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

May 2, 2012

EA-12-069

Mr. Anthony Vitale
Vice-President, Operations
Entergy Nuclear Operations, Inc.
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION REPORT 05000255/2012002 AND EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Vitale:

On March 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. The enclosed report documents the results of this inspection, which were discussed on April 3, 2012, with you and other members of your staff.

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

Two self-revealing findings of very low safety significance (Green) were identified during this inspection.

Each of these findings was determined to involve violations of NRC requirements. Additionally, the NRC has determined that one traditional enforcement Severity Level IV violation occurred. This traditional enforcement violation was identified with an associated finding. Further, a licensee-identified Severity level IV violation is listed in Section 4OA7 of this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

Additionally, based on the results of this inspection, one NRC-identified violation of 10 CFR 50.48(b) was discovered that involved a violation of NRC requirements. The inspectors have screened this violation and determined that it warrants enforcement discretion per the Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues and Section 11.05(b) of Inspection Manual Chapter 0305.

If you contest the subject or severity of these NCVs, 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 Palisades Nuclear Plant.

If you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Palisades Nuclear Plant. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

John B. Giessner, Chief
Branch 4
Division of Reactor Projects

Docket No. 50-255
License No. DPR-20

Enclosure: Inspection Report 05000255/2012002
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	05000255/2012002
Licensee:	Entergy Nuclear Operations, Inc.
Facility:	Palisades Nuclear Plant
Location:	Covert, MI
Dates:	January 1, 2012, through March 31, 2012
Inspectors:	J. Ellegood, Senior Resident Inspector T. Taylor, Senior Resident Inspector A. Scarbeary, Resident Inspector M. Bielby, Operator Licensing D. Betancourt-Roldan, Reactor Engineer A. Dahbur, Senior Reactor Inspector D. Szwarc, Reactor Inspector K. Walton, Operator Licensing C. Zoia, Operator Licensing
Approved by:	John B. Giessner, Chief Branch 4 Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS

Inspection Report 05000255/2012002; 01/01/2012 – 03/31/2012; Palisades Nuclear Plant; Licensed Operator Requalification Program, Maintenance Effectiveness, Refueling and Other Outage Activities

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Three Green findings were identified. The findings were considered non-cited violations (NCV) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects were determined using IMC 0310, "Components Within the Cross Cutting Areas." 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 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Severity Level IV. A finding of very low safety significance and associated NCV of 10 CFR 55.49, "Integrity of Examination and Tests" was identified by the inspectors for failure to ensure there were no activities which compromised exam integrity. Specifically, the licensee failed to properly review Simulator Exam Scenario (SES) 130 and the associated Reactivity Management Briefing Sheet. Had the briefing sheet been provided to the crew being evaluated, without inspector intervention, it would have resulted in an exam compromise. The inspectors identified that a critical task was on the crew briefing sheet prior to its administration, and told the licensee of the condition. The licensee subsequently added a page break to push the critical task from the briefing sheet to the following page. There was no actual exam compromise. The licensee also entered the issue in their Corrective Action Program (CAP) as CR-PLP-2012-1001.

  Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process, because the issue dealt with licensed operator qualification. The violation is consistent with a Severity Level IV violation using the enforcement policy. The inspectors determined that the underlying technical issue could be evaluated using the SDP. This issue is associated with the Initiating Events cornerstone. The underlying risk significance was determined to be more than minor because if left uncorrected, this event could have the potential to put unqualified operators in the control room. Specifically, the Reactivity Management Briefing Sheet in SES 130 inadvertently contained Critical Task No. 1 of the scenario. Had the briefing sheet been provided to the evaluated crew with the critical task provided at the bottom of the sheet, the crew would have known one of the performance elements of the scenario for which the crew was being evaluated. The finding screened as Green because all questions for the Initiating Events Cornerstone in Table 4a of IMC 0609 Attachment 4 could be answered 'no.' The inspectors did not identify any applicable cross-cutting aspects associated with this finding in reviewing IMC 0310. (Section 1R11)

- Green. A self-revealed finding of very low safety significance and associated NCV of Technical Specification (TS) 5.4.1, Procedures, was identified for the failure to adequately implement the fuse control procedure during the reinstallation of a safety-related fuse after maintenance. Specifically, insufficient contact was established between a fuse holder clip and fuse ferrule for safety-related fuse FUZ/Y1014-2, resulting in the opening of the 'A' Feedwater Pump Recirculation valve, CV-0711 at full power. This induced a feed transient which required operators to manually trip the reactor. The licensee took compensatory actions to ensure the valve was isolated prior to the return to full power operation. The licensee also entered the issue in their CAP as CR-PLP-2012-02182 to further evaluate the conditions of the procedural guidance implementation, procedural disconnects, application of "loose fuse" operating experience, and the extent of condition for other safety-related fuses.

  The finding was determined to be greater than minor in accordance with IMC 0612 Appendix B, "Issue Screening," because it is associated with the Initiating Events cornerstone attribute of Equipment Performance and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the cause of the feedwater transient which led to a plant trip on December 14, 2011 was intermittent electrical contact between FUZ/Y1014-2 and its holder clip. The finding screened as "Green" in the Initiating Events cornerstone by answering "no" to the Transient Initiator question of contributing to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The finding had a cross-cutting aspect in the area of problem identification and resolution related to the cross-cutting component of operating experience, in that the licensee implements and institutionalizes operating experience through changes to station processes, procedures, equipment, and training program. In this finding, the issue of "loose fuses," potential causes of these loose fuses, and the potential plant effects this could cause have been identified in externally generated operated experience as well as Palisades' own operating experience from a loose fuse on a safety-related component in 2011. Therefore, the inspectors determined this issue was reflective of current performance, and the inspectors determined that lessons learned from these identified "loose fuse" issues were not extensively reviewed for applicability throughout systems in the plant and were not fully institutionalized to prevent these issues from recurring. (P.2(b)) (Section 1R12)

- Green. A finding of very low safety significance with an associated NCV of TS 5.4.1 was self-revealed on January 7, 2012, for the failure to adequately implement a procedure when indications of Primary Coolant System (PCS) leakage exceeding 10 gallons per minute (gpm) were observed by the control room operators. The finding occurred while the plant was shut down and in a cold shutdown condition. Specifically, the licensee discovered that reactor head vent valves MV-PC1060B and MV-PC1060C had not been shut before filling and pressurizing the PCS, contrary to the requirements of procedure SOP-1C, Primary Coolant System-Heatup. The licensee shut the valves and isolated the leak. The leakage resulted in approximately 3000 gallons of primary coolant being transferred to the reactor cavity tilt pit. This leakage was subsequently drained prior to startup. The licensee entered the issue as CR-PLP-2012-00165 in their CAP.

  The finding was determined to be greater than minor in accordance with IMC 0612 Appendix B, "Issue Screening," because it is associated with the Initiating Events Cornerstone attribute of Configuration Control and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, uncontrolled release of coolant from the PCS could challenge plant stability. The issue screened as Green utilizing Attachment 1 of IMC 0609 Appendix G, "Shutdown Operations Significance Determination Process." Specifically, the finding and plant conditions at the time did not warrant the use of a Phase 2 or 3 analysis, because there was no impact on any safety functions. The inspectors determined the cause of the finding was associated with the cross-cutting area of human performance. Specifically, by assuming the reactor head vent valves were not open, operations shift personnel did not use conservative assumptions in decision making and adopt a requirement to demonstrate that a proposed action was safe in order to proceed. (H.1(b)) (Section 1R20)

B. **Licensee-Identified Violations**

Violations of very low safety significance or Severity Level IV that were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at 100% power. On January 5, 2012, the plant commenced a reactor shutdown to replace degraded control rod drive seals suspected of causing elevated primary coolant system leakage. Leakage values remained within technical specification limits before and throughout the shutdown. Control rod seal packages were replaced and the reactor returned to 100 percent power on January 10, 2012. On March 28, 2012, the plant commenced a downpower to approximately 54 percent to remove the ‘A’ Cooling Tower from service for replacement. At the conclusion of this inspection period, the plant was holding at approximately 60 percent power for the cooling tower work.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- ‘B’ auxiliary feedwater system alignment after pump and valve surveillance testing;
- high pressure safety injection during maintenance on opposite train; and
- 1-2 emergency diesel generator (EDG) during testing of 1-1 EDG.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders, condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the Corrective Action Program (CAP) with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted three partial system walkdown samples as defined in Inspection Procedure (IP) 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following plant areas:

- Fire Area 22: turbine lube oil room/elev. 590';
- Fire Areas 6 & 8: diesel generator 1-2 and fuel oil day tank rooms;
- Fire Area 16: component cooling pump rooms / elev. 590', 607', 625'; and
- Fire Areas 13F&G; boric acid equipment rooms and spent fuel pool heat exchanger room/elev. 590'.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On January 25, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program sample as defined in IP 71111.11.

b. Findings

No findings were identified.

