UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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February 2, 2012

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 05000255/2011005 and 07200007/2011001

Dear Mr. Vitale:

On December 31, 2011, 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 January 19, 2012, with you and other members of your staff.

The inspections 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.

One NRC-identified and one self-revealed finding of very low safety significance (Green) were identified during this inspection.

One of these findings was determined to involve violations of NRC requirements. Further, licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest 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 Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Palisades Nuclear Plant.

If you disagree with a cross-cutting aspect assignment 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 Palisades Nuclear Plant.

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, Branch Chief
Branch 4
Division of Reactor Projects

Docket No. 50-255; 72-007
License No. DPR-20

Enclosure: Inspection Report 05000255/2011005 and 07200007/2011001
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255; 72-007
License No:	DPR-20
Report No:	05000255/2011005; 07200007/2011001
Licensee:	Entergy Nuclear Operations, Inc.
Facility:	Palisades Nuclear Plant
Location:	Covert, MI
Dates:	October 1, 2011, through December 31, 2011
Inspectors:	J. Ellegood, Senior Resident Inspector T. Taylor, Resident Inspector A. Scarbeary, Resident Inspector J. Cassidy, Senior Health Physicist M. Learn, Reactor Engineer L. Rodriguez, Reactor Engineer C. Zoia, Operator Licensing Examiner
Approved by:	John B. Giessner, Chief Branch 4 Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS

Inspection Report (IR) 05000255/2011005; 07200007/2011001; 10/01/2011 – 12/31/2011; Palisades Nuclear Plant; Identification and Resolution of Problems.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding was considered a non-cited violation (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

- Green. A finding of very low safety significance and associated NCV of Technical Specification (TS) 5.4 was identified by the inspectors for failure to properly establish written procedures for maintenance that can affect the performance of safety-related equipment as required by Regulatory Guide 1.33, Section 9. Specifically, during Refueling Outage 21 (RFO 21) maintenance personnel were conducting breaker testing and replacements on the 125 VDC Panel D11-2 with an inadequate work order package that did not include the appropriate procedure steps for replacing breakers in the panel. Instead, the work order directed maintenance workers in the field to install the breakers using a procedure that was not prescriptive in the reinstallation instructions and did not include signature steps for supervisor verification/inspection of the reinstallation activities. The licensee corrected the improperly installed breakers prior to reactor startup. The licensee also entered the issue in their Corrective Action Program (CAP) as CR-PLP-2012-00648.

  The performance deficiency was more than minor because it affected 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 breaker replacement workmanship deficiencies from the maintenance performed on Panel D11-2 during RFO 21 led to intermittent operation of some loads supplied by the panel. 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 human performance related to the cross-cutting component of resources, in that the licensee ensures that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety and specifically, the training of personnel and a sufficient number of qualified personnel are available to complete tasks commensurate with maintaining nuclear safety (H.2(b)). (Section 4OA2.5)

- Green. A finding of very low safety significance was self-revealed on September 16, 2011, when the packing for CV-1057, one of two pressurizer spray control valves, failed resulting in unidentified Primary Coolant System (PCS) leakage in excess of TS limits. As a result, the licensee manually tripped the reactor and declared an Unusual Event was declared. The licensee failed to maintain the configuration of the plant in accordance with the design. No violation of regulatory requirements was identified, however, the licensee failed to implement an Entergy procedure, a self-imposed standard. Contrary to the licensee's Configuration Management procedure, EN-DC-105, the intended packing configuration was not installed during RFO 21. Specifically, end rings integral to the design were omitted. As immediate corrective action, the licensee repacked CV-1057 and checked the consolidation of the sister valve, CV-1059. The licensee also entered the issue in their CAP as CR-PLP-2012-04620 and performed a root cause analysis.

  The inspectors determined the failure of the packing due to inadequate configuration management was a performance deficiency warranting further evaluation with the Significance Determination Process. The performance deficiency was more than minor because it affected the Initiating Events Cornerstone attribute of Design 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 issue resulted in PCS leakage greater than TS limits, a manual reactor trip, and declaration of an Unusual Event. The issue screened as Green, or very low safety significance, in a Phase 3 SDP evaluation performed by regional Senior Reactor Analysts. The finding had a cross-cutting aspect in the area of Human Performance associated with the Resources component. Specifically, the licensee failed to ensure that complete, accurate, and up-to-date design documentation, procedures, and work packages were available and adequate to ensure nuclear safety for maintenance on the pressurizer spray control valves (H.2(c)). (4OA2.6)

B. Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's CAP. 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 shutdown in Mode 4. The licensee took the reactor critical on October 2 and returned to 100 percent power on October 3. On December 14, the licensee manually tripped the reactor due to a feedwater transient that resulted from a failed minimum flow valve. The licensee isolated the valve and took the reactor critical on December 16. The licensee ascended to 100 percent power on December 17. The plant remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed the Corrective Action Program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- outside water storage tanks;
- primary makeup and condensate storage tanks;
- emergency diesel generator (EDG) and supplemental diesel rooms; and
- traveling screen system.

This inspection constituted one winter seasonal readiness preparations sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Condition – Heavy Snowfall Conditions

a. Inspection Scope

On December 9, 2011, the national weather service predicted snow. The inspectors observed the licensee's actions during the snow and freezing rain conditions. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. The inspectors conducted a site walkdown including walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could affect system operations during the predicted significant weather. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment.

This inspection constituted one readiness for impending adverse weather condition sample as defined in IP 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- containment spray during 'B' pump maintenance;
- component cooling water during 'B' pump maintenance;
- 1-1 diesel generator during 1-2 diesel generator inoperability for emergent ventilation work; and
- low pressure injection with 'A' pump out-of-service

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, 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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted four partial system walkdown samples as defined in 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 risk-significant plant areas:

- Fire Area 13A: auxiliary building main corridors (590', 611', 625');
- Fire Area 19: track alley;
- Fire Area 38: cooling tower pump house; and
- Fire Area 23: turbine building – main areas (571', 590', 607', 612', 625')

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.

