

August 3, 2005

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

SUBJECT: FERMIL POWER PLANT, UNIT 2
NRC INTEGRATED INSPECTION REPORT 05000341/2005012

Dear Mr. O'Connor:

On June 30, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Fermi Power Plant, Unit 2. The enclosed report documents the inspection findings that were discussed on July 14, 2005, with you 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, three findings of very low significance with associated violations of NRC requirements were identified. In addition, one issue was reviewed under the NRC's traditional enforcement process and was determined to be a Severity Level IV violation of NRC requirements. However, because these findings were of very low safety significance and because the issues were entered into your corrective action program, the NRC is treating these violations as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of a 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 a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Fermi 2 facility.

W. O'Connor, Jr.

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Sincerely,

/RA/

Eric Duncan, Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000341/2005012
w/Attachment: Supplemental Information

cc w/encl: N. Peterson, Manager, Nuclear Licensing
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REGION III

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

Report No: 05000341/2005012

Licensee: Detroit Edison Company

Facility: Fermi Power Plant, Unit 2

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

Dates: April 1 through June 30, 2005

Inspectors: S. Campbell, Senior Resident Inspector
T. Steadham, Resident Inspector
R. Jickling, Emergency Preparedness Analyst
P. Lougheed, Senior Engineering Inspector
W. Slawinski, Senior Radiation Specialist

Approved by: E. Duncan, Chief
Branch 6
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000341/2005012; 04/01/2005-06/30/2005; Fermi Power Plant, Unit 2; Event Followup, Emergency Response Organization Augmentation Testing, Correction of Emergency Preparedness Weaknesses and Deficiencies.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections in the areas of radiation protection, emergency preparedness, and biennial heat sink. The inspection was conducted by the resident inspectors as well as Region-based inspectors. One Severity Level IV Non-Cited Violation (NCV) and three Green findings with associated NCVs were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 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.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- C Green. A finding of very low safety significance was self-revealed when a steam isolation valve failed to close during surveillance testing on August 12, 2004. The licensee later discovered a section of insulation missing from the steam line that could have affected the ability of the valve to close due to increased heating of the actuator wiring.

The finding was determined to be more than minor because it would become a more significant safety concern if left uncorrected. The finding was of very low safety significance because the inboard steam isolation valve remained operable. A Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified. Immediate corrective actions included replacing valve wiring and installing insulation on the pipe. (Section 40A3.1)

Cornerstone: Emergency Preparedness

- C Severity Level IV. The inspectors identified a Non-Cited Violation of 10 CFR 50.47(b)(2) when the process for timely augmentation of on-shift staff was revised for the station nuclear engineer (SNE) position without performing a review to determine if the change decreased the effectiveness of the emergency plan. The inspectors determined this change decreased the effectiveness of the emergency plan and that the licensee did not obtain prior NRC approval contrary to the requirements of 10 CFR 50.54(q). The primary cause of this finding was related to the cross-cutting area of human performance since changes were made to the emergency response organization augmentation process without an appropriate organizational review.

Because the issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process as specified in Section IV.A.3 of the Enforcement Policy. This issue was determined to be a Severity Level IV violation

because it involved a failure to meet a requirement not directly related to assessment and notification. Further, this problem was isolated to one 30-minute responder position and was not indicative of a functional problem with the emergency response organization augmentation process. Corrective actions included discussions with the SNEs that it was no longer acceptable to remotely activate the 3-D Monocore program to respond to an emergency at the plant instead of responding to the control room and that response to the control room was required within 30 minutes of the declaration of an emergency at the plant. In addition, the Emergency Call Out System test forms were revised to remove the option for the SNE to activate the software remotely in lieu of responding to the control room. (Section 1EP3)

- C Green. A finding of very low safety significance and an associated Non-Cited Violation of 10 CFR 50.47(b)(4) was self-revealed on February 7, 2005, when operators failed to declare an Unusual Event upon determining that an area radiation monitor reading inside secondary containment exceeded the maximum normal operating level for the area. The primary cause of this finding was related to the cross-cutting area of human performance since licensed operators failed to recognize that an Emergency Action Level threshold had been exceeded and an Unusual Event declaration was required.

The finding was more than minor because it was associated with the Emergency Preparedness Cornerstone attribute of Response Organization Performance and affected the cornerstone objective of providing reasonable assurance that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was of very low safety significance because although it involved an actual Unusual Event and the finding involved a failure to comply with the emergency plan, there were no indications of Planning Standard problems.

Corrective actions included initiating a root cause evaluation to determine the reasons for missing the emergency action level. Also, lessons learned training was planned for all operations personnel and emergency directors. Additionally, the Operations Engineer coached individuals on ensuring roles and responsibilities were carried out during all off normal events. (Section 1EP5.b.1.)

- C Green. A finding of very low safety significance and an associated Non-Cited Violation of 10 CFR 50.47(b)(2) was self-revealed when four of six radiation protection (RP) technicians failed to augment the on-shift staff in the required 30 minutes on January 24, 2005. The primary cause of this finding was related to the cross-cutting area of human performance since individuals failed to recognize expectations and responsibilities associated with requirements for timely augmentation of the on-shift staff in an emergency.

The finding was more than minor because it was associated with the Emergency Preparedness Cornerstone attribute of Response Organization Performance and affected the cornerstone objective of providing reasonable assurance that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was of very low safety

significance because although it involved an actual Alert and the finding involved a failure to comply with the emergency plan, there were no indications of Planning Standard problems.

Corrective actions taken by the licensee included a change to the emergency response organization callout process to activate all radiation protection technicians instead of the first six that called in during an emergency. (Section 1EP5.b.2.)

B. Licensee-Identified Violations

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

Unit 2 operated at or near full power until June 25, 2005, when operators manually shutdown the unit to address a drywell cooler leak. The plant remained in cold shutdown throughout the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstone: Mitigating Systems

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- C turbine building closed cooling water (TBCCW) system from April 26 through April 28, 2005;
- C safety-related batteries on May 11, 2005;
- C high pressure coolant injection (HPCI) system from May 17 through May 21, 2005; and
- C division 1 non-interruptible air system on May 25, 2005.

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones. The inspectors reviewed operating procedures, system diagrams, Technical Specification (TS) requirements, Administrative TS, 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 were aligned correctly.

In addition, the inspectors verified equipment alignment problems were entered into the corrective action program with the appropriate significance characterization.

These activities represented four inspection samples.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Fire Protection Walkdowns (71111.05Q)

a. Inspection Scope

The inspectors performed 14 fire protection walkdowns of the following risk significant plant areas:

- C division 1 switchgear room;
- C reactor building sub-basement, southeast quadrant, division 2 core spray and HPCI rooms;
- C reactor building sub-basement, northeast quadrant, division 1 core spray and reactor core isolation cooling system rooms;
- C cable tray room;
- C turbine building second floor;
- C general service water pump house;
- C torus room;
- C reactor building 5th floor;
- C division 1 residual heat removal (RHR) complex;
- C division 2 RHR complex;
- C auxiliary building 1st floor mezzanine, cable tray;
- C non-interruptible air system room;
- C turbine building first floor; and
- C direct current motor control center (MCC) hatch area.

The inspectors verified that fire zone conditions were consistent with assumptions in the licensee's Fire Hazards Analysis. The inspectors walked down fire detection and suppression equipment, assessed the material condition of fire fighting equipment, and evaluated the control of transient combustible materials. In addition, the inspectors verified that fire protection related problems were entered into the corrective action program with the appropriate significance characterization.

These activities represented 14 inspection samples.

b. Findings

No findings of significance were identified

.2 Annual Fire Drill Observation (71111.05A)

a. Inspection Scope

The inspectors assessed fire brigade performance and the drill evaluators' critique during a fire brigade drill on May 24, 2005. The drill simulated Shift 1 fire brigade team members combating a fire in the division 1 battery room. The inspectors focused on the command and control of fire brigade activities, fire fighting and communication

practices, material condition and use of fire fighting equipment, and implementation of pre-planned fire fighting strategies.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

.1 Annual Review of Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors reviewed completed test reports and observed the performance of inspections for the following heat exchanger:

C Division 1 RHR/RHR service water heat exchanger

The inspectors selected this heat exchanger because the associated systems were risk significant in the licensee's risk assessment and were required to support the operability of other risk significant safety-related equipment. During these inspections, the inspectors reviewed the as-found condition of the heat exchanger and verified no deficiencies existed that could mask degraded performance. The inspectors discussed the as-found condition as well as the historical performance of the heat exchangers with engineering department personnel and reviewed applicable documents and procedures.

In addition, the inspectors verified that heat sink problems were entered into the corrective action program with the appropriate significance characterization and that completed corrective actions were adequate and appropriately implemented.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Biennial Review of Heat Sink Performance (71111.07B)

a. Inspection Scope

The inspectors reviewed the performance of the heat exchangers associated with division 2 emergency diesel generators (EDGs) 13 and 14. These heat exchangers were chosen for review based on their high risk assessment worth in the licensee's probabilistic safety analysis and their not having previously been reviewed under the revised oversight process.

While on site, the inspectors reviewed completed surveillance tests and associated procedures. The inspectors reviewed the documentation to confirm the inspection methodology was consistent with accepted industry and scientific practices such as Electrical Power Research Institute standard NP-7552, "Heat Exchanger Performance Monitoring Guidelines." The inspectors also reviewed documentation to verify that acceptance criteria was consistent with design basis values, as outlined in the Updated Final Safety Analysis Report (UFSAR) and TS. The inspectors performed a physical walkdown of the service water system for EDGs 13 and 14 and discussed the status of the system with licensee engineers.

The inspectors also reviewed documentation to verify performance of the ultimate heat sink. Specifically, the inspectors reviewed the availability of the ultimate heat sink under adverse weather conditions and the performance capability of the EDG service water pumps. This was done through a review of licensee procedures and completed surveillance tests or results, interviews with licensee engineers, and physical walkdowns of the accessible portions of the ultimate heat sink.

The inspectors reviewed condition assessment resolution documents (CARDs) concerning heat exchanger or heat sink performance issues to verify the licensee had an appropriate threshold for identifying issues. The inspectors also evaluated the effectiveness of the corrective actions for identified issues, including the engineering justification for operability, if applicable.

Although there were three heat exchangers associated with each EDG, this review resulted in the completion of two inspection samples because the licensee considered the heat exchangers to be a single set in their probabilistic safety analysis. Additionally, the licensee inspected and cleaned the heat exchangers as a set.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

On May 3, 2005, the inspectors observed operations crew number 4 during the annual requalification examination in mitigating the consequences of events in Scenario SS-OP-904-0171, "Loss of Power/Loss of Vacuum/Anticipated Transient Without Scram," on the simulator. The inspectors evaluated the following areas:

- C licensed operator performance;
- C 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;
- C control board manipulations;
- C oversight and direction from supervisors; and

- C ability to identify and implement appropriate TS actions and emergency plan actions and notifications.