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

a. Inspection Scope

On March 28, 2012, the inspectors observed operations staff conducting activities in the control room during a downpower to approximately 53 percent in order to take the 'A' Cooling Tower out of service for a planned re-build. This was an infrequently performed task or evolution that required heightened awareness, just-in-time training, and was related to an increase in risk.

On February 21, 2012, the inspectors observed operations staff conducting activities in the control room during a 2400V safety-related off-site power source bus transfer to prepare for a quarterly TS required surveillance test of the Safety Injection System initiation circuitry. This was an infrequently performed task or evolution that required heightened awareness and was related to an increase in risk.

The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications (if applicable).

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

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

b. Findings

No findings were identified.

.3 Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test, administered by the licensee from January 9 through February 10, 2012, required by 10 CFR 55.59(a). The results were compared to the thresholds established in Inspection Manual Chapter (IMC) 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," to assess the overall adequacy of the licensee's Licensed Operator Requalification Training (LORT) program to meet the requirements of 10 CFR 55.59.

This inspection constitutes one annual licensed operator requalification inspection sample as defined in IP 71111.11A.

b. Findings

No findings were identified.

.4 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the week of January 30, 2012, to assess: 1) the effectiveness and adequacy of the facility licensee's implementation and maintenance of its systems approach to training (SAT) based LORT program, put into effect to satisfy the requirements of 10 CFR 55.59; 2) conformance with the requirements of 10 CFR 55.46 for use of a plant referenced simulator to conduct operator licensing examinations and for satisfying experience requirements; and 3) conformance with the operator license conditions specified in 10 CFR 55.53. The documents reviewed are listed in the Attachment to this report.

- Problem Identification and Resolution (10 CFR 55.59(c); SAT Element 5 as Defined in 10 CFR 55.4): The inspectors evaluated the licensee's ability to assess the effectiveness of its LORT program and their ability to implement appropriate corrective actions to maintain its LORT Program up to date. The inspectors reviewed documents related to the plant's CAP and associated responses (e.g., plant issue matrix and performance review reports; recent examination and inspection reports; licensee event reports (LERs)). The inspectors reviewed the use of operating experience from plant events and industry information. The inspectors reviewed the licensee's quality assurance oversight activities.

- Licensee Requalification Examinations (10 CFR 55.59(c); SAT Element 4 as Defined in 10 CFR 55.4): The inspectors reviewed the licensee's program for development and administration of the LORT annual operating test to assess the licensee's ability to develop and administer examinations that are acceptable for meeting the requirements of 10 CFR 55.59(a).

  - The inspectors reviewed the methodology used to construct the examination including content, level of difficulty, and general quality of the examination/test materials. The inspectors also assessed the level of examination material duplication from week-to-week for both, the operating tests conducted during the current year, as well as the written examinations administered in 2011. The inspectors reviewed a sample of the written examinations.

  - The inspectors observed the administration of the annual operating test to assess the licensee's effectiveness in conducting the examinations, including the conduct of pre-examination briefings, evaluations of individual operator and crew performance, and post-examination analysis. The inspectors evaluated the performance of two crew(s) in parallel with the facility evaluators during performance of four dynamic simulator scenarios, and evaluated various licensed crew members concurrently with facility evaluators during the administration of several Job Performance Measures.

  - The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the last requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans.

- Conformance with Simulator Requirements Specified in 10 CFR 55.46: The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements. The inspectors reviewed a sample of simulator performance test records (e.g., transient tests, malfunction tests, scenario based tests, post-event tests, steady state tests, and core performance tests), simulator discrepancies, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy corrective action process to ensure that simulator fidelity was being maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics.

The inspectors completed IP 71111.11B, Section 03.04, 03.05, 03.06, 03.07, 03.09, and Section 03.10 respectively. However, IP 71111.11B, Section 03.08, "Conformance with Operator License Conditions" to date has not been completed, but completion is expected before the end of the biennial period.

b. Findings

The licensee identified that a licensed operator did not meet vision requirements as specified in American National Standards Institute (ANSI) 3.4-1983, Section 5.4.5. See Section 4OA7 of this report for discussion on the finding.

No additional findings were identified.

.5 Conformance with Examination Security Requirements (71111.11B)

a. Inspection Scope

The inspectors conducted an assessment of the licensee's processes related to examination physical security and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors reviewed the facility licensee's examination security procedure, and observed the implementation of physical security controls (e.g., access restrictions and simulator I/O controls) and integrity measures (e.g., sampling criteria, bank use, and test item repetition) throughout the inspection period. The inspectors reviewed the operating test to assure no unanticipated disclosure of exam material to the examinees.

b. Findings

Introduction: A finding of very low safety significance and associated non-cited violation (NCV) of 10 CFR 55.49, "Integrity of Examination and Tests" was identified by the inspectors for failure to ensure there were no activities which compromised exam integrity. Specifically, the licensee failed to properly review Simulator Exam Scenario (SES) 130 and the associated Reactivity Management Briefing Sheet. Had the briefing sheet been provided to the crew being evaluated, it would have resulted in an exam compromise. The inspectors informed the licensee of the issue and the licensee corrected the condition. There was no actual exam compromise.

Description: Prior to administering SES 130 to a crew, the inspectors identified that the Reactivity Management Briefing Sheet in SES 130 that would be given to the crew prior to the scenario contained information pertinent to the exam. Specifically, at the bottom of the Reactivity Management Briefing Sheet, the licensee included Critical Task No. 1 of the scenario. This critical task was one of the crew's performance objectives. Had the inspectors not identified this deficient condition, the operators could have been exposed to exam material for which they were being evaluated. This would have caused a compromise of the examination material and provide undo advantage to the operators.

The inspectors informed the licensee of this condition. The licensee corrected the condition by inserting a page break at the bottom of the briefing sheet to push the critical task to the next page. Two days later, the scenario was administered to two operating crews without any compromise to exam material.

The inspectors determined the SES 130 package was not carefully reviewed and the error was not identified prior to approving the scenario for administration. The inspectors randomly reviewed four of the ten scenario packages generated by the licensee for requalification testing on a Monday. The licensee corrected this condition prior to the scenario's administration on a Wednesday. The inspectors expanded their scenario review and did not identify any other potential exam compromise conditions. The licensee believed that this error would have been detected prior to handing the Reactivity Management Briefing Sheet to the crew. However the inspectors determined that there was no recognized process for its detection other than a chance review of paperwork by an evaluator prior to exam administration.

Analysis: The failure to properly screen exam material was a performance deficiency warranting further evaluation with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." In Block 7, the inspectors determined that a failure to ensure licensed operator exam integrity was an example of an issue that could impact the regulatory process. Specifically, an exam prepared to be given to operators to validate their licensed status had information which could have compromised a portion of the exam. Therefore, the issue was subject to traditional enforcement process. Consistent with the guidance in Section 6.4.d.1.(b) of the Enforcement Policy, the issue was determined to be a Severity Level IV NCV. In accordance with NRC policy, the underlying impact on nuclear safety needed to be evaluated, if possible using the ROP.

The inspectors determined that the underlying issue could be evaluated using the significant determination process (SDP). The inspectors validated that the use of traditional enforcement was consistent with IMC 0609, Appendix I, Licensed Operator Requalification SDP, block 11, for exam security issues. This issue is associated with the Initiating Events Cornerstone. The issue was greater than minor because if left uncorrected, it could result in more serious safety concerns in that there would be a potential to have unqualified operators in the control room. The finding screened as very low safety significance because all questions for the Initiating Events Cornerstone in Table 4a of IMC 0609 Attachment 4 could be answered 'no.' The inspectors did not identify any applicable cross-cutting aspects associated with this finding, because none of the aspects using IMC 0310 characterized the performance deficiency.

Enforcement: 10 CFR 55.49, "Integrity of Exams and Tests," states the licensee shall not engage in any activity that compromises the integrity of the exam. In addition, "The integrity of test or examination is considered compromised if any activity, regardless of intent, affected, or, but for detection, would have affected the equitable and consistent administration of the test or examination…" Contrary to the above, on January 30, 2012, SES 130, an activity previously approved for administration during week four of the requalification exam week, contained exam information on the Reactivity Management Briefing Sheet that if not for detection by the inspectors, would have been given to the examinees, and would have resulted in an exam compromise. In accordance with the NRC Enforcement Policy, this issue was determined to be a Severity Level IV violation since the licensee corrected the condition by inserting a page break at the bottom of the briefing sheet to push the critical task to the next page before the exam was administered to any licensed operator. Because the issue was of very low safety significance, was not willful and it was entered it into the CAP as CR-PLP-2012-1001, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy (NCV 05000255/2012002-01, Potential Exam Compromise During Requalification Exams).

Because the finding discussed above was evaluated separately using the SDP, it is required to be tracked separately and will be given a separate tracking number (NCV 05000255/2012002-02**;** Potential Exam Compromise During Requalification Exams**).**

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following systems:

- main feedwater system; and
- service water system.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

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

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

Introduction: A self-revealed finding of very low safety significance and associated NCV of TS 5.4.1 was identified for the failure to adequately implement the guidance of the fuse control procedure during the reinstallation of a safety-related fuse after maintenance. Specifically, the fuse installation was not adequate in that insufficient contact was established between the fuse holder clip and fuse ferrule for fuse FUZ/Y1014-2, resulting in the sporadic operation of the ‘A’ Feedwater Pump Recirculation valve, CV-0711. This induced a feedwater transient and required the operators to manually trip the reactor.