1R06 Flooding (71111.06)

.1 Underground Vaults

a. Inspection Scope

The inspectors selected underground bunkers/manholes subject to flooding that contained cables whose failure could disable risk-significant equipment. The inspectors determined that the cables were not submerged, that splices were intact, and that appropriate cable support structures were in place. In those areas where dewatering devices were used, such as a sump pump, the device was operable and level alarm circuits were set appropriately to ensure that the cables would not be submerged. In those areas without dewatering devices, the inspectors verified that drainage of the area was available, or that the cables were qualified for submergence conditions. The inspectors also reviewed the licensee's corrective action documents with respect to past submerged cable issues identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following underground bunkers/manholes subject to flooding:

- 'C' switchgear cable vaults

Specific documents reviewed during this inspection are listed in the Attachment to this report. This inspection constituted one underground vaults sample as defined in IP 71111.06-05.

b. Findings

No findings were identified.

.2 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following plant area to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- component cooling water room.

Specific documents reviewed during this inspection are listed in the Attachment to this report. This inspection constituted one internal flooding sample as defined in IP 71111.06-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On November 2, 2011, the inspectors observed a crew of licensed operators in the plant's simulator during the fourth quarter Emergency Preparedness Drill 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 Annual Operating Test Results (71111.11B)

a. Inspection

During a May 2011 Requalification Training Program Inspection, the inspectors reviewed the overall pass/fail results of the Annual Operating Test, administered by the licensee from January 5 through February 11, 2011, as required by 10 CFR 55.59(a) and incorrectly documented one sample for IP 71111.11B. The inspection actually constituted one biennial licensed operator requalification inspection sample as defined in IP 71111.11A, and completed the inspection requirements of IP 71111.11B.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- radiation monitoring system; and
- chemical and volume control system

The inspectors reviewed events where inadequate equipment maintenance had resulted in valid or invalid automatic actuations of affected systems or components 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

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for 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:

- 'A' main feedwater pump start-up and troubleshooting activities during forced outage for loss of feedwater transient;
- elevated risk due to P-7C outage; and
- coordination of emergency core cooling system and service water pump maintenance.

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 three 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:

- cooling tower degradation;
- service water pinhole leaks;
- pressurizer pressure indicator degradation;
- C Primary coolant pump due to increased vibrations; and
- component cooling water heat exchanger flow degradation.

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 five 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):

- change of service water pump coupling material; and
- re-positioning of radiation monitor 2328.

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 systems. 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 two permanent plant modification samples 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:

- service water pump P-7C following coupling replacement;
- service water pump P-7C feeder breaker control circuit fuse modification;
- FUZ/Y1014-2 troubleshooting activities;
- auxiliary feedwater pump P-8B after testing;
- pressurizer/reactor head vent valve replacements;
- Direct Current (DC) electrical system work during forced outage;

- battery charger restoration after troubleshooting; and
- pressurizer pressure indicator 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 eight 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 completed outage inspection activities for a forced outage that started on September 25, 2011. Since the licensee remained shutdown at the end of the quarter, outage inspection could not be completed as documented in report 05000255/2011-004. In this inspection period the inspectors observed plant heat-up and plant startup.

The inspectors evaluated outage activities for a forced outage that began on December 14, 2011 and continued through the December 16, 2011. The trip occurred due to spurious opening of a main feedwater pump minimum flow valve. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule.

The inspectors observed the reactor trip, risk management, electrical lineups, control and monitoring of decay heat removal, control of containment activities, personnel fatigue management, and startup. The inspectors also observed starting of a second feedwater pump during power ascension.

This inspection, coupled with inspections in report 05000255/2011-004, constitute two other outage sample as defined in IP 71111.20-05.

b. Findings

No findings were identified.

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:

- Calibration of Bus 1D Protective Relays, WISPS-E-09,;
- Area Monitor Functional Check, RIA-I-9,;
- 'B' Containment Spray in service testing (IST)/TS Surveillance, QO-16;
- EDG 1-2, MO-7A-2 ;
- Battery Charger #2 Maintenance and Performance Tests, ED-16;
- Safety injection System Actuation System test, QO-1; and
- Battery Checks, ME-12A.

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 six routine surveillance testing samples and one IST sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2RS4 Occupational Dose Assessment (71124.04)

These inspection activities were incorrectly documented. All of the activities were completed but reported as a partial sample in NRC Inspection Report (IR) 05000255/2010004, dated November 8, 2010.

This inspection procedure was completed including the areas described below and constituted one sample as defined in IP 71124.04-05. Please refer to documents ML103140062, ML110420056, and ML113180103 in ADAMS for the inspection activities that inspected these topics.

.1 Internal Dosimetry (02.03)

Internal Dose Assessment – Airborne Monitoring

a. Inspection Scope

The inspectors reviewed the licensee's program for airborne radioactivity assessment and dose assessment, as applicable, based on airborne monitoring and calculations of derived air concentration. The inspectors determined whether flow rates and collection times for air sampling equipment were adequate to allow lower limits of detection to be obtained. The inspectors also reviewed the adequacy of procedural guidance to assess internal dose if respiratory protection was used.

b. Findings

No findings were identified.

.2 Special Dosimetric Situations (02.04)

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

a. Inspection Scope

The inspectors reviewed the licensee's methodology for monitoring external dose in non-uniform radiation fields or where large dose gradients exist. The inspectors evaluated the licensee's criteria for determining when alternate monitoring, such as use of multi-badging, was to be implemented.