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

These activities represented one quarterly inspection sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12Q)

a. Inspection Scope

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

- C service system transformers (SST);
- C TBCCW; and
- C division 1 and 2 batteries.

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the systems. Specifically, the inspectors independently verified the licensee's actions to address system performance or condition problems in terms of the following:

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

In addition, the inspectors verified that maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization.

These activities represented three inspection samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the following five maintenance and operational activities affecting risk-significant equipment:

- C EDG 13 safety system outage;
- C HPCI safety system outage;
- C SST 11 outage;
- C hot spot on modular power unit 4, cabinet 2; and
- C standby feedwater safety system outage.

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, discussed the results of the assessment with the licensee's probabilistic risk analyst and/or shift technical advisor, and verified that plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

These activities represented five inspection samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following four CARDS to ensure that either the condition did not render the involved equipment inoperable or result in an unrecognized increase in plant risk, or the licensee appropriately applied TS limitations and appropriately returned the affected equipment to an operable status:

- CARD 05-22266, Low Division 2 Core Spray Room Cooler Air Flow;
- C CARD 05-23018, HPCI Booster Pump Outboard Bearing Oil Level;
- C CARD 05-23296, Operability of Torus Room Snubbers and Struts; and
- C CARD 05-23378, Operability of Anchor Bolts Ground Away.

These activities represented four inspection samples.

b. Findings

No findings of significance were identified.

1R16 Operator Work-arounds (71111.16)

a. Inspection Scope

The inspectors evaluated the operator work-around listed below to identify any potential effect on the functionality of mitigating systems or on the operators' response to initiating events:

- reactor water cleanup strainer high differential pressure

The inspectors selected this issue to review as a potential operator work-around in order to understand how this task was accomplished and the potential effect on plant operations. The inspectors reviewed selected procedures and documents.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

Engineering Design Packages 29258 and 28886 for reactor recirculation pump "A" discharge isolation valve B3105F031A were reviewed and selected aspects were discussed with engineering personnel. These engineering design packages and related documentation were reviewed for adequacy of the safety evaluation, consideration of design parameters, implementation of the modification, post-modification testing; and to verify that relevant procedures, design, and licensing documents were properly updated. The modification was for equipment upgrades of existing equipment.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed nine post maintenance testing activities associated with the following scheduled maintenance:

- Work Request (WR) I463050100, Control Air Division 1 Dryer P5002D012 Cycle Control Auxiliary Relay TSR-30242;
- C WR 000Z0443866, Reactor Recirculation Pump Discharge Valve B3105F031A;
- C WR 000Z050291, Replace Rod Withdrawal Block K-1 Relay and Socket;

- C WR 000Z051888, Replace Auxiliary Contact for E1150F017B;
- C WR 000Z051561, Replace HPCI Booster Pump Outboard Bearing Oil Level Sight Glass;
- C WR A005040100, HPCI Governor Replacement;
- C WR 000Z043209, PMT of Replaced Tap Changer on SST 68K;
- C WR I461040100, Replacement of Service Water Pumps; and
- C WR 000Z050274, WR 000Z050292, WR 000Z050293, WR000Z050294, WR 000Z050295, WR 000Z050297, WR 000Z050344, and WR 000Z050363 to repair gaskets for drywell coolers 1, 2, 3, 4, and 10.

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 clearly stated acceptance criteria, and the acceptance criteria were met. The inspectors interviewed operations, maintenance, and engineering department personnel and reviewed the completed post maintenance testing documentation.

In addition, the inspectors verified post maintenance testing problems were entered into the corrective action program with the appropriate significance characterization.

These activities represented nine inspection samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed the licensee's performance during the June 25, 2005, forced outage due to a gasket failure and subsequent RBCCW leak from drywell cooler number 4 followed by a controlled plant shutdown to repair the leak.

This inspection consisted of a review of the licensee's outage schedule, safe shutdown plan and administrative procedures governing the outage, periodic observations of equipment alignment, and plant and control room outage activities. Specifically, the inspectors determined whether the licensee effectively managed elements of shutdown risk pertaining to reactivity control, decay heat removal, inventory control, electrical power control, and containment integrity.

The inspectors frequently performed the following activities during the forced outage:

- C attended control room operator and outage management turnover meetings to verify the current shutdown risk status was well understood and communicated;
- C performed walkdowns of the main control room to observe the alignment of systems important to shutdown risk;
- C observed the operability of reactor coolant system instrumentation and compared channels and trains against one another; and

- C performed walkdowns of the turbine, auxiliary, and reactor building to observe ongoing work activities, to ensure work activities were performed in accordance with plant procedures, and to verify procedural requirements regarding fire protection, foreign material exclusion, and the storage of equipment near safety-related structures, systems, and components were maintained.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- C Procedure 24.202.01, HPCI Time Response and Operability Test;
- C Procedure 24.205.05, Division 1 RHR SW Pump and Valve Operability Test; and
- C Procedure 24.204.06, Division 2 LPCI and Torus Cooling/Spray Pump and Valve Operability Test.

The inspectors reviewed the test methodology and test results to verify equipment performance was consistent with safety analysis and design basis assumptions. In addition, the inspectors verified surveillance testing problems were being entered into the corrective action program with the appropriate significance characterization.

These activities represented three inspection samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed two temporary modifications and verified the installation was consistent with design modification documents and the modifications did not adversely impact system operability or availability:

- TM 05-011, Jumper Reactor Recirculation Motor Generator Set Cooling Fan Logic; and
- C TSR-32548, Portable Filter Demineralizer Installed on RBCCW and TBCCW.

The inspectors verified that configuration control of the modifications was correct by reviewing design modification documents and confirming that appropriate post-installation testing was accomplished. The inspectors interviewed engineering and operations department personnel, and reviewed the design modification documents and 10 CFR 50.59 evaluations against the applicable portions of the TS and UFSAR.

These activities represented two inspection samples.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Testing (71114.02)

a. Inspection Scope

The inspectors discussed with emergency preparedness (EP) staff the operation, maintenance, and periodic testing of the alert and notification system (ANS) in the Fermi 2 Nuclear Power Plant's plume pathway emergency planning zone to determine whether the ANS equipment was adequately maintained and tested in accordance with emergency plan commitments and procedures. The inspectors reviewed records of 2004 and 2005 preventative and non-scheduled maintenance activities, as well as October 2003 through March 2005 operability test results.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with plant EP staff the procedures that included the primary and alternate methods of initiating an emergency response organization (ERO) activation to augment the on-shift ERO and the provisions for maintaining the plant's ERO call-out roster. The inspectors also reviewed reports and a sample of corrective action program records of unannounced off-hour augmentation tests, which were conducted bimonthly between February 2004 and March 2005, to determine the adequacy of the drills' critiques and associated corrective actions. The inspectors also reviewed the EP training records of a sample of 17 Fermi Power Plant ERO personnel who were assigned to key and support positions to determine whether they were currently trained for their assigned ERO positions.

These activities represented one inspection sample.

b. Findings

Introduction: A violation of 10 CFR 50.47(b)(2) was identified by the inspectors when the process for timely augmentation of on-shift staff was changed for the station nuclear engineer (SNE) position without performing a 10 CFR 50.54(q) review to determine if the change decreased the effectiveness of the emergency plan.

Description: A May 2004 revision to the Emergency Call Out System (ECOS) test forms stated "...the total time it takes the SNE to fill their position is based on the time it would take to activate remote access to the 3-D Monocore" (core flux program). The licensee had been testing this change in SNE response during the approximately bi-monthly augmentation tests from May 26, 2004, to the present. Revision 30 of emergency plan, Tables B-1 and B-2, required the SNE to report to the control room in 30 minutes in response to an emergency.

Condition Assessment Resolution Document (CARD) 04-21911, "Minimum 30-Minute Radiological Emergency Response Preparedness (RERP) Plan Response Time or Staffing Requirements For Station Nuclear Engineer Position Are Not Being Verified," dated April 29, 2004, identified that during a nuclear quality assurance (NQA) audit of the RERP program, it was noted in the RERP Plan that the SNE was required in the control room within 30 minutes of an Alert. The recommendation from NQA was to ensure the SNE met the plan requirements or to revise the RERP Plan or implementing procedures as necessary.

The corrective action for CARD 04-21911 was to add the SNE as a 30-minute responder to the ECOS test procedure to augment the ERO. However, since the SNEs have access to the 3-D Monocore program at their homes to analyze conditions affecting core safety and advise the shift manager, remote access to this data link was considered an acceptable response time instead of reporting to the control room. The CARD was approved and closed without a 10 CFR 50.59(q) review to determine if this change in a requirement resulted in a degradation or loss of a function to perform a function in a timely manner.

Analysis: The inspectors determined the licensee failed to meet the requirements of 10 CFR 50.54(q) in that they failed to identify a decrease in effectiveness when the process for augmenting the on-shift staff during an emergency was changed for the SNE position to remotely activate a core monitoring program and not report to the control room within 30 minutes of an emergency. No actual safety consequence was identified; however, the inspectors determined the issue had a potential for impacting the NRC's ability to perform its regulatory function. As such, traditional enforcement was applied instead of the Significance Determination Process (SDP).

The inspectors also determined that the finding had a cross-cutting aspect of Human Performance (organization) in that during changes to the ERO augmentation process, the reviewers did not complete sufficient validation and oversight of the changes.

Enforcement: Title 10 CFR 50.54(q) stated, in part, that the "licensee may make changes to these plans without Commission approval only if the changes do not decrease the effectiveness of the plans. Proposed changes that decrease the

effectiveness of the approved emergency plans may not be implemented without application to and approval by the Commission.”

A process for timely augmentation of on-shift staff was established and maintained as required by 10 CFR 50.47(b)(2).

Fermi’s RERP Plan, Tables B-1 and B-2, required the SNE to report to the control room within 30 minutes in response to an emergency.

Contrary to the above, on May 3, 2004, the licensee made changes to their ERO call-out process which reduced the effectiveness of the emergency plans. These changes were not submitted to the NRC for approval prior to implementation.

Changing emergency plan commitments without prior approval impacts the NRC’s ability to perform its regulatory function and is, therefore, processed through traditional enforcement as specified in Section IV.A.3 of the Enforcement Policy, issued May 1, 2000 (65 FR 25388). According to Supplement VIII of the Enforcement Policy, this finding was determined to be a Severity Level IV violation because it involved a failure to meet a requirement not directly related to assessment and notification. Further, this problem was isolated to the SNE position and was not indicative of a functional problem with the augmentation process. Additionally, because the licensee had entered this issue into their corrective action program as CARD 05-23009, this finding is being treated as a Severity Level IV Non-Cited Violation consistent with Section VI.A of the Enforcement Policy (NCV 05000341/2005012-01).

Corrective actions taken by the licensee included discussions with the SNEs that it was no longer acceptable to remotely activate the 3-D Monocore program to respond to an emergency at the plant instead of responding to the control room and that response to the control room was required within 30 minutes of the declaration of an emergency at the plant. The ECOS test forms were changed to remove the option for the SNE to activate the software remotely in lieu of responding to the control room within 30 minutes and the callout process was changed to activate all SNEs instead of just the duty SNE.