Description: On December 14, 2011 with the plant running at 100 percent power, both Main Feedwater Pumps tripped on low suction pressure, which led operators to take the procedurally required action of manually tripping the reactor. Alarms and indications in the control room illustrated that a feedwater transient had caused the low suction pressure for these pumps. This was due to CV-0711, the ‘A’ feedwater pump recirculation valve, spuriously opening. Troubleshooting by the licensee determined that the sporadic operation of CV-0711 and other anomalous indications were associated with a control circuit supplied through FUZ/Y1014-2. Further investigation by the licensee determined that there must have been insufficient contact between the fuse holder clip and one fuse ferrule, which resulted in intermittent electrical contact between the two, and the resulting indications observed by the operators. A laboratory analysis of the fuse, visual inspections showing indications of arcing on the right side of the upper fuse clip, and inspections of the fuse holder and associated wiring were conducted and led the licensee's root cause team to conclude that this insufficient contact issue as the most probable cause of the event. FUZ/Y1014-2 is powered through an inverter from safety-related 120-Volt Preferred Alternating Current (AC) power and also supplies portions of the AFW flow control system, making it a safety-related fuse. The licensee changed the classification of this fuse to "safety-related" in their equipment database after questions from the inspectors, since it had no prior classification. Also as a result of these questions, fuses associated with this circuit will now be replaced after every time they are removed in the future.

The issue of "loose fuses" had been previously identified in other apparent cause evaluations conducted by the licensee. In May 2011, the 'B' Control Room Chiller failed to start because of a loose fuse due to bent spring clips. Corrective actions included developing a list of fuses that are commonly used to tag-out equipment that may be vulnerable to becoming loose and to perform inspections on those fuses. FUZ/Y1014-2 was identified on this list of susceptible fuses but was never inspected because the evaluation concluded the existing preventative maintenance program was sufficient. A loose fuse also caused a trip of the 'A' Control Room Chiller in May 2010. This fuse was regularly removed for tagging purposes. The apparent cause evaluation for this incident stated that "individuals probably have had an opportunity to identify the loose clips before the failure occurred" but a lack of guidance, or lack of recognition of guidance, to verify fuse clip tension could have contributed to the event. Corrective actions from that evaluation included reviewing the requirements of EN-DC-186 (the fuse control procedure) with the Maintenance and Operations departments and investigating the addition of notes into the eSOMS (electronic logbook and equipment database) system as a reminder for operators to check fuse tightness.

A search into the operating history of FUZ/Y1014-2 showed that it was removed and reinstalled on more than one occasion in order to isolate the circuit for maintenance; most recently in October 2010. Although the present root cause analysis determined there may be disconnects in the guidance for fuse handling between the tagging procedure and the fuse control procedure, the inspectors identified that the tag-out instruction from October 2010 did contain a note that stated adherence to the fuse control procedure was required. Based on this inspector observation, the licensee initiated a CR to assess the root cause analysis and explore whether there were other issues involved with the fuse reinstallation process. Additionally, the licensee identified that NUREG-1760, "Aging Assessment of Safety-Related Fuses Used in Low-and-Medium-Voltage Applications in Nuclear Power Plants," discussed that fuses and fuse clips are mechanically challenged during removal and reinstallation activities and that these activities can cause intermittent failures of the fuses. The NUREG suggests that fuses that must be removed and inserted frequently for maintenance should be included in periodic maintenance and inspection programs. These practices, the inspectors concluded, were not implemented at the plant and fuses were considered "exempt" from the preventive maintenance program.

Analysis: The inspectors determined that the failure to adequately implement the requirements of the fuse control procedure, EN-DC-186, during the reinstallation of a safety-related fuse after maintenance was a performance deficiency that warranted a significance determination. The inspectors determined that the finding was more than minor in accordance with IMC 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because it is associated with the Initiating Events Cornerstone attribute of Equipment Performance and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, based on the available information, the inspectors concluded that the cause of the feedwater transient which led to a plant trip on December 14, 2011, was intermittent electrical contact between FUZ/Y1014-2 and its holder clip. Utilizing IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," Table 4a, for the Initiating Events Cornerstone, the finding screened as Green by answering "no" to the Transient Initiator question of contributing to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available.

The finding had a cross-cutting aspect in the area of problem identification and resolution related to the cross-cutting component of operating experience, in that the licensee implements and institutionalizes operating experience through changes to station processes, procedures, equipment, and training programs. In this finding, the issue of "loose fuses," potential causes of these loose fuses, and the potential plant effects this could cause have been identified in externally generated operated experience in NUREG-1760, "Aging Assessment of Safety-Related Fuses Used in Low-and-Medium-Voltage Applications in Nuclear Power Plants." In addition, the 2010 and 2011 internal operating experience with a loose chiller fuse provided a current opportunity to address loose fuse issues. Therefore, the issue is reflective of current performance, and the inspectors determined that lessons learned from these identified "loose fuse" issues were not extensively reviewed for applicability throughout systems in the plant and were not fully institutionalized to prevent this issue from recurring. (P.2(b))

Enforcement: TS 5.4.1 requires that written procedures shall be established, implemented, and maintained covering the activities in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Regulatory Guide 1.33, Appendix A, Section 9, specifies procedures for performing maintenance that can affect the safety-related equipment. Specifically, it is stated that the maintenance should be properly pre-planned and completed in accordance with written procedures and documented instructions appropriate to the circumstances. The fuse control procedure, EN-DC-186, provides the requirements for fuse maintenance and testing.

Contrary to the above requirements, on October 24, 2010, the fuse control procedure EN-DC-186 was not adequately implemented to ensure that fuses that were installed and removed frequently were installed properly and adequately tested. Specifically, a feedwater transient occurred due to spurious electrical contact on fuse FUZ/Y1014-2, which resulted in a plant trip. The licensee's corrective actions consisted of moving the electrical circuit associated with FUZ/Y1014-2 to a different fuse block that was inspected prior to restarting the plant, implementing compensatory measures for CV-0711 to prevent it from inadvertently opening at full power, and creating an operational decision making instruction for operators to operate the plant in this abnormal configuration. The licensee wrote condition report CR-PLP-2012-02182 to review the root cause report and determine if any updates or revisions are needed based on the information presented in this finding. The licensee currently has corrective actions in place to develop interim guidance on fuse installation and removal, investigate revising the tagging procedure, identify alternate methods of fuse block tag-outs, and conduct an extent of condition for other safety-related fuses. Because the issue was of very low safety significance, was not willful and it was entered into the CAP as CR-PLP-2012-02182, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000255/2012002-03, Intermittent Fuse Contact Causes Feedwater Transient and Plant Trip.)

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

a. Inspection Scope

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

- forced outage for control rod drive mechanism (CRDM) leakage;
- emergent work on turbine control system during power operations;
- high risk work week that included radiography and safety-related electrical bus relay calibrations;
- troubleshooting of Direct Current (DC) bus ground; and
- electrical ground on 1-2 EDG air start solenoid.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Specific documents reviewed during this inspection are listed in the Attachment to this report.

These maintenance risk assessments and emergent work control activities constituted five samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- Increased vibrations on P-50C;
- fuel oil leakage from the 1-2 EDG;
- station battery separator plate issues;
- potential safety water injection and refueling water tank leak;
- missed American Society of Mechanical Engineers Code testing of a shutdown cooling relief valve; and
- erratic reactor protection system thermal margin low pressure annunciators.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted six samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following modification(s):

- primary coolant pump, P-50B, lowering of low flow alarm setpoint temporary modification

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system(s). The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

This inspection constituted one temporary modification sample as defined in IP 71111.18-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- control rod drive 22 and 23 leak checks following seal replacement;
- diesel run following fuel injector replacement on 1-2 EDG;
- testing of pressurizer vent MV-PC1044B after valve repair;
- battery charger #1 maintenance; and
- CV-3025, shutdown cooling heat exchanger outlet valve, stroke time following positioner replacement.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted five post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated outage activities for a forced outage that began on January 5, 2012, and continued through January 10, 2012. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule.

The inspectors observed or reviewed the reactor shutdown and cooldown, outage equipment configuration and risk management, electrical lineups, control and monitoring of decay heat removal, control of containment activities, startup and heatup activities, and identification and resolution of problems associated with the outage. The outage was planned and conducted to replace two CRDM seal packages which were suspected of contributing to elevated PCS leakage. The shutdown was conducted prior to technical specification limits being reached.

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

b. Findings

Introduction. A finding of very low safety significance (Green) with an associated NCV of TS 5.4.1 was self-revealed on January 7, 2012 when a PCS leak of approximately 10 gpm occurred. Contrary to procedure SOP-1C, Primary Coolant System-Heatup, two reactor head vent valves had been left open during PCS fill and pressurization at the conclusion of the forced outage. As a result, approximately 3000 gallons of primary coolant were transferred from the PCS to the reactor cavity tilt pit in containment. The finding occurred while the plant was shut down and in a cold shutdown condition.