The inspectors reviewed dose assessments performed using multi-badging to evaluate whether the assessment was performed consistently with licensee procedures and dosimetric standards.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted one complete sample as defined in IP 71124.06-05.

.1 Inspection Planning and Program Reviews (02.01)

Event Report and Effluent Report Reviews

a. Inspection Scope

The inspectors reviewed the radiological effluent release reports issued since the last inspection to determine if the reports were submitted as required by the Offsite Dose Calculation Manual/TSs. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine if they were evaluated, were entered in the CAP, and were adequately resolved.

The inspectors identified radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, to review these issues during the onsite inspection, as warranted, given their relative significance and determine if the issues were entered into the CAP and adequately resolved.

b. Findings

No findings were identified.

Offsite Dose Calculation Manual and Final Safety Analysis Report Review

c. Inspection Scope

The inspectors reviewed Final Safety Analysis Report descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they could be evaluated during inspection walkdowns.

The inspectors reviewed changes to the Offsite Dose Calculation Manual made by the licensee since the last inspection against the guidance in NUREG-1301 and 0133, and Regulatory Guides 1.109, 1.21 and 4.1. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change during the onsite inspection to determine whether they were technically justified and maintain effluent releases as-low-as-is-reasonably-achievable.

The inspectors reviewed licensee documentation to determine if the licensee has identified any non-radioactive systems that have become contaminated as disclosed either through an event report or the Offsite Dose Calculation Manual since the last inspection. This review provided an intelligent sample list for the onsite inspection of any 10 CFR 50.59 evaluations and allowed a determination if any newly contaminated systems have an unmonitored effluent discharge path to the environment, whether any required Offsite Dose Calculation Manual revisions were made to incorporate these new pathways and whether the associated effluents were reported in accordance with Regulatory Guide 1.21.

d. Findings

No findings were identified.

Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

b. Findings

No findings were identified.

Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed Licensee Event Reports, event reports and/or special reports related to the effluent program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports.

The inspectors reviewed effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations.

The inspectors reviewed copies of licensee and third party (independent) evaluation reports of the effluent monitoring program since the last inspection to gather insights into the licensee's program and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to evaluate whether equipment configuration and flow paths align with the documents reviewed in 02.01 above and to assess equipment material condition. Special attention was made to identify potential unmonitored release points (such as open roof vents in boiling water reactor turbine decks, temporary structures butted against turbine, auxiliary or containment buildings), building alterations which could impact airborne, or liquid effluent controls, and ventilation system leakage that communicates directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

The inspectors walked down filtered ventilation systems to assess for conditions such as degraded high-efficiency particulate air /charcoal banks, improper alignment, or system installation issues that would impact the performance or the effluent monitoring capability of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent (including sample collection and analysis) to evaluate whether appropriate treatment equipment was used and the processing activities align with discharge permits.

The inspectors determined if the licensee has made significant changes to their effluent release points, e.g., changes subject to a 10 CFR 50.59 review or require NRC approval of alternate discharge points.

As available, the inspectors observed selected portions of the routine processing and discharge liquid waste (including sample collection and analysis) to determine if appropriate effluent treatment equipment is being used and that radioactive liquid waste is being processed and discharged in accordance with procedure requirements and aligns with discharge permits.

b. Findings

No findings were identified.

.3 Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls have been implemented to ensure representative

samples were obtained (e.g. provisions for sample line flushing, vessel recirculation, composite samplers, etc.)

The inspectors selected effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to assess whether controls were in place to ensure compensatory sampling was performed consistent with the radiological effluent TSs/Offsite Dose Calculation Manual and that those controls were adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors determined whether the facility was routinely relying on the use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the inter-laboratory comparison program to evaluate the quality of the radioactive effluent sample analyses and assessed whether the inter-laboratory comparison program includes had-to-detect isotopes as appropriate.

b. Findings

No findings were identified.

.4 Instrumentation and Equipment (02.04)

Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee uses to determine the effluent stack and vent flow rates to determine if the flow rates were consistent with radiological effluent TSs/Offsite Dose Calculation Manual or Final Safety Analysis Report values, and that differences between assumed and actual stack and vent flow rates did not affect the results of the projected public doses.

b. Findings

No findings were identified.

Air Cleaning Systems

a. Inspection Scope

The inspectors assessed whether surveillance test results since the previous inspection for TS required ventilation effluent discharge systems (high-efficiency particulate air and charcoal filtration), such as the Standby Gas Treatment System and the Containment/Auxiliary Building Ventilation System, met TS acceptance criteria.

b. Findings

No findings were identified.

.5 Dose Calculations (02.05)

a. Inspection Scope

The inspectors reviewed all significant changes in reported dose values compared to the previous radiological effluent release report (e.g., a factor of 5, or increases that approach Appendix I criteria) to evaluate the factors which may have resulted in the change.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits to assess whether the projected doses to members of the public were accurate and based on representative samples of the discharge path.

Inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included within detectability standards. The review included the current Part 61 analyses to ensure hard-to-detect radionuclides are included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to evaluate whether changes were consistent with the Offsite Dose Calculation Manual and Regulatory Guide 1.109. Inspectors reviewed meteorological dispersion and deposition factors used in the Offsite Dose Calculation Manual and effluent dose calculations to evaluate whether appropriate factors were being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to assess whether changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of nearest member of the public or critical receptor, etc.) have been factored into the dose calculations.

For the releases reviewed above, the inspectors evaluated whether the calculated doses (monthly, quarterly, and annual dose) are within the 10 CFR Part 50, Appendix I, and TS dose criteria.