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

a. Inspection Scope

The inspectors performed a screening review of Revision 30 of the Fermi 2 RERP Plan and reviewed the licensee’s summary of the changes identified in Revision 30 to determine whether these changes decreased the effectiveness of the licensee’s emergency planning for its station. This review did not constitute an approval of the changes, and as such, the changes are subject to future NRC inspection to ensure the emergency plan continues to meet NRC regulations.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed a sample of the NQA staff's 2004 audit of the Fermi 2 EP program to verify that this independent assessment met the requirements of 10 CFR 50.54(t). The inspectors also reviewed critique reports, RERP staff self-assessments, and a sample of records associated with three actual emergency events that occurred in 2004 and 2005. The inspectors reviewed critique reports and samples of corrective action program records associated with the 2004 biennial exercise, as well as various EP drills conducted in 2004 and 2005, to verify the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. Additionally, the inspectors reviewed a sample of EP items, CARDS, and corrective actions related to the facility's EP program and activities to determine whether corrective actions were acceptably completed.

These activities represented one inspection sample.

b. Findings

1. Missed Declaration of an Unusual Event, February 7, 2005

Introduction: An NCV of 10 CFR 50.47(b)(4), a planning standard, having very low safety significance (Green) was self-revealed when operators failed to declare an Unusual Event upon determining that an area radiation monitor (ARM) reading inside secondary containment exceeded the maximum normal operating level for the area. The ARM reading of approximately 100 millirem per hour met the threshold specified in the licensee's emergency plan for declaring an Unusual Event.

Description: On February 7, 2005, at 2:29 a.m. operators discovered main steam line "C" drain valve remained at 50 percent open while trying to fully close the valve. The valve remained open throughout the night shift and its failure status was turned over to the day shift.

At 5:18 p.m. operators started the hydrogen water chemistry system to reduce the free oxygen concentration when injected into the reactor feedwater system. Ammonia, which is a byproduct of the process, contains nitrogen which is activated and gives off high energy gamma radiation.

At 5:34 p.m. control room operators received a reactor building basement area high radiation alarm with a reading of approximately 75 to 100 millirem per hour. Operators entered emergency operating procedures (EOPs) for secondary containment high radiation. The EOP referenced entry into the RERP Plan implementing procedure EP-101, AU2, for an Unusual Event for unexpected increase in plant radiation levels which was overlooked by the operators.

At 5:45 p.m. the operators determined the increased radiation level was due to the partially open main steam line drain valve. A downstream steam line drain isolation valve was closed to isolate the steam flow past the monitor. Also, hydrogen water injection rate was lowered. The area radiation level returned to approximately 4 millirem per hour.

At 7:00 p.m. the operators recognized they had missed declaring an Unusual Event as required by emergency implementing procedure EP101, "Classifications of Emergencies" and the emergency plan, Section D, "Emergency Classification System," AU2, "Unexpected Increase of Plant Radiation Levels." The licensee's EOP 29.100.01, "Secondary Containment and Radiation Release, Sheet 5," also directed the control room operators to reference EP-101, AU2; however, this was not identified at the time of the event.

At 7:46 p.m. a notification was made to the NRC of the event conditions and the missed Unusual Event declaration.

Analysis: The inspectors determined the failure to implement required emergency action level (EAL) procedures associated with an unexpected increase in plant radiation levels was a performance deficiency warranting a significance evaluation. The inspectors also determined the issue was greater than minor. This was based on the failure to recognize the Unusual Event on February 7, 2005; therefore, the finding was associated with the Emergency Preparedness Cornerstone attribute of Response Organization Performance and affected the cornerstone objective of providing reasonable assurance that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency.

The inspectors also determined the finding had a cross-cutting aspect of Human Performance (personnel), in that licensed operators failed to realize that an EAL threshold had been exceeded and that an Unusual Event declaration was required.

The inspectors determined that the finding could be evaluated using the SDP in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 21, 2003. Specifically, the inspectors evaluated this finding using IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," dated March 3, 2003. Since the finding was associated with failure to meet or implement a regulatory requirement and an actual event, the inspectors used Worksheets 1 and 2. In regard to Sheet 1, "Failure to Comply" worksheet, the inspectors answered "no" to the Planning Standards decision box indicating that the issue was of very low safety significance (Green). In regard to Sheet 2, "Actual Event Implementation Problem" worksheet, the inspectors answered "yes" to the "Notice of Unusual Event" decision block indicating that the issue was of very low safety significance (Green). In accordance with Paragraph "b" of the SDP guidance section, the most significant results were to be used to determine the significance of the issue. Since both results were Green, the inspectors concluded that the finding was of very low safety significance (Green).

Enforcement: Title 10 CFR 50.47(b)(4) required that a standard emergency classification and action level scheme, the bases of which include facility system and

effluent parameters, was in use by the nuclear facility licensee, and State and local response plans called for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

The licensee's action level scheme was defined in the Fermi 2 RERP Plan, Revision 30. The licensee's EAL AU2 specifically identified the condition of unexpected increase of plant radiation levels and an example of a valid direct area radiation monitor reading which exceeded the maximum normal operating level, inside secondary containment, requiring declaration as an Unusual Event.

Contrary to the above, on February 7, 2005, the licensee failed to declare an Unusual Event for EAL AU2, unexpected increase of plant radiation levels. Because this violation was of very low safety significance and the issue was entered into the licensee's corrective action program (CARD 05-20846), it was treated as a Non-Cited Violation, consistent with Section V1.A of the NRC Enforcement Policy. (NCV 05000341/2005012-02) URI 05000341/2005004-08 is closed.

Corrective actions taken by the licensee included initiating a root cause evaluation to determine the reasons for missing the emergency action level. Also, lessons learned training was identified for all operations personnel and emergency directors to reinforce emergency classification capabilities. Additionally, the Operations Engineer coached individuals on ensuring roles and responsibilities were carried out during all off normal events.

2. Radiation Protection Technicians Failure to Augment Staff in a Timely Manner

Introduction: A violation of 10 CFR 50.47(b)(2) having very low safety significance (Green) was self-revealed when four of the six radiation protection (RP) technicians failed to augment the on-shift staff in the required 30 minutes for the declared Alert emergency on January 24, 2005.

Description: At 4:40 p.m. on January 24, 2005, an Alert was declared based on drywell unidentified leakage exceeding 50 gallons per minute. At 4:46 p.m. Fermi ERO personnel were notified to report to their assigned emergency response facility in the Operational Support Center or Technical Support Center.

The first two RP technicians arrived at 5:06 and 5:14 p.m. (20 and 28 minutes after ERO activation call-out was initiated) according to provided security access turnstile times. The next three RP technicians arrived at 5:23, 5:34, and 5:55 p.m. (37, 48, and 69 minutes after ERO call-out was initiated). The sixth RP technician arrived at 5:59 p.m. (73 minutes after call-out was initiated).

This problem appeared to be a repeat problem identified three months earlier during an off-hou augmentation test, conducted on October 26, 2004, at 5:30 p.m. CARD 04-25141, "Radiation Protection Technicians Did Not Meet Response Time Requirements During ECOS Test," identified that seven RP technicians were required to report to the Operational Support Center within 30 minutes from the beginning of an

event, with a minimum of two RP technicians assumed to be onshift. This CARD described that during the October 2004 augmentation test, only three of five RP technicians (not including the onshift RP technicians) indicated they could respond and report within the required 30 minutes. Corrective actions on this Level 3 CARD (actions completed on January 20, 2005, and closed on February 1, 2005) included a required reading package with response time expectations and procedural requirement for RP technicians.

On February 7, 2005, a second CARD was initiated regarding RP technicians not meeting response time requirements during the January 24, 2005, Alert event. This CARD identified that previous corrective actions had been ineffective. Also identified were problems with the ECOS system, the page system, and failure to follow training instructions as the reasons response times were not met. Corrective actions were to re-program the ECOS system to call all listed RP technicians, instead of only the first five minimum, to ensure the minimum RP technician staffing requirements were met.

Analysis: The inspectors determined the failure to augment on-shift staff as required by the Fermi 2 RERP Plan during the January 24, 2005, declared Alert emergency, was a performance deficiency warranting significance evaluation. This determination was made in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on January 14, 2004. The inspectors also determined that the issue was greater than minor. This was based on the failure to augment on-shift staffing in a timely manner during the Alert event on January 24, 2005; therefore, the finding was associated with Emergency Preparedness Cornerstone attribute of Response Organization Performance and affected the cornerstone objective of providing reasonable assurance that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency.

The inspectors also determined the finding had a cross-cutting aspect of Human Performance (personnel), in that during a declared alert emergency, the required number of RP technicians failed to respond in 30 minutes to augment on-shift personnel.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," dated April 21, 2003. Specifically, the inspectors evaluated this finding using IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," dated March 3, 2003.

Since the finding was associated with failure to meet or implement a regulatory requirement and an actual event, the inspectors used Worksheets 1 and 2. In regard to Sheet 1, "Failure to Comply" worksheet, the inspectors answered "no" to the Planning Standards decision box indicating that the issue was of very low safety significance (Green). In regard to Sheet 2, "Actual Event Implementation Problem" worksheet, the inspectors answered "yes" to the "alert" decision block and "no" to the "Failure to Implement a Risk Significant Planning Standard" decision block indicating that the issue was of very low safety significance (Green). In accordance with Paragraph 'b' of the SDP guidance section, the most significant results were to be used to determine the significance of the issue. Since both results were Green, the inspectors concluded that the finding was of very low safety significance (Green).

Enforcement: Title 10 CFR 50.47(b)(2) required that on-shift emergency responsibilities for emergency response include adequate staffing to provide initial facility accident response in key functional areas at all times, timely augmentation of response capabilities be available, and the interfaces among various onsite response activities and offsite support and response activities be specified.

The licensee's RERP Plan, Revision 30, Section B and Table B-1, in the event of an emergency, required activation of the ERO to augment the on-shift personnel. The RERP Plan required six radiation protection (RP) technicians in 30 minutes augment the on-shift personnel.

Contrary to the above, on January 24, 2005, four of the required six RP technicians failed to augment the on-shift staff in 30 minutes for the declared Alert emergency. Because this violation was of very low safety significance and the issue was entered into the licensee's corrective action program (CARD 05-20824), it was treated as a Non-Cited Violation, consistent with Section V1.A of the NRC Enforcement Policy (NCV 05000341/2005012-03).

Corrective actions taken by the licensee included a change to the ERO callout process to activate all RP technicians instead of the first six that called in during an emergency. Also, the callout for RP technicians was added to the Unusual Event emergency class and higher instead of at the Alert class and higher.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the licensee perform an EP drill on June 8, 2005. The inspectors observed activities in the control room simulator, technical support center, and emergency operations facility. The inspectors also attended the post-drill facility critiques in the technical support center and emergency operations facility immediately following the drill and the overall drill critique on June 8, 2005. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the drill performance and ensure the licensee evaluators noted the same weaknesses and deficiencies and entered them into the corrective action program. The inspectors placed emphasis on observations regarding event classification, notifications, protective action recommendations, and site evacuation and accountability activities. As part of the inspection, the inspectors reviewed the drill package listed at the end of this report.