Description. The licensee was in a forced outage and had just completed repairs to two CRDM seal packages suspected of having contributed to elevated PCS leakage prior to the shutdown. The PCS water level had been drained to approximately 640 feet to facilitate the work, and on January 7, 2012 the operations crew began to fill and pressurize the PCS in preparation to exit the forced outage. The PCS was filled and pressurized to approximately 250 psi. During this evolution, indications of potential PCS leakage were noted based on volume control tank and containment sump levels. Further investigation revealed that two reactor head vent valves were open (MV-PC1060B and MV-PC1060C), which provided an open path from the PCS to the reactor cavity area in containment. Leakage was approximately 10 gpm. The licensee shut the two valves, which terminated the leak. Approximately 3000 gallons of primary coolant had been transferred to the reactor cavity area. The coolant was drained from the cavity area prior to the plant startup. The licensee determined that contrary to procedure SOP-1C, Primary Coolant System-Heatup, the operators filling and pressurizing the PCS had failed to ensure the reactor head vent valves were shut. They made an inappropriate assumption that the valves were never opened by the previous crew during the drain-down and had marked the steps ‘not applicable,’ thinking that based on the PCS level required for the maintenance, that the previous crew would have utilized a different vent path. No attempts were made to validate the position of the valves. With the valves located high in the PCS, the leak did not challenge the shutdown safety functions of inventory control nor decay heat removal.

Analysis. The failure to appropriately follow steps in SOP-1C, Primary Coolant System-Heatup, was a performance deficiency which warranted further evaluation in the significance determination process. In accordance with IMC 0612 Appendix B, "Issue Screening," the issue was determined to be greater than minor because it is associated with the Initiating Events Cornerstone attribute of Configuration Control and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the performance deficiency caused a PCS leak of approximately 10 gpm and resulted in the transfer of approximately 3000 gallons of primary coolant to the reactor cavity in containment.

The finding screened as very low safety significance (Green) by utilizing IMC 0609 Appendix G, "Shutdown Operations Significance Determination Process." Specifically, utilizing Checklist 2 of Attachment 1, all safety functions delineated on the checklist were maintained and no findings requiring a Phase 2 or Phase 3 analysis were identified. A regional Senior Reactor Analyst was also consulted in the determination.

The inspectors determined the cause of the finding was associated with the cross-cutting area of human performance. Specifically, by assuming the reactor head vent valves were shut with no further validation, operations shift personnel did not use conservative assumptions in decision making and adopt a requirement to demonstrate that a proposed action was safe in order to proceed rather than a requirement to demonstrate that it was unsafe in order to disapprove the action (H.1(b)).

Enforcement. TS 5.4.1 requires that written procedures be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 states that instructions for energizing, filling, venting, draining, startup, shutdown, and changing modes of operation should be prepared, as appropriate, for the reactor coolant system. Procedure SOP-1C, Primary Coolant System-Heatup, implements instructions for operating the PCS. Contrary to the above, on January 7, 2012, the operating shift crew failed to implement a procedure step in SOP-1C to ensure MV-PC1060B and MV-PC1060C were shut while filling and pressurizing the PCS. As a result, approximately 3000 gallons of primary coolant were displaced from the PCS to the reactor cavity area over a period of a few hours. After recognizing a potential PCS leak, the licensee identified the valves and shut them, terminating the leak. The licensee entered the issue as CR-PLP-2012-00165 in their corrective action program. Because the issue was of very low safety significance, was not willful and it was entered into the CAP as CR-PLP-2012-00165, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000255/2012002-04, Failure to Ensure Reactor Head Vents Closed During PCS Fill.)

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- 1-1 EDG monthly surveillance testing (routine);
- safety injection tank sampling (routine);
- elevated PCS leakage from CRDMs (PCS leakage);
- auxiliary feedwater actuation system logic test (routine);
- safety injection system surveillance testing (routine);
- 'B' low pressure safety injection pump (IST); and
- fuel moves in spent fuel pool to comply with new TS amendment (routine).

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted five routine surveillance testing samples, one inservice testing sample, and one reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on March 6, 2012, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator control room, technical support center, emergency operations facility and operations support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critiques to compare any inspector observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

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

b. Findings

No findings were identified.

2. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index – Heat Removal Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) – Heat Removal Systems performance indicator for the period of the first quarter of 2111 through the fourth quarter of 2011. To determine the accuracy of the Performance Indicator (PI) data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, CRs, and event reports for the period of the first quarter of 2011 through the fourth quarter of 2011 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's CR database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI heat removal system sample as defined in IP 71151-05.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance for the period from the second quarter 2011 through the fourth quarter of 2011. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter of 2011 through the fourth quarter of 2011 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one unplanned scrams with complications sample as defined in IP 71151-05.

b. Findings

No findings were identified

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue.

Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily CR packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Selected Issue Follow-Up Inspection: Leakage from 1-2 EDG Jacket Water Pump

a. Inspection Scope

During a review of items entered in the licensee's CAP, the inspectors identified a corrective action item documenting water leakage from the 1-2 EDG Jacket Water Pump. Sporadic leakage of varying quantities had been identified since the pump was replaced a few months prior, and leakage had gotten worse. The inspector reviewed the previous CRs documenting the leakage and operability determinations for each. The inspector reviewed the apparent cause analysis performed, discussed the issue with the system engineer, and reviewed the procedures utilized by the licensee to setup a test loop for the pump after it had been removed from the system. The inspector reviewed the results of the testing performed on the pump for past operability and discussed the results of an internal inspection performed after it was removed from the test loop. The inspector also reviewed procurement information for the pump and actions developed as a result of the apparent cause analysis.

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

b. Findings

No findings were identified.

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

.1 (Closed) Licensee Event Report 05000255/2011-005-00, Service Water Pump Shaft Coupling Failure,

On August 9, 2011, a coupling in the shaft of the C service water pump failed, resulting in loss of service water system flow and pressure. The licensee stabilized service water using ONP-6.1, Loss of Service Water. Due to the failure, the licensee entered T.S. 3.7.8 condition A, which required shutdown in 72 hours if the pump could not be restored to operable status. Over the next 3 days, the licensee replaced the couplings on the service water pump with new couplings. The licensee determined that intergranular stress corrosion cracking caused the failure. Intergranular stress corrosion cracking resulted from improper design due to selection of a material without adequate control of material toughnesss. Palisades experienced a similar failure in September 2009. Because of the repeat nature of this failure and potential safety significance, the NRC performed a special inspection which was documented in report 05000255/2011012. In addition, the NRC determined that the final safety significance was White in report 05000255/2011019. Since the failure, the licensee has replaced the couplings in all of the pumps with couplings made of a more suitable material. This LER was reviewed and no additional findings were identified and no additional violations of NRC requirements occurred. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

.2 (Closed) Licensee Event Report 05000255/2011-007-00, Direct Current Electrical System Fault Causes Reactor Trip and Multiple Safety System Actuations

On September 25, while performing maintenance on DC electrical distribution panel, the licensee caused a short between the positive and negative bus bars in the panel. An upstream breaker opened on overcurrent resulting in a loss of the left DC bus. This loss caused an immediate trip of the plant and actuation of main steam isolation valves, safety injection systems, containment isolation systems and auxiliary feed water systems. In addition, the short resulted in loss of about half of the control room indications. The licensee entered EOP 1.0, Standard Post-Trip Actions, and EOP-9.0, Functional Recovery. Using these procedures, the licensee stabilized the plant in Mode 3. Over the next several days, the licensee repaired the DC bus. Because of the significance of this event, the NRC conducted a Special Inspection, documented in report 05000255/2011014. This inspection resulted in several findings, including a Yellow finding, and was documented in report 050002555/2011020. This LER was reviewed and no additional findings were identified and no additional violations of NRC requirements occurred. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

.3 <u>(Closed) Licensee Event Report 05000255/2011-004-00 and 01, Turbine Driven Auxiliary Feedwater Pump Inoperable in Excess of Technical Specification Requirements Due to Unexpected Trip</u>

On May 10, 2011, the turbine driven auxiliary feedwater pump tripped during quarterly surveillance testing. The licensee performed troubleshooting of the pump and concluded that workers improperly applied grease to the knife edge during a maintenance that occurred in a refueling outage. After removing the grease, the licensee tested the pump and returned it to an operable status. Since the grease had been applied in October 2010, the pump had been inoperable in excess of its allowed outage time. Subsequent analysis and testing in the fall of 2011 identified additional possible causes for the pump trip. The licensee has corrected these potential causes. The NRC identified a White finding associated with the turbine driven auxiliary feedwater failure that is documented in report 05000255/2011017. This LER was reviewed and no additional findings were identified and no additional violations of NRC requirements occurred. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