The inspectors reviewed, as available, records of any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors, or unmonitored leakages were reviewed to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501 so as to account for the source term and projected doses to the public.

b. Findings

No findings were identified.

.6 Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors reviewed monitoring results of the Groundwater Protection Initiative to determine if the licensee had implemented its program as intended and to identify any

anomalous results. For anomalous results or missed samples, the inspectors assessed whether the licensee had identified and addressed deficiencies through its CAP.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75 (g) records. The inspectors reviewed evaluations of leaks or spills and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving contamination of ground water and assessed whether the source of the leak or spill was identified and mitigated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged by:

- Assessing whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term and assessing whether a survey/evaluation had been performed to include consideration of hard-to-detect radionuclides.
- Determining whether the licensee completed offsite notifications, as provided in its Groundwater Protection Initiative implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies that contain or potentially contain radioactivity, and the potential for ground water leakage from these onsite surface water bodies. The inspectors assessed whether the licensee was properly accounting for discharges from these surface water bodies as part of their effluent release reports.

The inspectors assessed whether on-site ground water sample results and a description of any significant on-site leaks/spills into ground water for each calendar year were documented in the Annual Radiological Environmental Operating Report for the radiological environmental monitoring program or the Annual Radiological Effluent Release Report for the Radiological Effluent TSs.

For significant, new effluent discharge points (such as significant or continuing leakage to ground water that continues to impact the environment if not remediated), the inspectors evaluated whether the offsite dose calculation manual was updated to include the new release point.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.07)

a. Inspection Scope

Inspectors assessed whether problems associated with the effluent monitoring and control program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee CAP. In addition, they evaluated the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

b. Findings

No findings were identified.

3. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours performance indicator for the period from the fourth quarter 2010 through the third quarter 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, power history, and NRC Integrated Inspection Reports for the period of fourth quarter 2010 through the third quarter 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 transients per 7000 critical hours sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance for the period from the fourth quarter of 2010 through the third 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, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance work orders, event reports and NRC Integrated IRs for the period of the fourth quarter of 2010 through the third quarter of 2011 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition 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 safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the Primary Coolant System (PCS) Leakage performance indicator for the period from the fourth quarter of 2010 through the third 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, was used. The inspectors reviewed the licensee's operator logs and PCS leakage tracking data for the period of the fourth quarter of 2010 through the third quarter of 2011 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition 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 reactor coolant system leakage sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Emergency Alternating Current Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency Alternating Current (AC) Power System performance indicator for the period of the fourth quarter of 2010 through the third 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, MSPI derivation reports, condition reports, and event reports for the period of the fourth quarter of 2010 through the third 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 condition 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 MSPI emergency AC power system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems performance indicator for the period from the fourth quarter of 2010 through the third 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, MSPI derivation reports, event reports and NRC Integrated IRs for the period of fourth quarter of 2010 through the third 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 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 MSPI cooling water system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent TS/Offsite Dose Calculation Manual radiological effluent occurrences PI for the period from the third quarter 2010 through the third quarter 2011. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between the third quarter 2010 through the third quarter 2011 to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent TS/Offsite Dose Calculation Manual radiological effluent occurrences sample as defined in IP 71151 05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

.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 condition report 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 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6 month period of April 2011 through October 2011, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

The inspectors noted a few examples of issues not followed up in a timely manner or with a lower level of rigor than expected. One example would be the unexpected trip of the turbine driven Auxiliary feedwater (TDAFW) pump in May of 2011. The licensee initially performed an apparent cause and identified that grease had been applied inappropriately on the knife edge of the hand trip lever. This issue became the subject of a White finding detailed in IR 05000255/2011017. The inspectors provided observations that the apparent cause and analysis of the failure modes seemed to lack depth. The licensee later identified other potential causes to explore and eventually performed a root cause and did further tests of the pump. Other issues included a delay in formally addressing some aspects of charging pump relief valve operation that occurred during a significant plant transient (induced by loss of a DC bus outlined in IR 05000255/2011014) and pursuit of the source of water found in containment following the same transient. Additionally, inspector involvement was required to ensure an appropriate depth of corrective actions were taken for a previously identified NRC finding associated with the maintenance of the Severe Accident Management Guidelines (SAMGs) outlined in IR 05000255/2011004. Finally, the inspectors noted that the timeliness and detail associated with Onsite Safety Review Committee meetings for plant startups may not be providing the site with needed information to determine if plant start-up is acceptable. These observations were shared with licensee staff and corrective actions were generated to address the various issues.

This review constituted a single semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.4 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the operator workarounds on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of operator workarounds. The documents listed in the Attachment were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their CAP and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of Mitigating Systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified operator workarounds.

This review constituted one operator workaround annual inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.5 Selected Issue Follow-Up Inspection: Loss of 125 VDC Bus Left Train and Subsequent Plant Trip/Transient

a. Inspection Scope

On September 25, 2012, the plant tripped due to loss of a DC bus. During the forced outage, numerous issues arose that warranted additional inspection. During the forced outage, the inspectors verified that ongoing safety concerns did not exist. Issues reviewed by the inspectors include;

- Significant water on the 590' level of containment
- Leakage from relief valves 2006 and 2082
- Lifting of relief valves on the charging pump suction
- Blown fuse in battery charger # 1
- Workmanship on panel D-11-2 during RFO 21

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

b. Findings

Failure to Perform Maintenance Properly and in Accordance With Procedures and Instructions Appropriate to the Circumstances on Breakers in Panel D11-2

Introduction: The inspectors identified a finding of very low safety significance and associated NCV of TS 5.4 for failure to properly establish written procedures to perform maintenance on safety-related equipment as required by Regulatory Guide 1.33, Section 9. Specifically, during RFO 21 maintenance personnel conducted breaker testing and replacements on the 125 VDC Panel D11-2 with an inadequate work order package. These packages did not include the appropriate procedure steps for replacing breakers in the panel. Instead, the work order directed maintenance workers in the field to install the breakers using a procedure that was not prescriptive in the reinstallation instructions and did not include signature steps for supervisor verification/inspection of the reinstallation activities.