These activities represented one inspection sample.

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 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed licensee event reports (LERs), corrective action documents, electronic dosimetry transaction data for radiologically restricted area egress, and data reported on the NRC's web site relative to the licensee's occupational exposure control performance indicator (PI) to determine whether the conditions surrounding any actual or potential performance indicator occurrences had been evaluated, and identified problems had been entered into the corrective action program for resolution. Also, PI data collection and analysis methods used by the RP staff for this indicator were evaluated by the inspectors as described in Section 4OA1.

Section 4OA5 of this report described the results of the inspectors' review of an Unresolved Item involving a degraded lock mechanism for a high radiation area (HRA) door, which the licensee had reported as a potential HRA occurrence for the first quarter of 2005.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns/Boundary Verifications and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors identified recently completed and ongoing exposure-significant work within radiation areas, HRAs, and locked high radiation areas (LHRAs) of the plant and selectively reviewed radiation work permit (RWP) packages and radiation surveys for these areas. The inspectors evaluated the radiological controls for these activities to determine if these controls including area postings and access control barriers were adequate.

The inspectors reviewed active and closed RWP packages which governed activities in radiologically significant areas to identify the work control instructions and control barriers that had been specified. For these work activities, electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant procedures.

The inspectors walked down and surveyed, using an NRC survey meter, radiologically significant area boundaries and other radiological areas in the reactor, turbine and radwaste buildings to verify that the prescribed radiological access controls were in place, that licensee postings were complete and accurate, and that physical

barricades/barriers were adequate. During the walkdowns, the inspectors physically challenged locked gate/door barriers to verify that HRA, LHRA, and very high radiation area (VHRA) access was controlled in compliance with the licensee's procedures, TS, the requirements of 10 CFR 20.1601, and was consistent with Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas in Nuclear Power Plants."

The inspectors reviewed RWP packages for selected activities completed during the approximately 6-month period that preceded the inspection to verify barrier integrity and engineering controls performance, e.g., filtered ventilation system operation, and to determine if there was a potential for individual worker internal exposures of greater than 50 millirem committed effective dose equivalent. The inspectors reviewed the licensee's procedures and its methods for the assessment of internal dose as required by 10 CFR 20.1204, to ensure methodologies were technically sound and included assessment of the impact of hard-to-detect radionuclides such as pure beta and alpha emitters, as applicable. No worker intakes resulting in a committed effective dose equivalent greater than 10 millirem occurred since this area was last reviewed by the inspectors as described in Inspection Report 05000341/2004008.

The inspectors reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within the spent fuel pool. Specifically, RP procedures were reviewed, RP staff were interviewed, and a walkdown of the refuel floor was conducted. The radiological control for non-fuel materials stored in the spent fuel pool was evaluated to ensure adequate barriers were in-place to reduce the potential for the inadvertent movement of these materials and to assess compliance with the licensee's procedures and for consistency with NRC regulatory guidance.

These reviews represented six inspection samples.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the results of a licensee audit report, the CARD database, and individual CARDS related to the radiological access and exposure control programs to verify that identified problems were entered into the corrective action program for resolution. Specifically, the inspectors reviewed radiological problems which occurred over the 12-month period that preceded the inspection, including the review of any HRA radiological incidents (non-PI occurrences identified by the licensee in HRAs and LHRAs). In particular, the inspectors reviewed the circumstances surrounding a March 2005 HRA door lock mechanism problem, which the licensee reported as a potential HRA PI occurrence for the first quarter of 2005. The inspectors' review was conducted to verify that follow-up activities were conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

C initial problem identification, characterization, and tracking of initial problem;

- C disposition of operability/reportability issues;
- C evaluation of safety significance/risk and priority for resolution;
- C identification of repetitive problems;
- C identification of contributing causes; and
- C identification and implementation of corrective actions.

The inspectors evaluated the licensee's process for problem identification, characterization and prioritization, and verified that radiological problems were entered into the corrective action program and were being resolved in a timely manner. (Section 4OA2 documented deficiencies with the licensee's corrective actions for the March 2005 door lock mechanism problem). For potential repetitive deficiencies or possible trends, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies, if applicable.

The inspectors reviewed the licensee's documentation for all potential PI events occurring since the last radiological access control inspection in March 2004 to determine if any of these events involved dose rates greater than 25 Rem/hour at 30 centimeters or greater than 500 Rem/hour at 1 meter or involved unintended exposures greater than 100 millirem total effective dose equivalent (or greater than 5 Rem shallow dose equivalent or greater than 1.5 Rem lens dose equivalent). None were identified.

These activities represented four inspection samples. Specifically, the samples pertained to the licensee's self-assessment capabilities, its problem identification and resolution program for radiological incidents, a review of the licensee's ability to identify and address repetitive deficiencies, and a review of those radiological incidents and potential PI occurrences of greatest radiological risk.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews and Review of Work Practices in Radiologically Significant Areas

a. Inspection Scope

The inspectors discussed with RP staff the controls for work recently performed in various radiologically significant areas of the plant. Radiation surveys for these activities were reviewed by the inspectors as were the radiological job requirements provided in the RWP package for conformity with LHRA TS and with the licensee's access control procedure. The inspectors discussed with RP staff the methods for communicating radiological information to work crews, the methods for approving access into HRAs and for dose tracking during work in LHRAs, and the administrative and physical controls used over ingress/egress into HRAs.

The inspectors reviewed the licensee's procedures and discussed with RP staff its practices for at-power drywell entry, for initial drywell entry following down power, and for traversing in-core probe room entry to determine the adequacy of the radiological

controls and hazards assessment associated with such entries. Work instructions provided in RWPs and in pre-entry briefing documents were discussed with RP staff to determine their adequacy relative to industry practices and NRC Information Notices.

The inspectors also reviewed the licensee's procedure and generic practices associated with dosimetry placement and for the use of multiple whole body dosimetry for work in HRAs having significant dose gradients for compliance with the requirements of 10 CFR 20.1201(c) and applicable industry guidelines. Additionally, previously completed work in areas where the dose rate gradients were subject to significant variation were reviewed, i.e., torus dives and under vessel work, to evaluate the licensee's practices for dosimetry placement.

These activities represented three inspection samples.

b. Findings

No findings of significance were identified.

.5 High Risk Significant, LHRA and VHRA Access Controls

a. Inspection Scope

The inspectors reviewed the licensee's procedures and associated Prevent Event Checklists, and evaluated the practices for the control of access to radiologically significant areas (HRAs, LHRAs, and VHRAs). The inspectors assessed compliance with the licensee's TS, procedures, the requirements of 10 CFR 20, and the guidance contained in Regulatory Guide 8.38. In particular, the inspectors evaluated the RP staff's control of keys to HRAs, LHRAs, and VHRAs, the use of access control guards, the methods for dose tracking during work in LHRA and VHRAs and for independently verifying that access doors are locked and secured upon area egress. The inspectors selectively reviewed the key issuance/return and door lock verification log for selected periods in 2004 through May 2005 to verify the adequacy of accountability practices and documentation. The inspectors also reviewed selected records and evaluated the RP department's practices for obtaining RP management approval for access into high dose rate LHRAs and VHRAs and for the use of flashing lights in lieu of locking areas to verify compliance with procedure requirements and those of 10 CFR 20.1602. Additionally, the inspectors discussed with the operations manager the use of master keys for HRAs and reviewed station practices for obtaining and documenting nuclear shift supervisory approval for the issuance of any HRA key as is required by the licensee's procedure.

The inspectors discussed with RP staff the controls that were in place for areas that had the potential to become HRAs during certain plant operations to determine if these operations required communication beforehand with the RP group, so as to allow corresponding timely actions to properly post and control the radiation hazards. In particular, the inspectors discussed the implementation of RP work instructions which were developed to identify areas subject to changing radiological conditions during specified operational conditions.

The inspectors conducted plant walkdowns to verify the posting, locking and barrier integrity of numerous HRAs, LHRAs and for VHRAs (transversing in-core probe room and drywell airlock).

These activities represented three inspection samples.

b. Findings

No findings of significance were identified.

.6 Radiation Worker Performance

a. Inspection Scope

The inspectors reviewed selected radiological problem reports, which found that the cause of the event was due to radiation worker errors, to determine if there was an observable pattern traceable to a similar cause and to determine if this matched the corrective action approach taken by the licensee to resolve the identified problems.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

.7 Radiation Protection Technician Proficiency

a. Inspection Scope

During plant walkdowns and through discussions with RP staff, the inspectors evaluated RP technician performance and proficiency with respect to RP work requirements, station procedures, and health physics practices.

The inspectors reviewed selected radiological problem reports generated during the 12-month period that preceded the inspection to determine the extent of any specific problems or trends that may have been caused by deficiencies with RP work control and to determine if the corrective action approach taken by the licensee to resolve the reported problems, if applicable, was adequate.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

Cornerstone: Occupational Radiation Safety

.1 Radiation Safety Strategic Area

a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicator (PI) listed below for April 2004 through March 2005. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in Revisions 2 and 3 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The following PI was reviewed:

- Occupational Exposure Control Effectiveness.

For the time period reviewed, one potential HRA occurrence was reported by the licensee. That potential occurrence was evaluated by the inspectors as described in Sections 4OA2 and 4OA5. To assess the adequacy of the licensee's PI data collection and analyses methods, the inspectors discussed with RP staff the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm reports, the dose assignments for any intakes that occurred during the period reviewed, and the licensee's CARD database along with individual CARDS generated during the period reviewed to verify there were no unrecognized occurrences. Additionally, as discussed in Section 2OS1, the inspectors walked down the boundaries of selected HRAs, LHRAs, and VHRAs to verify the adequacy of postings and physical barriers.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

.2 Emergency Preparedness Strategic Areas

a. Inspection Scope

The inspectors reviewed the licensee's records associated with the three EP PIs listed below. The inspectors verified that the licensee accurately reported these indicators in accordance with relevant procedures and Nuclear Energy Institute guidance endorsed by the NRC. Specifically, the inspectors reviewed licensee records associated with the PI data reported to the NRC for the period January 2004 through March 2005. Reviewed records included: procedural guidance on assessing opportunities for the three PIs; assessments of PI opportunities during pre-designated control room simulator

training sessions, the 2004 biennial exercise, and other drills; revisions of the roster of personnel assigned to key emergency response organization (ERO) positions; and results of periodic alert and notification system (ANS) operability tests. The following PIs were reviewed:

- C ANS;
- C ERO Drill Participation; and
- C Drill and Exercise Performance.