.4 <u>(Closed) Licensee Event Report 05000255/2011-008-00, Main Feedwater Pumps Trip Due to Loss of Suction Pressure</u>

On December 14, 2011, both Main Feedwater pumps tripped due to a loss of suction pressure caused by the spurious opening of the ‘A’ Main Feedwater pump recirculation valve, CV-0711. The spurious opening of this valve occurred from a loss of control power due to insufficient contact between the fuse holder clip and a fuse ferrule within the fuse block assembly. Operators entered ONP-3, Feedwater Transients, for a loss of feedwater event and manually tripped the reactor. The auxiliary feedwater system actuated as expected to recover level in the steam generators. Troubleshooting was performed and the control power for CV-0711 was rerouted through a spare fuse block and reenergized. Possible causes of the loose fuse were stretching from the tag-out device or fatigue from removal/reinstallation. The licensee has corrective actions in place to explore revising procedures associated with tagging operations and fuse control and/or find alternate methods for tagging operations. A Green finding associated with the plant transient due to the Main Feedwater pumps trip is documented in Section 1R12 of this report. This LER was reviewed and no additional findings were identified and no additional violations of NRC requirements occurred. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

.5 <u>(Closed) Licensee Event Report 05000255/2011-006-00, Valve Packing Failure Resulted in Reactor Trip and Auxiliary Feedwater System Actuation</u>

On September 16, 2011, with the plant at 100 percent power, unidentified PCS leakage measurements exceeded TS allowed limits. The licensee commenced a reactor shutdown to comply with TS requirements. During the shutdown, unidentified PCS leakage rose to greater than 10 gpm. As a result, the licensee manually tripped the reactor and declared an Unusual Event. The cause of the leakage was failed packing on CV-1057, one of two pressurizer spray control valves. The valve was isolated to terminate the leakage and the Unusual Event was exited. The licensee determined the cause of the failed packing was due to inappropriate packing configuration. Specifically, two packing end-rings had not been installed during the last refueling outage and the gland follower had been inappropriately trimmed several years ago. The inspectors reviewed this event and issued a Green finding which is documented in Inspection Report 05000255/2011005. This LER was reviewed and no additional findings were identified and no additional violations of NRC requirements occurred. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

.6 (Discussed) Licensee Event Report 05000255/2011-002-00: Automatic Reactor Trip and Auxiliary Feedwater System Actuation

On January 22, 2011, with the plant at 100 percent power, the operation of relay 251-2/SPG3, station power transformer 1-3 neutral to ground, actuated a generator direct trip lockout relay (backup), opening the main generator output breakers to the transmission system causing a turbine trip. The turbine trip actuated the reactor protective system to trip the reactor due to a loss of load. The cause for operation of the neutral to ground relay, and subsequent automatic plant trip, was a ground fault on a medium voltage cable that provides electrical power to bus 1G, via breaker 252-401, from station power transformer 1-3. The licensee determined the probable cause of the ground fault on the cable was insulation flaws, with the effects of moisture acting on these flaws over time, causing the insulation to degrade. The licensee removed the affected cable and had a laboratory analysis performed to identify the cause of the failure. The licensee received the analysis but at the time of the inspection report had not completed a site acceptance of it. The inspectors will continue to follow the issue as the report is finalized. During the refueling outage scheduled for the second quarter of 2012, the licensee plans to install new cabling for bus 1G. No new safety issues were identified by the inspectors. The LER will remain open pending further licensee evaluation.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000255/1998013-02: Corrective Action for Potential Fire-Induced Motor Operated Valve Damage

The following finding that affects 10 CFR 50.48 was identified by the NRC and is a violation of NRC requirements. This finding has been screened and determined to warrant enforcement discretion per the Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues as described in the NRC Enforcement Policy.

The inspectors identified an Unresolved Item (URI) during an NRC fire protection inspection in 1998 associated with a failure to adequately modify circuits for several Motor Operated Valves (MOVs). The inspectors determined that the licensee did not ensure that the MOVs would not be actuated by fire-induced hot shorts in the control room, bypassing their torque and limit switches as described in Information Notice 92-18, “Potential for Loss of Remote Shutdown Capability During a Control Room Fire.” The inspectors reviewed the Palisades licensing basis for the fire protection program, recent industry guidance and NRC documents related to fire induced circuit failures and determined that the finding was a violation of 10 CFR Part 50, Appendix R, Section III.G.3. Subsequent to the 1998 inspection the licensee began transition to 10 CFR 50.48(c) (National Fire Protection Association (NFPA) 805). Therefore, the licensee completed a risk-assessment evaluation (EA-PSA-FIRE-06-03, "Owners Review of Use of the Palisades PSA to Evaluate the Importance of MOV Hot Shorts," Revision 0) for this issue to determine if it would qualify for enforcement discretion. The inspectors reviewed the evaluation and did not agree with some of the evaluation assumptions. Since the finding affected multiple MOVs, the inspectors performed a qualitative assessment for each valve separately in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process," and determined that the finding was not associated with a finding of high safety significance (i.e., less than Red).

The inspectors concluded that the finding aspect associated with valves MO-3008, MO-3010, MO-3012, MO-3014, MO-3189, MO-3190, MO-3198 and MO-3199 could be screened as having a very low safety significance (Green) per Task 1.3.1 of IMC 0609, Appendix F because the valves only affected the ability to reach and maintain a cold shutdown condition.

The inspectors reviewed the following valves associated with Train 1 of the High Pressure Safety Injection: MO-3007, MO-3009, MO-3011, MO-3013. The inspectors also reviewed the following valves associated with Train 2 of High Pressure Safety Injection: MO-3062, MO-3064, MO-3066, MO-3068. Finally, the inspectors reviewed the HPSI/Charging Crosstie Isolation valve MO-3072, which was used to support the PCS inventory control function. Although the inspectors concluded that all nine MOVs were susceptible to damage preventing manual operation following spurious actuation due to a fire in several common fire areas, the inspectors determined that the finding aspect associated with these MOVs was not of high safety significance (i.e., less than Red) for the following reasons:

1) redundant cables associated with Train 1 and Train 2 MOVs were routed in different raceways and were powered from different motor control centers;

2) cables for these MOVs were only routed in the control room, cable spreading room, and 1C switchgear room where fire detection was present (automatic fire suppression existed in cable spreading room and 1C switchgear room and the control room was continuously staffed); and

3) the safe shutdown credited equipment for these fire areas was not affected (charging pumps and flow path was the credited safe shutdown path).

MO-2140 "Boric Acid Pump Feed Isolation Valve," and MO-2160 "Safety Injection and Refueling Water Tank Charging Pump Isolation Valve," provided a flowpath for borated water supply. A borated water supply can also be provided via manually operating the Boric Acid Tank Gravity Feed Isolation valves MO-2169 and MO-2170. During a fire event, primary coolant makeup is not an immediate action required to be performed with a specific time constraint. Therefore, manual actions for MO-2169 and MO-2170 were considered feasible. The inspectors determined that the finding aspect associated with these MOVs was not of high safety significance (i.e., less than Red).

The Main Steam Isolation Bypass valves (MSIVs) MO-0501 and MO-0510 provided steam flow path for decay heat removal via the hogging air ejector as the atmospheric steam dump valves were also susceptible to spurious actuation due to a fire in several common fire areas. Cables for both MSIVs were routed in same raceways in the control room, cable spreading room, 1C switchgear room and part of the turbine building. For most of the routing, except for a short cable run in the turbine building, the cables were protected by smoke detectors and automatic suppression systems installed in the fire areas which provided a level of defense-in-depth to guard against a fire that could result in cable damage. Therefore, the inspectors determined that the finding aspect associated with these MSIVs was not of high safety significance (i.e., less than Red).

Title 10 CFR 50.48(b)(2) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R to this part, including specifically the requirements of Sections III.G, III.J, and III.O. Section III.G.3 of 10 CFR Part 50, Appendix R requires, in part, that alternative shutdown capability should be provided where the protection of systems whose function is required for hot shutdown does not satisfy the requirement of Paragraph III.G.2. Contrary to the above, from 1998 to the present, the licensee did not provide an alternative of dedicated shutdown capability that was free of fire damage. Specifically, control cables for various valves were routed in the control room and other areas where they could have been damaged during a fire event. The licensee has taken compensatory actions to ensure safe shutdown of the plant is maintained for fire scenarios.

The licensee is in transition to NFPA 805 and therefore the NRC-identified violation was evaluated in accordance with the four criteria established by the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48) for a licensee in NFPA 805 transition (Section 9 of the Enforcement Policy). The assessment is below:

1. The violation was identified by the NRC for this 1998 URI, but it is highly likely the licensee would have identified the issue within their current transition schedule to NFPA 805, as they evaluated the open issues for multiple spurious shorts.

2. The violation will be corrected as a result of their transition to 10 CFR 50.48(c). The licensee took immediate corrective and compensatory actions within a reasonable time. The NRC determined these actions were acceptable.

3. There were no earlier opportunities to discover the issue based on the current understanding of multiple spurious shorts.

