2002

#### 4OA1 Performance Indicator Verification

Quarterly Offsite Dose Calculations for the First Calendar Quarter of 2001 through the Third Calendar Quarter of 2002

#### 4OA2 Identification and Resolution of Problems

CARD 02-21186; Impact of T4100C053 is not Fully Evaluated; November 27, 2002

CARD 02-17577; Request Evaluation of Operability of Div 1 SGTS When T4100C053 is Unavailable

WR A431020100; Recal Div 1 HVAC Cable Tray Cooling Fan Start Temperature Switch; November 27, 2002

CARD 02-17041; Valve Leakage Results in RWCU Exceeding Overall System Leakage Criteria

Nuclear Generation Memorandum; Assessment of Alpha Activity in Plant Air Samples; December 20, 2001

CARD 02-14502; Increased Activation Products in RB SPING Samples; May 10, 2002

CARD 01-15467; Evaluate Increasing Trend in Alpha Activity on RB SPING Particulate Filters; June 1, 2001

CARD 02-16969; Simultaneous Opening of E2150F005B While E2150F004B Open During MPM Testing; July 16, 2002

CARD 02-18693; Work Impact not Completely Identified; September 18, 2002

CARD 02-19436; Required Test not Performed Before WR Release to Work; October 18, 2002

CARD 02-19424; Protection not IAW MOP12; October 18, 2002

CARD 02-16018; CARD Review Board Recommends Organizational and Human Performance Collective Self Assessment of Significant CARDS; September 25, 2002

CARD 02-12735; Enhancements for PSA Maintenance Configuration Risk Screening; September 18, 2002

CARD 02-19103; Corrective Action for Level 3 CARD 02-18693, "Work Impact not Completely Identified," were not identified and Subsequently Closed to Level 1 CARD 02-16969 as a Duplicate CARD; October 21, 2002

CARD 01-11458; Unexpected Actuation Received During Tagout for D2 CCHVAC; May 22, 2001

CARD 02-19051; Audit Finding: Inadequate Corrective Action Plan for CARD 00-10236 Resulted in Being Out of Compliance with MES08 Procedure Requirements for 2 Years; September 5, 2002

CARD 00-10236; Key Safety Related Vendor Manuals not Contacted Within the 3 Year Period of Time as Specified in MES08; August 16, 2000

CARD 02-12595; Questions Raised Regarding Methodology Employed in Design Calculation DC-6086 Analysis of the Fuel Handling Accident; August 7, 2002.

CARD 02-14776; Rejectable Indications on CRD Collets; August 22, 2002

CARD 00-10173; Key Safety Related Manuals for Byron Jackson, Westinghouse and Staham Still Need Recontact; July 18, 2000

CARD 02-19263; EECW Flow to T41B019 was Left Lower than Design (Div 2 RHR Room Cooler); dated December 12, 2002

CARD 02-16602; Flows to Div 2 EECW Throttled Loads Outside Required Bands; dated December 11, n2002

Job ID AJ93021211; Division 2 EECW Throttled Valve Flow Verification; dated 12/11/01

CARD 00-24373; MES08 (Control of Vendor Technical Manuals) Enclosure 'B' was Identified with a Discrepancy; December 27, 2000