These activities represented three inspection samples.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

Introduction:

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's corrective action program at an appropriate threshold, adequate attention was given to timely corrective actions, and adverse trends were identified and addressed.

a. Effectiveness of Problem Identification

(1) Inspection Scope

As discussed in Section 2OS1.3, the inspectors reviewed the licensee's problem identification and resolution program to assess the adequacy of the RP department's ability to identify and document problems and to implement timely and appropriate corrective actions. In particular, the inspectors reviewed the circumstances surrounding a degraded lock mechanism on the reactor building steam tunnel door (an LHRA door), which was identified by the resident inspector on March 16, 2005, and documented in CARDS 05-21882 and 05-21903. To complete the review, the inspectors discussed the issue with several members of the RP line organization, supervision and management and reviewed maintenance and WR history associated with the steam tunnel door and with similarly constructed door lock mechanisms. Additionally, the lock mechanisms in question were physically challenged by the inspectors to determine the level of physical effort necessary to potentially defeat the lock mechanism and to circumvent the LHRA barrier. Moreover, the inspectors reviewed the licensee's HRA door/lock check surveillance program to determine its adequacy for identifying problems with physical barriers.

(2) Issues

The inspectors reviewed disclosed recurrences of latch/lock mechanism degradation for the steam tunnel door and for other similarly designed HRA door lock mechanisms dating back to the mid-1990s. The inspectors found that in most prior instances, the licensee replaced and/or repaired the lock mechanism components; however, the licensee did not fully determine the cause of the degradation and implement lasting corrective actions. After the resident inspectors identified the problem in March 2005, the licensee's probable cause evaluation determined that the latch/lock mechanism was prone to relatively frequent degradation through routine, periodic use; consequently, it presented an unacceptably high potential for failure as an LHRA barrier. Specifically, the steam tunnel door latch mechanism was designed primarily to provide a water tight seal and was not originally intended to function as a locking device for LHRA doors. In April 2005, improved lock/hasp hardware was installed on the steam tunnel door and on all similarly vulnerable water tight HRA doors.

The inspectors concluded that although individual occurrences of door latch/lock mechanism degradation were addressed through repairs as they occurred, the licensee failed to timely identify the fundamental cause of the problem to allow for effective corrective actions to prevent recurrence. While the degraded latch/lock mechanism did not result in an occurrence under the occupational exposure control effectiveness PI as described in Section 4OA5, it increased the probably of an unauthorized LHRA entry and, therefore, represented an additional level of risk.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a screening review of each item entered into the licensee's corrective action program to identify trends that might indicate the existence of a more significant safety issue. The inspectors considered repetitive or closely related issues that may have been documented by the licensee outside the normal corrective action program, such as in:

- C trend reports or PIs;
- C major equipment problem lists;
- C repetitive and/or rework maintenance lists;
- C departmental problem/challenges lists;
- C system health reports;
- C quality assurance audit/surveillance reports;
- C self assessment reports;
- C maintenance rule assessments; or
- C corrective action backlog lists.

The inspectors verified the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program by comparing those issues identified by the NRC during the conduct of the plant status and inspectible area portions of the program with those issues identified by the licensee.

b. Issues

Inspection Report 05000341/2004008 documented a potential degrading trend with the licensee's ability to resolve equipment-related problems. The inspectors identified five notable equipment issues that occurred in 2004 where the licensee expended significant effort in resolving several times. During the current semi-annual trend review, the inspectors noted another example of repeat equipment issues.

As described in Section 4OA3.1 of Inspection Report 05000341/2005004, a gasket on drywell cooler 4 failed which caused the licensee to manually shut down the plant on January 24, 2005. The licensee completed repairs and returned the unit to full power operation. On June 24, 2005, the same gasket failed at the same location and caused another unplanned unit shutdown and is discussed in Section 4OA3.3 of this report.

.3 Selected Sample for Annual Review: Design and Procedural Deficiencies for Dedicated Shutdown

a. Inspection Scope

The inspectors reviewed CARD 05-23111 regarding design and procedural deficiencies affecting a dedicated shutdown scenario. The inspectors interviewed engineering, fire protection and probabilistic safety assessment personnel as part of the inspection. This issue involved the inability to supply power to equipment required for safe unit shut down during a control room fire. The inspectors also discussed this issue with the Region III senior reactor analysts.

These activities represented one inspection sample.

b. Findings

The issue was turned over to the triennial fire protection inspection team for review during the week of June 27, 2005.

4OA3 Event Followup (71153)

.1 (Closed) Unresolved Item 05000341/2004007-06: Environmental Qualification of E4150F003

a. Inspection Scope

On August 12, 2004, the HPCI outboard steam isolation valve, E4150F003, failed to close during a surveillance test. This unresolved item (URI) was opened to track the testing, to review the licensee's final root cause and corrective actions, and to determine if a performance deficiency contributed to the event. The inspectors reviewed

documents, interviewed personnel, performed walkdowns, and witnessed troubleshooting activities.

These activities represented one inspection sample.

b. Findings

Introduction: A finding of very low safety significance (Green) and an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," was self-revealed when valve E4150F003 failed to close during a surveillance test on August 12, 2004.

Description: As described in Section 4OA3.3 of Inspection Report 05000341/2004007, the licensee was performing a stroke time test on E4150F003 when the valve failed to fully close. This valve experienced similar failures on April 8, 2004, and July 13, 2003.

The licensee formed an emergent issue team and began troubleshooting activities. The initial focus was on the motor control center (MCC) bucket and close seal-in circuitry. Since the open pushbutton provided continuity for the close seal-in function, the licensee tested the open pushbutton several times. In addition, the licensee performed electrical checks on the valve control circuit. No obvious failure mechanisms were identified.

Electricians cleaned and tightened the limit switch contacts and replaced all power, control cable, and jumpers associated with the E4150F003 motor actuator that were located inside the steam tunnel. While inspecting the valve, the licensee identified that a 2 foot section of pipe insulation between the valve and the drywell penetration was missing and could not be located in the area. The licensee subsequently installed new insulation prior to unit start-up. Additionally, during refueling outage 10, the licensee refurbished the actuator which included replacing the motor, limit switch assembly, torque switch assembly, and the terminal block.

The licensee sent the MCC bucket, pushbutton, and control cables to outside testing facilities for analysis. In addition, the licensee arranged for a mock-up test to be performed to estimate the temperature increase in the limit switch compartment due to the missing pipe insulation. The inspectors opened Unresolved Item 05000341/2004007-06 to track the testing, to review the licensee's final root cause and corrective actions, and to determine if a performance deficiency contributed to the event.

An independent cable monitoring expert from Electric Power Research Institute determined that the valve experienced a significant step change in temperature between refueling outage 9 in April 2003 and August of 2004. Based, in part, on the results of the mock-up test, the licensee determined that the uninsulated steam line caused this observed temperature increase. The insulation was installed at the beginning of refueling outage 9, removed during the outage for unknown reasons, and was not replaced.

The wires inside the limit switch compartment had a neoprene jacket that released chlorides when exposed to the elevated temperatures. Because the limit switch was a sealed compartment, the chlorides corroded the torque switch and limit switch contacts. The inspectors determined that the corrosion was a safety concern because it could affect the ability of the valve to fully close on an isolation signal.

With the valve normally closed, the limit switch contacts that functioned as the closing torque switch bypass, LS15, remained open and were therefore susceptible to corrosion buildup. Likewise, dependent on the amount of torque switch relaxation, the close torque switch contacts could also have been open and susceptible to fouling. If sufficient buildup had occurred on the torque switch contacts, the valve would stop closing at about 95 percent closed when LS15 opened. If LS15 was to become sufficiently fouled, then valve closure would stop if any dynamic effects, such as a hammer blow effect, caused the torque switch to prematurely open.

Because a failure could not be re-produced during either troubleshooting activities or laboratory testing, the licensee did not determine a definitive root cause. Rather, the licensee identified several potential causes that were not eliminated by troubleshooting or testing and determined that the most probable cause was a random failure in the open pushbutton to provide the necessary seal-in contact. One of the potential causes the licensee could not exclude was a malfunction with the torque switch and LS15. Due to the extensive component replacement and actuator refurbishment, the inspectors concluded that the licensee adequately addressed all potential causes and therefore addressed the problem.

The testing performed on the actuator wires demonstrated that although the cable jackets were significantly degraded, the insulation remained in good condition. Because the licensee did not credit the cable jacket for environmental qualification purposes, the cables retained a significant portion of their qualified life. Similar environmental qualification evaluations determined that all other actuator components remained within their qualified life.

As a result of this issue, the licensee developed a cable monitoring program to more effectively characterize degraded wires to ensure continued valve operability.

Analysis: The inspectors determined that the failure to replace the pipe insulation immediately upstream of valve E4150F003 was a performance deficiency warranting a significance determination. The inspectors concluded the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," because if left uncorrected, it would become a more significant safety concern in that corrosion products would continue to build up on the limit and torque switch contacts which could affect valve operability.

The inspectors completed a significance determination of this issue using Inspection Manual Chapter 0609, "Significance Determination Process (SDP)," Appendix A, Attachment 1, "SDP Phase 1 Screening Worksheet for IE [Initiating Events], MS [Mitigating Systems], and B [Barriers] Cornerstones." The inspectors concluded this finding affected the Containment Barriers cornerstone and answered "No" to all three questions. Specifically, inboard steam isolation valve E4150F002 remained operable during all relevant periods. Therefore, this finding was considered to be of very low safety significance (Green).

Enforcement: 10 CFR 50, Appendix B, Criterion III, "Design Control," required, in part, that measures be established to assure applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into

specifications, drawings, procedures and instructions. Specification 3071-32 required the pipe between valve E4150F003 and the drywell penetration be insulated.

Contrary to the above, sometime during refueling outage 9 the insulation between E4150F003 and the drywell penetration was removed and not replaced. However, because this violation was of very low safety significance and because it was entered into the licensee's corrective action program, this violation is being treated as a Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000341/2005012-04) This issue was entered into the licensee's correction action program as CARD 04-23647.

As part of the licensee's immediate corrective actions, the licensee installed insulation on the pipe and installed all jumpers, control, and power cables for E4150F003 inside the reactor building steam tunnel. This Unresolved Item is closed.

.2 Failure of Residual Heat Removal (RHR) Injection Valve E1100F017B to Open

a. Inspection Scope

On June 16, 2005, while performing the low pressure coolant injection (LPCI) pump and valve operability test following a planned safety system outage, normally open RHR LPCI outboard injection valve E1100F017B was closed during the test and a malfunction of an auxiliary contact in the opening circuit prevented the valve from re-opening. With this valve closed and unable to open automatically, LPCI injection into the reactor pressure vessel from both divisions of RHR would have been prevented if LPCI loop select had selected division 2 for injection. Consequently, both divisions of RHR were declared inoperable and the licensee entered TS 3.0.3, Function J, until the auxiliary contact was cycled, the valve was opened electrically from the control room, and the TS was exited before commencing a reactor power reduction. The inspectors responded to the control room during the event and discussed this issue with operations and engineering personnel. Also, the inspectors reviewed electrical logic diagrams, piping schematics and the work history of the valve. Finally, the inspectors entered the torus room to examine the condition of the valve.