4. This violation was not willful.

The licensee entered this issue into their CAP as CR-PLP-2004-08321, "Risk Significance Evaluation of Appendix R MOVs," dated October 21, 2005. As a result, the inspectors concluded that the violation met all criteria established and the NRC was exercising enforcement discretion to not cite this violation in accordance with the Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues. This URI is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 3, 2012, the inspectors presented the inspection results to Mr. Tony Vitale and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The results of the review associated with URI 05000255/1998013-02, “Corrective Action for Potential Fire-Induced MOV Damage” with Mr. C. Arnone, Nuclear Safety Assurance Director on April 3, 2012.

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

4OA7 Licensee-Identified Violations

The following violation of Severity Level IV was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

The licensee identified that a licensed operator did not meet vision requirements in accordance with ANSI-3.4-1983, Section 5.4.5. The operator tested 20/50 in the better eye with corrective lenses but was erroneously signed as having met the vision requirements by the site doctor in September 2010. In June 2011 the licensee submitted a license renewal for the operator. The operator’s license previously had a restriction for the operator to wear prescriptive lenses. However, the licensee, believing that the individual met vision requirements, submitted the renewal to the NRC without conditions. The NRC approved the renewal. In January 2012 the licensee identified the deficient condition. The operator’s license was placed on hold until the operator’s vision was retested. The operator, using the same lenses and same testing machine, tested 20/30 in the better eye. This met the ANSI-3.4-1983 vision requirements.

10 CFR 55.57 requires certification by the licensee of medical conditions and general health conducted by a physician, as part of the medical exam for renewal of an individual license. The licensee failed to ensure the operator met the vision requirements for a licensed operator. This is consistent with a Severity Level IV violation in the Enforcement policy (Section 6.4.d.1). The licensee documented this in CR-PLP-2012-00080, coached the doctor on the ANSI requirements and informed the NRC. The inspectors reviewed the licensee’s corrective actions and determined this to be a NCV in accordance with Section 2.3.2 of the NRC Enforcement Policy. Using IMC 0612,

Appendix B, “Issue Screening,” the inspectors determined this issue to be of very low risk-significance since the operator met the ANSI requirements using the same lenses during a January 2012 retest; and there was no indication of the operator causing vision-induced errors in the control room.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

A. Vitale, Entergy, Site Vice President
C. Arnone, Entergy, Nuclear Safety Assurance Director
T. Williams, Entergy, General Manager Plant Operations
B. Davis, Entergy, Acting Engineering Director
J. Dills, Entergy, Operations Manager
B. Nixon, Entergy, Training Manager
C. Plachta, Entergy, QA Manager
O. Gustafson, Entergy, Licensing Manager
B. White, Entergy, Assistant Ops Manager
T. Mulford, Entergy, Assistant Ops Manager
T. Horan, Entergy, Ops Training Superintendent
P. Schmidt, Entergy, Ops Training Superintendent
D. Karnes, Entergy, Operations Training
T. Watson, Entergy, Operations Training
B. Dotson, Entergy, Licensing
J. Miksa, Entergy, Program Engineering Manager
T. Swiecicki, Entergy, Fire Protection
J. Kuemin, Entergy, Licensing

Nuclear Regulatory Commission

John B. Giessner, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000255/2012002-01 and 05000255/2012002-02	SLIV NCV	Potential Exam Compromise During Requalification Exam (1R11.5)
05000255/2012002-03	NCV	Intermittent Fuse Contact Causes Feedwater Transient and Plant Trip (1R12)
05000255/2012002-04	NCV	Failure to Ensure Reactor Head Vents Closed During PCS Fill (1R20)

Closed

05000255/2012002-01 and 05000255/2012002-02	SLIV NCV	Potential Exam Compromise During Requalification Exam (1R11.5)
05000255/2012002-03	NCV	Intermittent Fuse Contact Causes Feedwater Transient and Plant Trip (1R12)
05000255/2012002-04	NCV	Failure to Ensure Reactor Head Vents Closed During PCS Fill (1R20)
05000255/2011-005-00	LER	Service Water Pump Shaft Coupling Failure (4OA3.1)
05000255/2011-007-00	LER	Direct Current Electrical System Fault Causes Reactor Trip and Multiple Safety System Actuations (4OA3.2)
05000255/2011-004-00 05000255/2011-004-01	LER	Turbine Driven Auxiliary Feedwater Pump Inoperable in Excess of Technical Specification Requirements Due to Unexpected Trip (4OA3.3)
05000255/2011-008-00	LER	Main Feedwater Pumps Trip Due to Loss of Suction Pressure (4OA3.4)
05000255/2011-006-00	LER	Valve Packing Failure Resulted in Reactor Trip and Auxiliary Feedwater System Actuation (4OA3.5)
05000255/1998013-02	URI	Corrective Action for Potential Fire-Induced Motor Operated Valve Damage (4OA5)

Discussed

05000255/2011-002-00	LER	Automatic Reactor Trip and Auxiliary Feedwater System Actuation (4OA3.6)

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or 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

- Design Basis Document 1.03, Auxiliary Feedwater System, Revision 8
- M-205, Sheet 2, P&ID Main Steam and Auxiliary Turbine Systems, Revision 66
- M-207, Sheet 2, P&ID Auxiliary Feedwater System, Revision 37
- SOP-12.5, Auxiliary Feedwater System Checklist (Except K-8 Steam Supply), Revision 62
- SOP-12.6, K-8 Steam Supply Checklist, Revision 62
- SOP-22, Emergency Diesel Generators, Revision 54
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 83

1R05 Fire Protection

- CR-PLP-2012-00559, Fire Dampers CD-23 and CD-24, Turbine Lube Oil Ventilation Openings, Need to Be Replaced Because They Do Not Meet NFPA 90A Requirements
- Fire Protection Implementing Procedure 4, Fire Protection Systems and Fire Protection Equipment, Revision 28
- Palisades Boric Acid Equipment Rooms / Elev. 590’ Pre-Fire Plan (Fire Area 13F)
- Palisades Component Cooling Pump Rooms / Elev. 590’, 607’, 625’ Pre-Fire Plans (Fire Area 16)
- Palisades Diesel Generator 1-2 and Fuel Oil Day Tank Rooms Pre-Fire Plan (Fire Areas 6 & 8)
- Palisades Plant Fire Hazards Analysis Report, Revision 7
- Palisades Spent Fuel Pool Heat Exchanger Room / Elev. 590’ Pre-Fire Plan (Fire Area 13G)
- Palisades Turbine Lube Oil Room / Elev. 590’ Pre-Fire Plan (Fire Area 22)

1R11 Licensed Operator Requalification Program

- 2 JPMs for the Current Requalification Exam
- 2 Simulator Scenarios for the Current Requalification Exam
- Core Performance Testing for Cycle 22, PNT 18.0, Revision 1, April 26, 2011.
- EM-04-17, Axial Shape Index (ASI) Control, Revision 21
- EN-TQ-114, Annual Simulator Quality Checklist
- EN-TQ-144, Licensed Operator Requalification Training Program Description, Revision 6
- EN-TQ-217, Conduct of Simulator Training, Revision 5
- EN-TQ-217, Examination Security, Revision 1
- GOP-8, Power Reduction and Plant Shutdown to Mode 2 or Mode 3 ≥525°F, Revision 28
- Licensee’s Responses for IP 71111.11 Appendix G Simulator Questions.
- List of Differences Between the Palisades Simulator and the Control Room.
- Main Turbine Trip, October 28, 2010
- Manual Reactor Trip, October 28, 2010
- Maximum Load Rejection, October 28, 2010
- Maximum Main Steam Line Rupture, October 28, 2010
- Maximum RCS Rupture with LOOP, October 28, 2010