Description: During Refueling Outage 21 in October of 2010, Work Order #212303 was completed for performing maintenance on the 125 VDC Panel D11-2. Under this work order, ten of the eighteen breakers inside the panel were to be replaced with new breakers and eight were to be removed for periodic testing. The work order task instructions directed the electrical maintenance personnel to "1. Remove, test, and install all breakers in panel ED11-2 per procedure EPS-E-10." This was the only step in the work order task instructions that provided the workers any guidance on installing the breakers in the panel.

The purpose of procedure EPS-E-10, which is titled "DC Breaker Inspection and Testing," is "to provide instructions for testing of DC breakers in distribution panels ED-11-2." As the purpose and title of this procedure indicates, it is not meant to be used as an instruction for reinstalling breakers in the panel. It also does not contain signature steps for the appropriate supervisor verification processes once the breakers are reinstalled and the only numerical values given for checking that the breakers are installed correctly are values for torquing the wire leads for the breakers (which were all torqued correctly during the maintenance activity according to the work package documentation).

Although the licensee included a brief discussion in the root cause report for a loss of DC bus that work completed in RFO-21 resulted in cross threading of the fasteners associated with the breakers, the licensee did not perform a separate cause evaluation. Since the licensee had not conducted a cause evaluation, the inspectors interviewed the work planner and electrical maintenance personnel. The interviews revealed that a separate electrical maintenance procedure existed that was specifically written for the replacement of 125 VDC circuit breakers. This procedure, entitled "Westinghouse/Cutler-Hammer Replacement of 125 VDC Molded Case Circuit Breakers," which is electrical maintenance procedure EPS-E-12, has a stated purpose "to provide instructions for the removal of original molded case circuit breakers and the installation of Westinghouse/Cutler-Hammer replacement circuit breakers." Specifically, Attachment 1 of EPS-E-12 identifies this procedure to be used with work on Panel

ED-11-2 and breaker numbers 72-119 through 72-136 (the breakers of concern in the work order).

Interviews with the work order planner identified that the individual was not aware that procedure EPS-E-12 existed, so it was not included in the work order instructions. The planner was also under the impression that EPS-E-10 was sufficient for the breaker reinstallation activities during maintenance. Through interviews with electrical maintenance personnel, who were not directly involved with the maintenance during RFO 21, it was revealed that the electrical maintenance department would normally use procedure EPS-E-12 for new breaker reinstallation because it contained detailed steps specifying values for torquing mounting screws, washers, and nuts associated with the breakers, as well as the values referenced in EPS-E-10 for torquing the wire leads. Procedure EPS-E-12 also has signature steps for the “responsible supervisor” to inspect the torquing and reinstallation work in the field.

On September 22, 2011, failure of a light on the air lock door to containment drew attention to the improper work conducted in panel D-11-2. Troubleshooting activities started within this panel revealed multiple issues with breakers, including breakers associated with containment isolation valves and power to the turbine generator voltage regulator. Maintenance activities in the panel to address the deficiencies resulted in a plant trip on September 25 which is discussed in 05000255/2011-014. The root cause conducted for the trip identified that the breaker replacement workmanship during the refueling outage could have been substandard and caused the issues found on the breakers and connections during the troubleshooting activities but identified other root causes for the trip.

Analysis: The inspectors determined that the failure to establish adequate written procedures to perform maintenance that can affect the performance of safety-related equipment was a performance deficiency that warranted a significance determination. The inspectors determined that the finding was more than minor in accordance with Inspection Manual Chapter (IMC) 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because it affected 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 breaker replacement workmanship led to intermittent electrical connections for loads on the panel, including safety related loads for containment isolation valves and non-safety related loads for the turbine generator voltage regulator. Abnormal operation of the voltage regulatory can lead to a turbine and subsequent plant trip. 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 inspectors also looked at the questions for Containment Barrier cornerstone in Table 4a for possible impacts since the breakers supplied containment isolation valves. The inspectors answered "no" to all the questions associated with containment isolation since the valves in question failed to the closed (safety) position. Therefore, the finding screened as very low safety significance, Green.

The finding had a cross-cutting aspect in the area of human performance related to the cross-cutting component of resources, in that the licensee ensures that personnel,

equipment, procedures, and other resources are available and adequate to assure nuclear safety and specifically, the training of personnel and a sufficient number of qualified personnel are available to complete tasks commensurate with maintaining nuclear safety. Although adequate procedures were available to correctly complete the maintenance tasks described in the work order instruction, these procedures were not used, in part, because the planner was not aware of these procedures. Because the planner was not aware of the appropriate procedures, the inspector concluded that a cross-cutting aspect associated with training of personnel existed. (H.2(b)).

Enforcement: Technical Specification 5.4.1 requires, in part, 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 performance of safety-related equipment should be properly pre-planned and completed in accordance with written procedures and documented instructions appropriate to the circumstances.