These activities represented one inspection sample.

b. Findings

No findings of significance were identified.

.3 Second Failure of Drywell Cooler Number 4

a. Inspection Scope

The inspectors responded to an unexpected increase in drywell identified leakage caused by a failed waterbox gasket on a drywell cooler causing operators to initiate a manual plant shutdown. The inspectors interviewed engineers and operators and reviewed documents associated with the event and previous repairs of the cooler that contributed to the gasket failure.

These activities represented one inspection sample.

b. Findings

On June 25, 2005, the joint gasket on the northwest waterbox for drywell cooler T4700B004 failed. The drywell cooling system was neither required for safe shutdown of the plant nor required to mitigate the consequences of any accident. The system was designed to maintain the pressure integrity of the emergency equipment cooling water (EECW) system, which was considered its safety-related function. The drywell coolers were designed to be isolated at high drywell pressure to prevent transferring drywell heat loads to safety-related equipment supported by EECW located outside the drywell

Non-radioactive water from the RBCCW system, used as a cooling medium for the drywell coolers, leaked from the failed gasket and collected in the drywell floor drain at a rate of approximately 48 gallons per minute (gpm). Control room alarm 2D116, "RBCCW Makeup Tank Flow High," actuated and operators were dispatched to verify that the makeup valve was open. Approximately 2 minutes later, control room alarm 2D75, "Drywell Floor Sump Level Rate of Change High," actuated when the rate of change exceeded 2 gpm in a 4-hour period. Due to the confirmed RBCCW leak, operators considered the drywell leakage to be identified and did not enter any EAL.

Moreover, chemists sampled the water from the drywell floor drain sump. This sample contained the rust inhibitor used in the RBCCW system and no short-lived radionuclides. These results further confirmed the leak was from RBCCW. After manually shutting down the plant, operators aligned the division 2 EECW system to the drywell coolers and confirmed that the EECW makeup tank level dropped, indicating that a leak existed in the system. After isolating the string of affected coolers, the unidentified leak rate dropped to less than 2 gpm.

Condition Assessment Resolution Document (CARD) 05-23843 was written to investigate the cause of the failure. During a walk down inside the drywell, the licensee identified that the northwest outlet water box end cover gasket was extruded on cooler T4700B004. The extrusion was located at the upper right hand corner between the 7.5 inch spaced bolts, at the same location as the January 24, 2005, event. This event was documented in NRC Inspection Report 05000341/2004-004 and LER 05000341/2005001.

As part of the licensee's immediate corrective actions, licensee personnel isolated the affected cooler and formed a team to investigate the cause of the leak and any extent of condition issues. This is an Unresolved Item pending the inspectors' review and the licensee's root cause, extent of condition evaluation, and actions to prevent recurrence. (URI 05000341/2005012-05)

.4 (Open) URI 05000341/2004007-05: Emergency Diesel Generator 12 Blower Failure

The inspectors opened this unresolved item to document a self-revealed issue with the failure of EDG 12 blower. The inspectors reviewed the licensee's root cause investigation for the failure of the blower. The inspectors reviewed the CARD written for the failure and interviewed maintenance and engineering personnel. Due to the

inspectors' questions regarding the source of a screw that was identified as an imprint on the blower impeller end plate and blower lobe, the licensee reopened the root cause investigation. The investigation will examine other sources that may have introduced the screw into the system. This item will remain open.

.5 (Closed) Unresolved Item 05000341/2005004-06: Degraded Locking Mechanism for Locked High Radiation Area (LHRA) Door

Unresolved Item 05000341/2005004-06 was opened to document a potential degraded locking mechanism on the reactor building first floor steam tunnel door, a door normally controlled as an LHRA during operations in order to satisfy TS 5.7.2. On March 16, 2005, the resident inspectors identified a vulnerability with the latch/lock mechanism for the door that could potentially allow the mechanism to be defeated if physically challenged significantly.

The inspectors reviewed the issue to assess compliance with TS 5.7.2 which required that areas accessible to individuals with radiation levels in excess of 1000 millirem/hour at 30 centimeters be provided with locked doors to prevent unauthorized entry. To evaluate the issue, the inspectors reviewed CARDS generated by the licensee for this problem and the associated condition evaluation, discussed the issue with various members of the RP staff, reviewed the maintenance and WR history for the door locking mechanism, and independently assessed the physical integrity of the latch/lock mechanism and door. The inspectors evaluated the issue for compliance with the TS, consistent with guidance contained in Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas in Nuclear power Plants," and NEI 99-02, Revision 3, "Regulatory Assessment Performance Indicator Guideline."

The inspectors concluded that although the lock mechanism as identified on March 16, 2005, was degraded, the lock could not be defeated without "exceptional effort/measures" or use of specialized tooling as provided in Regulatory Guide 8.38. No unauthorized entry into the LHRA occurred while the lock mechanism was in a degraded condition. Consequently, no finding or violation of the TS was identified. However, as described in Section 4OA2, the inspectors identified that the licensee failed to identify the underlying cause of the door latch mechanism problems and consequently take timely and effective corrective action to address repetitive mechanism degradation. This URI is closed.

.6 (Closed) Unresolved Item 05000341/2005004-08: Missed Declaration of an Unusual Event, February 7, 2005.

This URI involved operations personnel missing declaring an Unusual Event for an unexpected increase in reactor building radiation levels and is discussed in Section 1EP5.1 of this report.

.7 Review of Licensee Event Reports

(Closed) LER 05000341/2005-001: Reactor Shutdown Due to Containment Cooler Leak

On January 24, 2005, operators manually shutdown the unit when drywell unidentified leakage exceeded 10 gpm, which was above the TS limit of 5 gpm. At this leakage rate, an Unusual Event was declared per the emergency plan and an Alert declaration shortly followed when leakage exceeded 50 gpm. During an inspection of the drywell, the licensee discovered the sealing gasket on the end bell for drywell cooler number 4 failed, leaking non-radioactive water to the floor of the drywell and collecting in the drywell floor drain sump. This sump was used to calculate the unidentified leakage rate. The inspectors reviewed this event and documented a finding that was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in Inspection Report 05000341/2005004. This item is closed.

40A4 Cross-Cutting Aspects of Findings

- .1 A finding described in Section 1EP3 of this report had as a primary cause a Human Performance deficiency (organization). Specifically, during changes to the augmentation process, the reviewers did not complete sufficient validation and oversight of the changes.
- .2 A finding described in Section 1EP5.1 of this report had as a primary cause a Human Performance deficiency (personnel). Specifically, licensee personnel failed to recognize emergency action level entry criteria to declare an emergency.
- .3 A finding described in Section 1EP5.2 of this report had as a primary cause a Human Performance deficiency (personnel). Specifically, licensee personnel failed to recognize expectations and responsibilities associated with requirements for timely augmentation of the on-shift staff in an emergency.

40A5 Other Activities

- .1 (Closed) Temporary Instruction (TI) 2515/163: "Operational Readiness of Offsite Power."

The objective of TI 2515/163, "Operational Readiness of Offsite Power," was to confirm, through inspections and interviews, the operational readiness of offsite power (OSP) systems in accordance with NRC requirements. The inspectors reviewed licensee procedures and discussed the attributes identified in TI 2515/163 with licensee personnel. In accordance with the requirements of TI 2515/163, inspectors evaluated licensee procedures against the attributes discussed below.

The operating procedures that the control room operator used to assure the operability of the OSP have the following attributes:

1. Identify the required control room operator actions to take when notified by the transmission system operator (TSO) that post-trip voltage of the OSP will not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply.

2. Identify the compensatory actions the control room operator is required to perform if the TSO is not able to predict the post-trip voltage for the current grid conditions.
3. Identify the notifications required by 10 CFR 50.72 for an inoperable offsite power system when the site is either informed by its TSO or when an actual degraded voltage condition is identified.

The procedures to ensure compliance with 10 CFR 50.65(a)(4) had the following attributes:

1. Direct the plant staff to perform grid reliability evaluations as part of the required maintenance risk assessment before taking a risk-significant piece of equipment out-of-service to perform maintenance activities.
2. Direct the plant staff to ensure that the current status of the OSP system has been included in the risk management actions and compensatory actions to reduce the risk when performing risk-significant maintenance activities or when LOOP or SBO mitigating equipment are taken out-of-service.
3. Direct the control room staff to address degrading grid conditions that may emerge during a maintenance activity.
4. Direct the plant staff to notify the TSO of risk changes that emerge during ongoing maintenance at the nuclear power plant.

The procedures to ensure compliance with 10 CFR 50.63 had the following attribute:

1. Direct the control room operators on the steps to be taken to attempt to recover offsite power within the station blackout (SBO) coping time.

The results of the inspectors' review were forwarded to Office of Nuclear Reactor Regulation (NRR) for further review and evaluation.

4OA6 Meetings

.1 Exit Meetings

The inspectors presented the inspection results to Mr. O'Connor and other members of licensee management at the conclusion of the inspection on July 14, 2005. 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 exit meetings were conducted for:

- emergency preparedness inspection with Mr. W. O'Connor and other members of licensee management on May 5, 2005;

- heat sink biennial inspection with Mr. D. Cobb and other members of licensee management on May 12, 2005; and
- occupational radiation safety radiological access control inspection with Mr. D. Cobb and other members of licensee management on May 20, 2005.

ATTACHMENT: SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

W. O'Connor, Jr., Vice President Nuclear Generation
D. Cobb, Plant Manager
J. Baum, Radiological Emergency Response Plan Specialist
W. Colonnello, Nuclear Support Director
D. Craine, General Supervisor, Radiological Engineering
G. Garber, Radiological Emergency Response Plan Specialist
H. Higgins, Radiation Protection Manager
R. Johnson, Nuclear Engineering Supervisor
R. Libra, Director Nuclear Engineering
A. Lim, Supervisor, Mechanical/Civil
K. Morris, Emergency Preparedness Supervisor
D. Noetzel, Manager Nuclear System Engineering
N. Peterson, Nuclear Licensing Manager
M. Philippon, Operations Manager
P. Smith, Nuclear Assessment Director
S. Stasek, Nuclear Projects Director
J. Priest, General Supervisor, Radiation Protection Operations

NRC

E. Duncan, Chief, Division of Reactor Projects, Branch 6

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

| | | |
|---------------------|-----|--|
| 05000341/2005012-01 | NCV | Failure to Perform a 10CFR50/54(q) Review to Determine if Changing the Augmentation Process for the station nuclear engineer was a Decreased the effectiveness of the Emergency Plan |
| 05000341/2005012-02 | NCV | Failure to Declare an Unusual Event Upon Determining That an ARM Reading Exceeded the Maximum Normal Operating Level |
| 05000341/2005012-03 | NCV | Failure of 4 of the 6 Required RP Technicians to Augment the On-shift Staff in the Required 30 Minutes for the January 24, 2005, Declared Alert |
| 05000341/2005012-04 | NCV | Torque Switch Corrosion Due to Heat Degraded Wires |
| 05000341/2005012-05 | URI | Second Failure of Drywell Cooler Number 4 |

Closed

| | | |
|---------------------|-----|--|
| 05000341/2005012-01 | NCV | Failure to Perform a 10CFR50/54(q) Review to Determine if Changing the Augmentation Process for the station nuclear engineer was a Decreased the effectiveness of the Emergency Plan |
| 05000341/2005012-02 | NCV | Failure to Declare an Unusual Event Upon Determining That an ARM Reading Exceeded the Maximum Normal Operating Level |
| 05000341/2005004-08 | URI | Missed Declaration of an Unusual Event |
| 05000341/2005012-03 | NCV | Failure of 4 of the 6 Required RP Technicians to Augment the On-shift Staff in the Required 30 Minutes for the January 24, 2005, Declared Alert |
| 05000341/2004007-06 | URI | Environmental Qualification of E4150F003 |
| 05000341/2005012-04 | NCV | Torque Switch Corrosion Due to Heat Degraded Wires |
| 05000341/2005004-06 | URI | Degraded LHRA Door Lock Mechanism |
| 05000341/2005-001 | LER | Technical Specification Required Shutdown Due to Containment Cooler Leak |

Discussed

05000341/2004007-05 URI EDG 12 Blower Failure

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that 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.