- PLJPM-LOR-AFW-03, Supply AFW Pump from Alternate Source, November 23, 2011
- PLJPM-LOR-CSS-06, Secure Containment Spray, January 11, 2012
- PLJPM-LOR-CVCS-03,Manually Raise and Lower Charging and Letdown Flow, November 23, 2011
- PLJPM-LOR-DG-01, Operate Diesel Generator From Control Room, November 23, 2011
- PLJPM-LOR-ELEC-11, Remove/Return from Service 480 VAC Breakers, December 2, 2011
- PLJPM-LOR-EOP-42, Perform Primary Coolant System Void Removal,
- PLJPM-LOR-EOP-43, Isolate ‘B’ SG from Outside CR for SGTR, January 11, 2012
- PLJPM-LOR-ONP-06, Respond to Alternate Safe Shutdown, November 23, 2011
- PLJPM-LOR-ONP-23, Transfer V24A and B to Alternate Power Supply, November 23, 2011
- PLSEG-OPS-SBT-03, Rev. 0, Power Escalation (60 percent to 75 percent), August 15, 2011
- Real Time Repeatability Test, November 19, 2010
- SBT-SES-124, 2011 Annual Operating Test, December 14, 2011
- SBT-SES-130, 2011 Annual Operating Test, December 14, 2011
- SBT-SES-131, 2011 Annual Operating Test, December 14, 2011
- SBT-SES-132, 2011 Annual Operating Test, December 14, 2011
- Scenario-Based Testing (SBT) to ANSI/ANS-3.5-2009 Standard:
- SES 124, October, 28 2011
- SES 130, December 7, 2011
- SES 131, October 10, 2011
- SES 132, December 18, 2011
- SES 133, January 24, 2011
- Simulator Exam Scenario PLSXM-OPS-128, January 25, 2012
- Simulator Review Board Minutes and Actions Taken for 2010-11.
- Simulator Review Committee Meeting Minutes, 2nd quarter, 3rd quarter, 4th quarter 2011
- Simultaneous Closure of All MSIVs, October 28, 2010
- Simultaneous Trip of All FW Pumps, October 28, 2010
- Simultaneous Trip of All RCPs, October 28, 2010
- Slow Primary System Depressurization with Pressurizer Relief Open, October 28, 2010
- SOP-12, Feedwater System, Revision 62
- SOP-30, Station Power, Revision 63
- Start-up Physics Test Program, RT-191, Revision 8, October 12, 2010.
- Steady State Test, November 19, 2010
- Transient Test Procedures/Results
- Various DRs related to Test and Certification Discrepancies in 2010-11.
- Various LERs Related to Operator Issues for 2010-11.
- Various Remedial Training Packages for 2010-11.
- Various SWOs related to Test and Certification Discrepancies in 2010-11.
- Various TEARS Related to Training Discrepancies for 2010-11.

<u>1R12 Maintenance Effectiveness</u>

- Administrative Procedure 4.02, Control of Equipment, Revision 59
- CR-PLP-2004-06594, MV-SW135 Leaks By, October 5, 2004
- CR-PLP-2009-03499, Multiple Instrument Grounds Related to LT-0704, Steam Generator E-50B Level Transmitter, July 10, 2009
- CR-PLP-201-00126, Open Solenoid Valve Failure for CV-0744 Steam Generator E-50B Feedwater Regulator Block Valve, January 6, 2012
- CR-PLP-2010-01859, VC-11, CRHVAC Chiller Tripped, May 4, 2010
- CR-PLP-2010-02160, POC-0821 Mounting Hardware Bolt Missing, May 27, 2010

- CR-PLP-2010-04738, Excessive Corrosion/Pitting MV-SW135, October 9, 2010
- CR-PLP-2011-02534, VC-10, ‘B’ Control Room Chiller, Failed to Start, May 20, 2011
- CR-PLP-2011-03207, Service Water Leakage from Lagging Downstream of CV-0824, June 26, 2011
- CR-PLP-2011-03391, High Resistance on Cabling Related to the LT-0704 Steam Generator E-50B Level Transmitter, June 9, 2011
- CR-PLP-2011-04084, Main Feedwater System Exceeds Maintenance Rule Performance Criteria, August 18, 2011
- CR-PLP-2011-04241, P-7A Lower Vibration Restraint Severely Corroded, August 25, 2011
- CR-PLP-2011-04294, Degraded Bracing Between the Pump Column and Column Wall, August 30, 2011
- CR-PLP-2011-04302, Critical Service Water System as Exceeded its Maintenance Rule Performance Criteria, August 30, 2011
- CR-PLP-2011-06845, Manual Reactor Trip Caused by Lowering Feedwater Suction Pressure from CV-0711 Opening, December 14, 2011
- CR-PLP-2011-07085, Service Water Flow to the “A” Heat Exchanger May be Limited, December 28, 2011
- CR-PLP-2012-00552, CV-0710 and CV-0711 Feed Pump Recirculation Valves May Be Single Point Vulnerabilities During Power Operations, January 23, 2012
- CR-PLP-2012-01743, NRC-Identified Issue Regarding the Safety Classification of the Fuse, FUZ/Y1014-2, March 15, 2012
- CR-PLP-2012-01812, NRC Identified Equipment Failure Evaluation not Attached to CR, March 19, 2012
- CR-PLP-2012-01892, Potential 1st Quarter Finding for Procedures Related Fuse Manipulations that Resulted in Main Feedwater Pumps Trip, March 22, 2012
- CR-PLP-2012-02182, NRC-identified Potential Missed Opportunity in Root Cause Evaluation Performed Under CR-PLP-2011-06845 for Both Main Feedwater Pumps Tripping on Low Suction Pressure, March 29, 2012
- EGAD-EP-10, Maintenance Rule Scoping Document, Revision 5
- EN-DC-153, Preventive Maintenance Component Classification, Revision 6
- EN-DC-186, Fuse Control, Revision 0
- EN-DC-205, Maintenance Rule Monitoring, Revision 3
- EN-DC-324, Preventive Maintenance Program, Revision 7
- EN-OP-102, Protective and Caution Tagging, Revision 14
- Higher Tier Apparent Cause Evaluation: Operations Off-Normal Procedure ONP-3 Loss of Feedwater Reactor Trip, January 20, 2012
- Lower Tier Apparent Cause Evaluation: Unexpected Trip of VC-11 Chiller Breakers, June 3, 2010
- Lower Tier Apparent Cause Evaluation: VC-10, Control Room HVAC Unit, Failed to Start, July 7, 2011
- Maintenance Rule (A)(1) Action Plan: Steam Generator Level Control, Revision 1
- NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 2
- Palisades Maintenance Rule Performance Indicators, December 2011
- Root Cause Evaluation Report: Loss of Preferred A/C to Feedwater Recirculation Resulting in a Manual Reactor Trip, January 18, 2012, Revision 0
- WO 171263, Rubber Boot has Damaged Areas Which May Lead to Boot Failure
- WO 253009, Replace MV-SW135 Due to Severe Impingement Wear In Valve

1R13 Maintenance Risk Assessments and Emergent Work Control

- 1F2205CS Forced Outage Schedule
- Admin 4.02, Control of Equipment, Revision 62
- CR-PLP-2012-01773, Nick in Wire from Coil Associated with SV-1489, March 16, 2012
- EN-FAP-WM-002, Critical Evolutions, Revision 0
- EN-HU-102, Human Performance Tools, Revision 8
- EN-RP-150, Radiography and X-Ray Testing, Revision 8
- EN-WM-104, Online Risk Assessment, Revision 6
- Shot Plan for Radiography of Valves Associated with E-54A and E-54B, approved February 9, 2012
- SOP-30, Station Power, Revision 63
- SOP-8, Main Turbine and Generating Systems, Revision 87
- SPS-E-17, Temporary Installation and Removal of Spare Circuit Breakers, Revision 17
- WO 300872, E-54A Elevated Heat Exchanger Temperature
- WO 308948, Isolate/Repair SV-1489 Ground
- WO 52326144, 52-1112 Overhaul Breaker
- Work Request 299492, ED-56 Uninterruptable Power Supply, June 2003
- Work Week Schedule for February 6, 2012 Week

1R15 Operability Determinations and Functionality Assessments

- CR-PLP-2011-02491, Control room/potential SIRWT leakage, May 18, 2011
- CR-PLP-2011-05744, P-50C Rapid Step Change in Vibration, October 29, 2011
- CR-PLP-2012-00387, Severity level 5 fuel leak during RO-128-2, January 16, 2012
- CR-PLP-2012-00454, During PMT, fuel leakage estimated at 15-20 dpm, January 18, 2012
- CR-PLP-2012-00754, Separator on cell 55 moved, January 31, 2012
- CR-PLP-2012-01089, Palisades not in compliance with ASME OM Code, February 15, 2012
- CR-PLP-2012-01091, Suspect SIRWT leakage into the catacomb area, February 16, 2012
- CR-PLP-2012-01159, Unexpected TM/LO Pressure Alarm, February 18, 2012
- D-PAL-90-248, Contaminated water leakage into control room bathroom, October 8, 1990
- EC 34271, PMT Disposition for WO 302874 (Verify no external leaks from external fuel pumps)
- FSAR Section 1.8.10, Safe Shutdown, Revision 28
- NRC TIA 2010-001, Evaluation of Application of Technical Specification Surveillance Requirement 3.0.3 at Clinton Power Station, April 19, 2010

1R18 Plant Modifications

- ARP-5, Primary Coolant Pump Steam Generator and Rod Drives Scheme EK-09 (C-12), Revision 86
- Email from Raymond Martin to Paul Rhodes, “P-50B Seal flow alarm adjustment”, January 26, 2012
- EN-DC-115, Engineering Change Process, Revision 12
- EN-DC-136, Temporary Modification, Revision 6
- PCS-I-55, Primary Coolant Pump Seal Pressure/Flow Alarm Setpoints, Revision 2
- VTD-3589-001, TM-0239 “Flowserve (Rotating Equipment Div.) Instruction Manual for Maintenance of the Byron Jackson N-9000 Seal Cartridge,” Section 2
- WO00304240, P-50B Primary Coolant Pump CBO Flow alarm change, January 31, 2012