Contrary to this, during RFO 21, maintenance personnel conducted breaker testing and replacements on the 125 VDC Panel D11-2 without establishing an adequate written procedure. Specifically, the work order package was inadequate and did not include the appropriate procedure steps for replacing breakers in the panel. Instead, the work order directed maintenance workers in the field to install the breakers using a procedure that was not prescriptive in the reinstallation instructions and did not include signature steps for supervisor verification/inspection of the reinstallation activities. These inadequate maintenance practices led to the need for maintenance troubleshooting and re-work activities conducted in September 2011. The licensee's corrective actions consist of revising the electrical maintenance procedure, EPS-E-10, to include all possible maintenance activities (on-line and outage), integrating critical steps, revising the pre-job briefing level and detail, clarifying the plant impact considerations, and turning Notes into actual procedure steps. The site is also reviewing all electrical maintenance procedures for current applicability and usage and ensuring these procedures contain the most up-to-date plant references. Because this violation was of very low safety significance, it is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000255/2011005-01, Failure to Establish Maintenance Procedures For Safety Related Breakers in Panel D11-2). The licensee entered this condition into the CAP as CR-PLP-2012-00648.

.6 Selected Issue Follow-Up Inspection: Pressurizer spray valve leakage resulting in reactor trip and Unusual Event

a. Inspection Scope

On September 16, 2011 the reactor was manually tripped and an Unusual Event was declared due to excessive PCS unidentified leakage in containment. The leakage was determined to be from the packing area of CV-1057, one of two pressurizer spray control valves. The valves have had a history of packing leakage requiring licensee attention, but not to the extent as what was experienced on September 16, 2011. The inspectors reviewed the licensee's root cause evaluation and conducted interviews with personnel involved in planning and executing work on the valves during the 1R21 refueling outage.

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

b. Findings

Introduction: A finding of very low safety significance (Green) was self-revealed on September 16, 2011 when the packing for one of two pressurizer spray control valves, CV-1057, failed. The licensee failed to maintain facility configuration in accordance with design as required by licensee procedures. The failure resulted in a PCS leak of approximately 10-20 gpm in containment, which exceeded the TS limit for unidentified leakage. This condition necessitated a manual plant trip and the declaration of Unusual Event, the lowest of four emergency classification levels. Packing end rings, integral to the design of the packing, were inadvertently left out of the control valves during maintenance and contributed to the failure of CV-1057.

Description: In an attempt to improve the performance of the pressurizer spray control valves, CV-1057 and CV-1059, the decision was made to change the packing configuration from Chesterton 5300 style packing to Chesterton 5800 during the 1R21 refueling outage (fall 2010). This decision was made in consultation with the vendor prior to the outage. The licensee ordered sets of Chesterton 5800 packing to support the planned work. The material requested was described as "a kit which includes a set of 5800I packing and two 1601CR end rings." These materials were delivered to the site and a procurement engineering evaluation was performed to document their suitability for use. The evaluation referenced a 1987 Specification Change (SC) which stated that packing configuration changes were a maintenance item and that changes were documented as part of the maintenance process. Therefore, the licensee concluded that no further evaluations were necessary and that the material was acceptable for use. The licensee determined that reliance on this outdated SC was a contributing cause of the CV-1057 failure, because many aspects of the program had changed since 1987, and that overreliance on the SC precluded further evaluation of the desired packing. Although there was no evidence to suggest that the new packing design was unacceptable if installed correctly, the additional configuration control associated with the design process may have prevented installation of the packing without the end rings.

Along with the packing and end rings, the licensee received detailed installation instructions and a diagram showing a typical packing arrangement. The picture showed five rings of 5800I packing with two end rings (one on top and one on bottom). Despite what had been ordered, received, and evaluated, the maintenance plan only directed that a "Style 5800 packing set" be installed. The end rings were not identified specifically in the plan, nor was any further guidance provided regarding the packing configuration. During the root cause evaluation, the licensee discovered that contrary to the Chesterton 5800I packing design, the 1601CR end rings had not been installed in either of the control valves during the outage. Additionally, the licensee identified that in 1987, 0.5 inches had been inappropriately shaved off of the gland follower in CV-1057 to facilitate reassembly of the valve. The licensee concluded that both conditions together led to the packing failure of CV-1057. However, this was not realized until approximately a week after the plant had been restarted. Initially thinking the failure was due to inadequate packing consolidation, the licensee repacked CV-1057 with the previous packing design (style 5300) and reconsolidated CV-1059 with more prescriptive work instructions. When the root cause team determined the end rings were an issue, the licensee inspected and confirmed that end rings were missing from CV-1059 as well.

The licensee corrected this by repacking it with the 5300 style packing. Inspector review of the issue determined that contrary to the licensee's Configuration Management procedure, EN-DC-105, the licensee did not maintain adequate control over the packing configuration of the spray control valves, and that packing data for plant valves in general was not well organized. Additionally, the inspectors determined that the lack of clear, detailed work instructions also contributed to the improper packing of CV-1057 and CV-1059.

Analysis: The inspectors determined that the failure to maintain the configuration of the facility (packing) in accordance with design, as required by EN-DC-105, Configuration Management, was a performance deficiency warranting further evaluation with the Significance Determination Process. 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 affected the Initiating Events cornerstone attribute of Design 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 issue resulted in PCS leakage greater than TS limits, a manual reactor trip, and declaration of an Unusual Event.

The inspectors evaluated the finding in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Initiating Events Cornerstone. The inspectors answered "Yes" to the "Loss Of Coolant Accident Initiators" screening question "Assuming worst case degradation, would the finding result in exceeding the TS limit for any RCS leakage or could the finding have likely affected other mitigation systems resulting in total loss of their safety function?," since the packing leakage on Pressurizer (PZR) spray valve CV-1057 was greater than the TS limit for unidentified PCS leakage of 10 gpm (leakage was approximately 10 to 20 gpm). Therefore, a Phase 2 SDP evaluation was performed using MC0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations."