1R04 Equipment Alignment (71111.04)

- 23.202, Rev. 88; High Pressure Coolant Injection
- Drawing 6M721-5708-1, Rev. AI; High Pressure Coolant Injection System Functional Operating Sketch
- 23.128, Rev. 36; Turbine Building Closed Cooling Water System
- Drawing 6M721-5728-2, Rev. T; Turbine Building Closed Cooling Water System (First Floor) Functional Operating Sketch
- Drawing 6M721-5728-1, Rev. AC; Turbine Building Closed Cooling Water System (2nd and 3rd Floor) Functional Operating Sketch

1R05 Fire Protection (71111.05)

- UFSAR Section 9A.4.2.13: Switch Gear Room, Zone 12, elevation 643
- UFSAR Section 9A.4.2.5: Switch Gear Room, Zone 4, elevation 613
- UFSAR Section 9A.4.1.4: High Pressure Coolant Injection Pump and Turbine and Control Rod Drive Pump Room, Zone 3, elevation 540'0" and 562'0".
- UFSAR Section 9A.4.1.3: Basement Corner Rooms, Zone 2, elevation 540'0" and 562'0"
- UFSAR Section 9A.4.2.3: Mezzanine and Cable Tray Area, Zone 2, elevation 583'6" and 603'6"
- UFSAR Section 9A.4.5: Turbine Building
- UFSAR Section 9A.4.8: General Service Water Pumphouse
- UFSAR Section 9A.4.1.2: Torus Room, Zone 1, Elevation 540'0"
- UFSAR Section 9A.4.1.10: Fifth Floor Zone 9, elevation 684'6"
- UFSAR Section 9A.4.3: Residual Heat Removal Complex
- UFSAR Section 9A.4.2.9: Cable Tray Area, Zone 8, elevation 631'0"

1R07 Heat Sink Performance (71111.07)

- AOP 20.000.01; Acts of Nature; Revision 34; dated February 16, 2005
- ARP 7D7; Division I Residual Heat Removal Cooling Tower Inlet/Reservoir Temperature Abnormal; Revision 12; dated February 15, 2000
- ARP 7D8; Division II Residual Heat Removal Cooling Tower Inlet/Reservoir Temperature Abnormal; Revision 11; dated February 22, 2000
- ARP 7D3; Division 1 Residual Heat Removal Reservoir Level Abnormal; Revision 14; dated November 23, 2004
- CARD 98-16054; Corrosion Nodules in Heat Exchanger Tubes; dated August 25, 1998
- CARD 03-14451; Corroded Bolts on Residual Heat Removal Service Water Pump 'A' Column Flanges; dated April 5, 2003
- CARD 03-16709; Disk Guides Deteriorated; dated April 13, 2003

- CARD 04-20627; Evaluate Improvements to Emergency Diesel Generator Heat Exchangers for Long Term Reliability; dated January 31, 2005
- CARD 04-25716; Cross Tie Valves in Residual Heat Removal Division 1 Failure to Cycle Fully; dated November 17, 2004
- CARD 04-25752; Debris Removed from Residual Heat Removal Division 1 Reservoir; dated November 18, 2005
- CARD 05-22957*; Inspector Identified Issues Regarding Emergency Diesel Generator Heat Exchanger Inspections and Procedure 34.307.001; dated May 11, 2005
- CARD 05-22958*; Inspector Identified Issue Regarding Heat Exchanger Visual Acceptance Criteria; dated May 11, 2005
- CARD 05-23002*; EFA P44-02-005 is Missing Page 34; dated May 12, 2005
- EFA P44-02-005; Emergency Equipment Cooling Water Operability with Additional Drywell Heat Load; dated December 21, 2004
- Emergency Diesel Generator Service Water Pump 13 Inservice Test Performance Data and Graphs; dated January 9, 2002 through February 9, 2005
- Emergency Diesel Generator Service Water Pump 14 Inservice Test Performance Data and Graphs; dated January 16, 2002 through February 16, 2005
- IST-PPL; Inservice Test Program Summary Pump Performance Limits Basis; Revision 4; dated May 5, 2004
- NPRC-04-0142; Corrosion Rates; dated September 8, 2004
- PEP 27.000.04; Freeze Protection Lineup Verification; Revision 30; dated March 24, 2005
- Record of Heat Exchanger Inspection, Emergency Diesel Generator 13 Heat Exchangers; dated April 5, 2005
- Record of Heat Exchanger Inspection, Emergency Diesel Generator 14 Heat Exchangers; dated February 15, 2005
- SOP 23.208; Residual Heat Removal Complex Service Water Systems; Revision 77; dated February 9, 2005
- SP 24.000.02; Shiftly, Daily, and Weekly Required Surveillances; Revision 112; dated October 29, 2004
- TMPE-96-0513; Residual Heat Removal Reservoir Silt Impact on Technical Specification Residual Heat Removal Reservoir Volume; dated November 11, 1996
- WR P244040100; Perform Division 2 Residual Heat Removal Reservoir Zebra Mussel and Ball Valve Inspection Dive; dated November 12, 2004
- WR P245040100; Perform Division 1 Residual Heat Removal Reservoir Zebra Mussel and Ball Valve Inspection Dive; dated November 18, 2004
- WR TG67020204; Perform Visual Inspection of Division 1 Mechanical Draft Cooling Tower Spray Nozzles and Drift Elimination Fill; dated May 6, 2002
- WR TG68050314; Perform Visual Inspection of Division 2 Mechanical Draft Cooling Tower Drift Elimination Fill; dated March 14, 2005
- WR W844040100; Perform 18 Month Preventive Maintenance Tasks per 34.307.001 on Emergency Diesel Generator 14 (portion associated with heat exchangers); dated February 18, 2005
- WR W848040100; Perform 18-Month Preventive Maintenance Tasks per 34.307.001 on Emergency Diesel Generator 13 (portion associated with heat exchangers); dated April 18, 2005
- Job TG24041022; Perform 47.205.01 RHR Division 1 Heat Exchanger Performance Test

- Job ID TG24030328; Perform 47.205.01 RHR Division 1 Heat Exchanger Performance Test
- Job ID TG24010930; Perform 47.205.01 RHR Division 1 Heat Exchanger Performance Test
- Job ID TG24000318; Perform 47.205.01 RHR Division 1 Heat Exchanger Performance Test
- 47.205.01, Rev. 10; RHR Division 1 (North) Heat Exchanger Performance Test
- File No. TMPE-02-0214; RHR Heat Exchanger Performance Requirements in Support of Dedicated Shutdown

1R11 Licensed Operator Requalification (71111.11Q)

- Scenario SS-OP-904-0171, Loss of Power/ Loss of Vacuum/ Anticipated Transient Without Scram

1R12 Maintenance Rule Implementation (71111.12)

- Turbine Building Closed Cooling Water System Health Report for 3rd Quarter 2003
- Turbine Building Closed Cooling Water System Health Report for 4rd Quarter 2004
- Turbine Building Closed Cooling Water System Health Report for 2nd Quarter 2003
- CARD 04-24589; P4300 System Exceeds Maintenance Rule Criteria For Out of Service Hours
- CARD 04-22952; TBCCW Heat Tank Level Control Valve Failed Open
- CARD 04-24787; TBCCW Head Tank Makeup Valve Controller Failure
- CARD 03-18171; TBCCW Level Control Valve Isolated, Unable to Control Level

1R13 Maintenance Risk Assessment and Emergent Work (71111.13)

- Turbine Building Closed Cooling Water Monthly Maintenance Rule Evaluations; January 1, 2003, through March 1, 2005
- Selected Operator Logs; January 1, 2003, through March 1, 2005
- Turbine Building Closed Cooling Water System Out Of Service Hours; January 1, 2003, through March 1, 2005
- Turbine Building Closed Cooling Water Functional Failure Evaluations; January 1, 2003, through March 1, 2005

1R15 Operability Evaluations (71111.15)

- EFA P44-03-007, Rev. E: Division 2 Core Spray Room Cooler Low Air Flow

1R16 Operator Work-arounds (71111.16)

- Operator Work-around for reactor water cleanup strainer high differential pressure.

1R17 Permanent Modifications (71111.17)

- EDPs 29258 and 28886 for reactor recirculation pump A discharge isolation valve B3105F031A

1R19 Post Maintenance Testing (71111.19)

- WR 000Z051888; Troubleshoot and Repair E1150-F017B
- WR A005040100; Replace and Calibrate HPCI Speed Controller and Ramp Generator
- Quality Control Report 05-IR-0367
- WR 000Z051561; HPCI Booster Pump Outboard Bearing Level Indicator Leaking Oil
- WR 000Z050291; Manufacturing Defect on New Relay Socket prevents C1100M003 From Seating

1R20 Refueling & Outage Activities (71111.20)

- Operations Conduct Manual MOP 22; Operations Outage Management, Revision 1
- Procedure 22.000.05; Pressure/Temperature Monitoring During Heatup and Cooldown, Revision 39

1R22 Surveillance Testing (71111.22)

- Job No. 1100050412; Perform 24.202.01 Sec. 5.2 HPCI Pump Response Time Test and Operability Test at 1025 psig
- Job 0123050131; Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability
- Job 0123040503; Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability
- Job 0123040802; Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability
- Job 0123041101; Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability
- Job 0123040202; Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability
- 24.205.05, Rev. 42; Division 1 RHRSW Pump and Valve Operability Test
- Design Calculation DC-0201, Vol. I, Rev. C; Final Head Check - RHRSW Pumps

1R23 Temporary Plant Modifications (71111.23)

- TSR-32548, Rev. 0; Configuration Control Document Generated From CARD 02-15440
- Safety Evaluation SE-95-0016, Rev. 0
- CARD 02-15440; Portable Demin Tied Into RBCCW System (Configuration/Design Control)