1R19 Post Maintenance Testing

- CR-PLP-2012-00456, Fuel Oil Leak from Cylinder Covers, January 19, 2012
- CR-PLP-2012-01653, CV-3025 “SDC Heat Exchangers E-60A/B Outlet” Stroked Closed Slowly per QO-42, March 12, 2012
- CR-PLP-2012-01706, Evaluate Operability of CV-3025 “SDC Heat Exchangers E-60A/B Outlet,” March 14, 2012
- QO-42, Inservice Testing of Shutdown Cooling Control Valves, Revision 15
- RE-133, Performance Test- Battery Charger #1 (ED-15), Revision 6
- RO-128-2, Diesel Generator 1-2, 24 Hour Load Run, Revision 21,
- RO-22, Control Rod Drop Times, Revision 20
- WO00272473, CRD-23; Replace CRD Seal Housing with Spare, January 7, 2012
- WO00301226, CRD-22; Elevated Control Rod drive Seal temperatures, January 7, 2012
- WO00302808, Severity Level 5 Leak on Cylinder 7L, January 16, 2012
- WO00308767, CV-3025 Stroked Slow in the Closed Direction During QO-42, March 26, 2012
- WO0032874, Severity level 5 Leak on Cylinder 8L and 9L, January 17, 2012
- WO-301725, MV-PC1044B Leaks By
- WO-52317677, #1 Battery Charger PM

1R20 Outage Activities

- 1F2205CS Forced Outage Schedule
- CR-PLP-2012-00165, PCS Leak due to Reactor Head Vents Being Open, January 7, 2012
- GOP-14, Shutdown Cooling Operations, Revision 43
- GOP-3, Mode 3 >525 degrees to Mode 2, Revision 30
- GOP-8, Power Reduction and Plant Shutdown to Mode 2 or Mode 3 >/= 525 Degrees, Revision 28
- GOP-9, Mode 3 >/= 525 Degrees to Mode 4 or Mode 5, Revision 31
- PO-2, PCS Heatup/Cooldown Operations, Revision 4
- SOP-1B, Primary Coolant System-Cooldown, Revision 11
- SOP-1C, Primary Coolant System-Heatup, Revision 10
- SOP-2A, Chemical and Volume Control System, Revision 73
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 81
- SOP-6, Reactor Control System, Revision 30

1R22 Surveillance Testing

- CR-PLP-2010-01195, “V-2B, Containment Cooler Recirculation Fan, Would Not Start During QO-1,” February 21, 2012
- CR-PLP-2012-00031, K-6A Starting Air Pressure Indicator High OOS, January 3, 2012
- CR-PLP-2012-01199, “Received EK-0934, Primary Coolant Pump P-50D Cooling Water Low Flow, Alarm During Performance of QO-1,” February 21, 2012
- CR-PLP-2012-0604, Exceeded Action Level 1, January 25, 2012, Revision 99
- DBD 5.01, Diesel Engine and Auxiliary Systems, Revision 6
- DWO-01, Operators daily/Weekly Items Modes 1,2,3 and 4
- EM-04-29 Attachment 7, Region I Fuel Assembly Qualification Forms, Revision 11
- EM-04-29, Guidelines for Preparing Fuel Movement Plans, Revision 11
- EN-FAP-OU-108, Fuel Handling Process, Revision 3
- EN-HU-102, Human Performance Tools, Revision 8
- ICA TF 2012-0013, Fuel Move Sheets, Attachment 1 of EM-04-29, Revision 11
- License Amendment Implementation Checklist, License Amendment 246, February 22, 2012

- MO-7A-1, Emergency Diesel Generator 1-1, Revision 78
- NRC Information Notice 89-84, Failure of Ingersoll Rand Air Start Motors as a Result of Pinion Gear Assembly Problems
- Palisades Technical Specification License Amendment No. 246
- PNP 2012-005, License Amendment Request – Replacement of Spent Fuel Pool Region I Storage Racks, February 26, 2012
- QI-39, Auxiliary Feedwater Actuation System Logic Test, Revision 4
- QO-1, Safety Injection System, Revision 59
- QO-20, Inservice Test Procedure-Low Pressure Safety Injection Pumps, Revision 19
- SOP-28, Fuel Handling System, Revision 44
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 82
- Spent Fuel Pool Region I Maps
- WO 52368451, MC-11B Safeguards Boron Sample

1EP6 Drill Evaluation

- Palisades 2012 First Quarter Emergency Planning Drill Scenario, March 6, 2012

4OA1 Performance Indicator Verification

- Control Room Logs, January through December, 2011 (AFW)
- Control Room Logs, September 16, 2011
- CR-PLP-2011-02350, "P-8B tripped on overspeed," May 10, 2011
- CR-PLP-2011-02364, "Investigation of P-8B overspeed event," May 11, 2011
- CR-PLP-2011-04929, "P-8C tripped while performing Auxiliary Feedwater line purging," September 29, 2011
- CR-PLP-2011-2350, P-8B Tripped on Overspeed, May 10, 2011
- CR-PLP-2011-5723, P-8B Tripped on Overspeed, October 28, 2011
- EOP-1.0, Standard Post-Trip Actions, Revision 13
- EOP-4.0 Basis, Loss of Coolant Accident Recovery-Basis, Revision 14
- EOP-4.0, Loss of Coolant Accident Recovery, Revision 20
- Heat Removal Systems - Mitigating Systems Performance Indicator Validation Packages, January 2011 thru December 2011
- LER-05000255/2011-004, Turbine driven Auxiliary Feedwater Pump Inoperable in Excess of Technical Specification Requirements due to Unexpected Trip, Revisions 0 and 1
- NRC Indicator Mitigating System Performance Index, Heat Removal Systems, January 2011 through December 2011
- Palisades MSPI Basis Document, June 26, 2008
- Plant Computer Trend Plots, Selected Parameters, September 16, 2011
- Pro 4.08, Post Event Review Requirements, Plant trip September 16, 2011

4OA2 Problem Identification and Resolution

- CR-PLP-2011-01933, Jacket Water Leakoff Leakage Stabilized at 50mL/min, April 18, 2011
- PE Request 95367, Testing Requirements for EDG Jacket Water Pump
- WO 302822, Disassemble and Inspect Removed P-211B Pump

4OA3 Followup of Events and Notices of Enforcement Discretion

- CR-PLP-2011-00336, Unexpected Trip on Loss of Load, January 22, 2011
- CR-PLP-201103902, Low discharge Pressure from P-7C, August 9, 2011

- CR-PLP-2011-4822, Plant Trip During Panel ED-11-2 Maintenance, September 25, 2011
- CR-PLP-2011-5723, P-8B Tripped on Overspeed, November 28, 2011
- LER 05000255/2011-005-00, Service Water Pump Shaft coupling failure, Revision 0
- LER 05000255/2011-006-00, Valve Packing Failure Resulted in Reactor Trip and Auxiliary Feedwater System Actuation, Revision 0
- LER-05000255-004-00 and 01, Turbine Driven Auxliary feedwater Pump Inoperable in Excess of Technical Specification requirements due to Unexpected Trip, Revision 0 and 1
- Licensee Event Report (LER) 05000255/2011-007-00, Direct Current Electrical System fault causes reactor Trip and Multiple Safety System Actuations, Revision 0
- Licensee Event Report (LER) 05000255/2011-008-00, Main Feedwater Pumps Trip Causing Reactor Protection System and Auxiliary Feedwater System Actuation, Revision 0
- ONP-3, Main Feedwater Transients, Revision 24
- ONP-6.1, Loss of Service Water, Revision 16

<u>4OA5 Other Activities</u>
- CR-PLP-2004-08321; Risk Significance Evaluation of Appendix R MOVs, October 21, 2005
- CR-PLP-2007-01947; Determine the Risk Significance of This Issue and Whether or Not the Issue is Less Than Red, August 14, 2007
- EA-PSA-FIRE-06-03; Owners Review of Use of the Palisades PSA to Evaluate the Importance of MOV Hot Shorts, Revision 0
- LTR-PSA-07-08; Evaluation of Postulated Spurious Operation That Could Result in Opening of CV-1359, November 7, 2007
- ONP-25.1; Fire Which Threatens Safety-Related Equipment; Revision 16
- ONP-25.2; Alternate Safe Shutdown Procedure; Revision 23

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
ANSI	American National Standards Institute
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CRDM	Control Rod Drive Mechanism
DC	Direct Current
EDG	Emergency Diesel Generator
gpm	gallons per minute
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
LORT	Licensed Operator Requalification Training
MSPI	Mitigating Systems Performance Index
MOV	Motor Operated Valve
MSIV	Main Steam Isolation Bypass Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NFPA	National fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PCS	Primary Coolant System
PI	Performance Indicator
SAT	Systems Approach to Training
SDP	Significance Determination Process
SES	Simulator Exam Scenarios
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item

If you contest the subject or severity of these NCVs, 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 Palisades Nuclear Plant.

If you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Palisades Nuclear Plant. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

John B. Giessner, Chief
Branch 4
Division of Reactor Projects

Docket No. 50-255
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Letter to A. Vitale from J. Giessner dated May 2, 2012.

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION REPORT 05000255/2012002 AND EXERCISE OF ENFORCEMENT DISCRETION

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