Using Table 2 of the "Risk-Informed Inspection Notebook for Palisades Nuclear Power Plant (Revision 2.1a)", PZR spray was evaluated to only affect the Steam Generator Tube Rupture initiating event scenarios. Table 3.7, "Significant Determination Process Worksheet for Palisades Nuclear Power Plant - Steam Generator Tube Rupture (SGTR)," was used to evaluate the significance in Phase 2. Using an initiating event likelihood (IEL) of "4" for a 3-30 days exposure time period (i.e., the time period in which PZR spray valve CV-1057 would have been unavailable) resulted in a value of "7" for both delta core damage frequency (CDF) and delta large early release frequency (LERF). This result was Green for CDF and White for LERF. Since the Phase 2 results are inherently conservative, a Phase 3 SDP evaluation was performed.

The Senior Reactor Analysts performed a Phase 3 internal events SDP evaluation of the finding using SAPHIRE Version 8.0.7.17 and the Palisades Standardized Plant Analysis Risk model (Version 8.17). A "Transient" initiating event analysis was run using the standardized plant analysis risk model. The result was an estimated conditional core damage probability (CCDP) of 1.71E-7. Since the PZR spray valves are not modeled in the Palisades standardized plant analysis risk model, but the Auxiliary Spray Valve is modeled, the failure to open of the Auxiliary Spray Valve was used as a "surrogate" for the possible failure of the PZR spray valve CV-1057. This would give a conservatively higher value of the CCDP, since a failure of the Auxiliary Spray Valve would mean a

failure of all PZR spray capability in the standardized plant analysis risk model because auxiliary spray is used as a backup to normal PZR spray. Another "Transient" initiating event analysis was run assuming that the Auxiliary Spray Valve failed to open. The result was again an estimated CCDP of 1.71E-7 (i.e., no change). To evaluate the significance of the failure of the PZR spray valve to open (when isolated while at Hot Shutdown), a condition assessment was performed for the failure of the Auxiliary Spray Valve to open (again used as a surrogate for PZR spray valve CV-1057) for a conservative 7-day time period. The result was a CDF of zero for this time period.

The result of the internal events Phase 3 analysis was an estimated risk significance of 1.71E-7/yr. The two dominant core damage sequences involved (1) a transient initiating event with a failure of the reactor protection system to initiate a trip, and (2) either a failure of all PZR safety valves to open or a failure of boration. Since the total estimated change in core damage frequency was greater than 1.0E-7/yr, IMC 0609, Appendix A, Attachment 3, "User Guidance for Screening of External Events Risk Contribution," was used to screen external event contributions. The contribution to the CDF from internal events caused by a "Transient" initiating event dominated the risk contribution compared to that caused by external events. Therefore, the risk due to external events was negligible. The potential risk contribution for this finding from large early release frequency was screened using the guidance of IMC 0609 Appendix H, "Containment Integrity Significance Determination Process." Palisades is a PWR with a large dry containment. Sequences important to LERF include steam generator tube rupture events and inter-system Loss of Coolant Accident events. For the Phase 3 analysis, these were not the dominant core damage sequences for this finding. Based on the Phase 3 analysis, the inspectors determined that the finding was of very low safety-significance (Green).

The inspectors determined the finding had a cross-cutting aspect in the area of Human Performance associated with the Resources component. Specifically, the licensee failed to ensure that complete, accurate, and up-to-date design documentation, procedures, and work packages were available and adequate to ensure nuclear safety for maintenance on the pressurizer spray control valves (H.2(c)).

Enforcement: This finding does not involve enforcement action because no regulatory requirement violation was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000255/2011005-02, Failure to Control Packing Configuration of Pressurizer Spray Control Valves.

.7 Selected Issue Follow-Up Inspection: Prior NRC findings

a. Inspection Scope

The inspectors reviewed the licensee's corrective actions related to prior NRC findings. Findings reviewed included;

- 0500255/2011003-02, Failure to establish a Back-up radiation monitor
- 05000255/2011004-04, Failure to Update SAMGs
- 05000255/2011002-01, Failure to Account for Age-Related Degradation

The inspectors reviewed the associated corrective action documents for the prior findings and reviewed documentation associated with corrective actions. The inspectors

noted that the licensee had closed the condition report on SAMG adequacy without conducting an adequate review of the SAMGs. The inspectors noted that the SAMGs still contained errors. For example, calculation aids assumed steam generator tube volume had not changed since the calculation aid was developed. The inspectors concluded that the licensee's actions were not adequate to address the original finding. The licensee initiated a new CR-PLP-2011-5631 to address this issue.

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

b. Findings

No findings were identified.

.8 Selected Issue Follow-Up Inspection: Cross-cutting themes from the mid-cycle review

a. Inspection Scope

During the 2011 midcycle review, the NRC noted that licensee performance had resulted in two cross-cutting aspect themes. Since the themes developed late in the assessment period, the NRC did not open a significant cross-cutting issues. The themes were H.2.C (procedures/documentation) and H.1(b), conservative assumptions. The inspectors reviewed the root causes and corrective actions for these themes.

For conservative assumptions, the inspectors reviewed the Apparent Cause Evaluation (ACE), corrective action documentation, the recovery plan and NRC inspection findings. The licensee determined that the apparent cause was managers making decisions based on meeting only minimum regulatory requirements. The inspectors concluded that based on the findings reviewed by the licensee, the licensee identified a reasonable apparent cause. However, the inspectors believe that the recovery plan elements related to address leadership engagement, correction of performance gaps and degradation of safety culture principles more accurately characterize the causes of the findings. In addition, the recovery plan includes broader actions that will more likely effect change. The ACE actions included training of supervisors on conservative decision making. While this is a reasonable step in eliminating the cross-cutting theme, management reinforcement of conservative decision making is necessary to achieve sustainable results. While the ACE corrective actions capture this through an observation form, the broader elements of the recovery provide a mechanism more likely to achieve sustainable results. In reviewing licensee performance over the third and fourth quarter, the inspectors noted that the special inspection teams for both the P-7C service water pump and for the DC bus trip expressed concerns with conservative decision making. In part, non-conservative decisions contributed to the DC bus trip. This theme will be reviewed as part of the end of cycle review and the review will assess if additional actions are required.