1EP2 Alert and Notification System (ANS) Testing (71114.02)

- Operating Experiences - Sirens; January 2004 through April 2005
- Requests For Maintenance of the ANS; December 2003 through January 2005
- Siren Warning System Preventative Maintenance Checklists; October 2004 through April 2005
- Monthly Performance Indicator Results For ERO Participation; October 2003 through March 2005
- ANS Siren Malfunctions and Incongruities; September 2004 through March 2005

1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

- EP-290; Emergency Notifications; dated October 12, 2004
- EP-292; Emergency Call Out - Backup Method; dated January 29, 2004
- QP-ER-665; ERO Selection, Training, and Qualification Prog. Description; Revision 26

- Fermi 2 RERP Work Instruction; Emergency Call Out System Maint. and Testing; dated May 13, 2004
- NARP-04-0001 Memorandum; Upgraded Emergency Call Out System (ECOS); dated January 2, 2004
- ERO Off-Hours, Unannounced Augmentation Tests and Drills; ECOS Test Reviews; February 2004 through March 2005
- Emergency Call Out Roster; dated May 3, 2005
- Fermi 2 Emergency Response Organization Team List; dated March 29, 2005
- Fermi 2 Operations Department Roster; dated May 2, 2005
- CA05-23009; NRC Violation: Change to Emergency Preparedness Program That Decreased the Effectiveness Without Prior NRC Approval; dated May 12, 2005
- CARD04-21911; Minimum 30-Minute RERP Plan Response Time or Staffing Requirements For Station Nuclear Engineer Position Are Not Being Verified; dated April 29, 2004

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

- Fermi 2 Radiological Emergency Response Preparedness Plan; Revisions 29 and 30

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

- Fermi 2 RERP Plan, Section D; Emergency Classification System; Revision 30
- EOP 29.100.01; Secondary Containment and Radiation Release, Sheet 5; Revision 7
- EP-101; Classification of Emergencies; dated March 18, 2004
- EP-540; Drills and Exercises; dated August 23, 2004
- Nuclear Quality Assurance Audit Report 04-0106; Emergency Preparedness Program; dated June 15, 2004
- Memorandum From K. Morris; Self Assessment, Benchmarking Management Expectations for the Emergency Response Organization; dated March 31, 2005
- Memorandum From G. Garber; Control Room Area Radiation Monitor Alarm on February 7, 2005; dated March 4, 2005
- Memorandum From K. Morris; January 24, 2005 Alert; dated February 21, 2005
- Memorandum From J. Baum; December 26, 2004, Unusual Event; dated January 4, 2005
- Memorandum From K. Morris; Line Ownership of Emergency Preparedness Focused Self-Assessment; dated October 28, 2004
- Memorandum From G. Henscheid; 2004 RERP Training Focused Self-Assessment; dated September 2, 2004
- Root Cause Determination For Missed Emergency Classification During EOPs, CARD05-20846; dated March 17, 2005
- MQA11, Quality Assurance Conduct Manual; Condition Assessment Resolution Document; dated September 27, 2004
- Drill/Exercise Critique Summary; March 23, 2005, Drill; dated April 11, 2005
- Drill/Exercise Critique Summary; December 17, 2004, Drill; dated January 12, 2005
- Drill/Exercise Critique Summary; March 23, 2004, Evaluated Exercise; dated April 13, 2004
- Emergency Call Out System Records; dated January 24, 2005
- Fermi 2 Control Room Log, Notification Forms, and Procedure Checklists; dated December 26, 2004

- CARD05-23009; NRC Violation: Change to Emer. Prep. Program That Decreased the Effectiveness Without Prior NRC Approval; dated May 12, 2005
- CARD05-22649; Enhancement Recommendation: Clarify Direction to the Operating Crew to Consider Actions Necessary to Protect Personnel; dated April 26, 2005
- CARD04-21963; Inconsistent Position Descriptions Listed in the RERP Tables B-1 and B-2, and in EP-110 "Organization and Responsibilities"
- CARD05-20846; Missed Emergency Classification During Emergency Operating Procedures; dated February 7, 2005
- CARD05-20824; Radiation Protection Technicians Did Not Meet Response Time Requirements During January 24, 2005 Alert Event - Repeat Issue; dated February 7, 2005
- CARD04-22966; RERP: Staffing Time Requirements For Fermi 2 ERO; dated July 1, 2004
- CARD04-21373; Assembly and Accountability Not Reported in a Timely Manner to the Emergency Director; dated March 29, 2004
- CARD03-22478; Potential Violation for Decreasing the Effectiveness of the (Emergency) Plan Without Prior NRC Approval; dated November 10, 2003

1EP6 Drill Evaluation (71114.06)

- TSC Access Log dated June 8, 2005
- RERP Drill Package dated June 8, 2005

2OS1 Access Control to Radiologically Significant Areas (71121.01)

- Radiation Protection Conduct Manual; Chapter 06; Accessing and Control of High Radiation, Locked High Radiation, and Very High Radiation Areas; Revision 7
- MRP 06003; High Radiation Area Key Issue Log; January 2004 through April 2005 (selected periods)
- MRP 06002; High Radiation Area Key Index; Revision 8
- Plant Technical Procedure 63.000.200 (and selected attachments); ALARA Reviews; Revision 17
- Plant Technical Procedure 67.000.101 (and selected attachments and enclosures); Performing Surveys and Monitoring Work; Revision 19
- Plant Technical Procedure 63.000.100 (and selected enclosures); Radiation Work Permits; Revision 21
- Plant Technical Procedure 65.000.211; Bioassay Sample Collection and Processing; Revision 9
- Plant Technical Procedure 65.000.267; Whole Body Count Protocol and Evaluation of Bioassay Results; Revision 0
- Radiation Protection Work Instruction; Instruction for Radiation Protection Routine Surveys; Revision 2
- Surveillance Records for Locked High Radiation/High radiation area Door Checks; January 2004 through April 2005
- Radiation Protection Work Instruction; Daily Surveillance Signoff Sheets for HRA/LHRA/VHRA Door Checks; January 2004 through April 2005
- Work Request Package No. A714050100; Inspect, Clean and Lubricate High Rad Doors; dated December 27, 2004

- Work Request Package No. 000Z964717; Steam Tunnel Door Inspection/Repair; dated September 28, 1996
- Work Request Package No. 000Z967604; Steam Tunnel Door Lock Mechanism Repair; dated November 16, 1996
- Work Request No. 000Z022972 and No 000Z033045; Steam Tunnel Door Lock Mechanism Loose/Broken; dated October 2, 2002 and August 1, 2003
- CARD05-20731; Steam Tunnel Door Locking Mechanism Assembly; dated February 3, 2005
- CARD05-20732; Personnel Trapped in Steam Tunnel During Startup; dated February 3, 2005
- CARD05-21196; Locking Device Failed; dated February 23, 2005
- CARD05-21882; Locked High Radiation Area Door Locking Mechanism Failure; dated March 22, 2005
- Work Request Package No. 000Z050746; Steam Tunnel Door Striker Needs Rework; dated February 28, 2005
- CARD05-21903; Ability to Bypass HRA/LHRA Door Locks; dated March 22, 2005
- Nuclear Quality Assurance Audit Report 04-0112; Radiation Protection Program; dated December 16, 2004
- RWP 04-1023 (and associated radiation surveys); RHR System Rework, Repair, and Perform Inspections and Required Preventative Maintenance on System Components; Revision 8
- RWP 05-1012 (and associated radiation surveys and dose tracking logs); Operations HRA Tours, Inspections, Surveillances, Valve Line-ups, Venting, Draining and Filling Systems; Revision 1
- RWP 05-1027 (and associated radiation surveys); HPCI and RCIC Pump Test Runs; Revision 1
- RWP 05-1031 (and associated radiation surveys and dose tracking logs); Main Steam Supply and Turbine Steam System Rework, Repair, and Preventative Maintenance on System Components; Revision 1
- CARD04-26404; Change to Plant Conditions Effecting Dose Rates; dated December 3, 2004
- CARD04-24006; RWP Violation; dated September 2, 2004
- CARD05-20113; Worker Entered Radiation Area on General; dated January 7, 2005
- CARD05-00439; Employee Concern Regarding Entering Radiologically Restricted Area Under Incorrect RWP; dated April 27, 2005
- Records of Internal Dose Assessment (including raw whole body cont data); Review of All Positive Whole Body Counts for Period October 2004 - April 2005

4OA1 Performance Indicator Verification (71151)

- NEI 99-02; Performance Indicators; dated November 19, 2001
- Personnel Who Have Received Greater Than 100 Millirem for a Single Entry and Greater Than 1000 Millirem/Hour Dose Rate Alarm (electronic dosimetry transaction reports for April 2004 - May 17, 2005)
- MES45 Engineering Support Conduct Manual; Performance Data Reporting; dated April 22, 2005
- NRC Performance Indicator (RERP) Documentation Form; January 2004 through March 2005

- Monthly Performance Indicator Results For Drill and Exercise Performance; January 2004 through March 2005
- Monthly Performance Indicator Results For ANS Reliability; January 2004 through March 2005
- Fermi 2 RERP Work Instruction; Operation of the Siren Alert Notification System; dated February 25, 2004
- Fermi 2 Monthly Siren Test Results; January 2004 through March 2005

LIST OF ACRONYMS USED

| | |
|-------|--|
| ANS | Alert and Notification System |
| ARM | Area Radiation Monitor |
| CARD | Condition Assessment Resolution Document |
| CFR | Code of Federal Regulations |
| DRP | Division of Reactor Projects |
| DRS | Division of Reactor Safety |
| EAL | Emergency Action Level |
| ECOS | Emergency Call Out System |
| EDG | Emergency Diesel Generator |
| EECW | Emergency Equipment Cooling Water |
| EFA | Engineering Functional Analysis |
| EOP | Emergency Operating Procedures |
| EP | Emergency Preparedness |
| ERO | Emergency Response Organization |
| HPCI | High Pressure Coolant Injection |
| HRA | High Radiation Area |
| IMC | Inspection Manual Chapter |
| LER | Licensee Event Report |
| LHRA | Locked High Radiation Area |
| LPCI | Low Pressure Coolant Injection |
| MCC | Motor Control Center |
| NCV | Non-Cited Violation |
| NQA | Nuclear Quality Assurance |
| NRC | Nuclear Regulatory Commission |
| OSP | Offsite Power |
| PI | Performance Indicator |
| RBCCW | Reactor Building Closed Cooling Water |
| RERP | Radiological Emergency Response Preparedness |
| RHR | Residual Heat Removal |
| RP | Radiation Protection |
| RWP | Radiation Work Permit |
| SOP | System Operating Procedure |
| SDP | Significance Determination Process |
| SNE | Station Nuclear Engineer |
| SST | Service System Transformer |
| TBCCW | Turbine Building Closed Cooling Water |
| TS | Technical Specifications |
| TSO | Transmission System Operator |
| UFSAR | Updated Final Safety Analysis Report |
| VHRA | Very High Radiation Area |
| WR | Work Request |