For procedures, the inspectors reviewed the root cause evaluation and status of corrective actions. Additionally, the inspectors utilized their observations of procedure adequacy during the performance of numerous baseline inspection samples since the mid-cycle assessment. Ineffective and prematurely closed corrective actions from the previous root cause on this issue directly contributed to the rise in the number of H.2(c) findings after the previous cross-cutting theme was closed out in 2010. The inspectors

noted that the current root cause appeared to have more sustainable and rigorous corrective actions than before. However, the inspectors continued to see deficiencies in procedure and work package quality throughout the third and fourth quarters of 2011. Most notably was the apparent violation associated with maintenance on a DC electrical panel which caused a loss of one train of DC power (IR 05000255/2011014). Additionally, actions addressing backlogs of procedure changes and action requests for work instructions were just being initiated near the end of 2011. In sum, while more resources have been applied to address this issue, the inspectors could not conclude programmatic improvements have been accomplished. This theme will be reviewed as part of the end-of-cycle review and the review will assess if additional actions are required.

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 Manual Reactor Trip due to Loss of Main Feed Pumps

a. Inspection Scope

The inspectors reviewed the plant's response to a loss of feedwater suction pressure. On December 14, a minimum flow valve for the main feed system opened, diverting flow from the steam generators to the main condenser. The change also resulted in a decrease in main feed pump suction pressure. The inspectors responded to the control room to observe licensee actions. Shortly after the inspectors arrived in the control room, the suction pressure decreased to the point where the main feed pumps tripped. The licensee manually initiated a plant trip. After the trip, the inspectors observed the licensee's actions to stabilize the plant and operator emergency response procedure implementation. The inspectors validated that all safety functions were met. Documents reviewed in this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

.2 (Discussed) Licensee Event Report 05000255/2011-003-00: Potential Condition Prohibited by Technical Specifications due to Jacket Water Pump Seal Leakage

On April 18, 2011 during a monthly test of the 1-2 EDG, increased water leakage from the jacket water pump seal tell-tale drain hole was identified. The leakage was subsequently quantified at a rate of approximately 10 milliliters per minute. The licensee concluded possible causes of the leakage were a manufacturing defect, damage to the pump seal during the manufacturing assembly process, damage during transport, or damage during the installation process. The pump was replaced and the removed pump was later installed in a test loop at an offsite facility to evaluate performance of the pump

with respect to the EDG mission time. The test run was for approximately 16 days and concluded in December of 2011. Unlike what was observed in the plant, the pump exhibited no leakage during the test run. The licensee will continue to evaluate the cause of the leakage experienced while installed on the EDG and has corrective actions to disassemble/inspect the pump with the vendor. The inspectors will continue to follow the issue via the baseline inspection program. No new safety issues were identified by the inspectors. The Licensee Event Report (LER) will remain open pending further licensee evaluation.

Documents reviewed as part of this inspection are listed in the Attachment. This LER was discussed.

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

.3 (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 relay 3868, 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 1 G, 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 has removed the affected cable and has plans to further analyze it for the cause. The inspectors will continue to follow the issue as new information is obtained relating to the cause of the cable failure. No new safety issues were identified by the inspectors. The LER will remain open pending further licensee evaluation.

Documents reviewed as part of this inspection are listed in the Attachment.

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

4OA5 Other Activities

.1 Operational Testing of an Independent Spent Fuel Storage Facility Installation at Operating Plants (60855.1)

a. Inspection Scope

The inspectors observed and evaluated select licensee loading, processing, and transfer operations of the first and second NUHOMS 24PTH canister during the licensee's 2011 dry fuel storage campaign to verify compliance with the applicable certificate of compliance conditions, the associated TS, and Independent Spent Fuel Storage Installation (ISFSI) procedures. Specifically, the inspectors observed: movement of the transfer cask from the cask washdown pit to the spent fuel pool; loading and independent verification of the fuel assemblies into the dry shielded canister (DSC); helium purge operations; welding of the DSC lid; vacuum drying, and helium backfill operations.

The licensee maintains two ISFSI pads at the Palisades Nuclear Power Plant. The first ISFSI pad stores Ventilated Storage Casks (VSC). The second ISFSI pad stores NUHOMS 32PT and 24PTH canisters in Horizontal Storage Modules (HSM). The inspectors performed tours of both ISFSI pads to assess the material condition of the pads, VSCs, and HSMs. The inspectors reviewed the licensee's evaluations of flammable materials near the ISFSI and radiation monitoring program. Additionally, the inspectors performed independent radiation surveys around the ISFSI pad, VSCs, and HSMs. The inspectors observed the licensee perform TS required daily temperature monitoring and vent cleanliness inspections of the VSCs and HSMs.

The inspectors reviewed procedures used to perform ISFSI preparation, loading, sealing, transfer, monitoring, and storage activities. The inspectors performed a review of the fuel selection documentation to verify the fuel placed in the DSC met the TS requirements.

The inspectors reviewed the licensee's procedures for compliance with their control of heavy loads program and associated crane standards. The inspectors reviewed the licensee's Certificate of Conformance for the OS197-1-FC-B Transfer Cask and associated lift yoke. The inspectors reviewed the licensee's Certificate of Conformance for the DSCs being used during the 2011 campaign and reviewed a sample of associated non-conformance reports.

The inspectors reviewed CRs, and the associated corrective actions. The inspectors reviewed the licensee's 10 CFR 72.48 screenings and the changes to the licensee's 10 CFR 72.212 evaluations since the last ISFSI inspection.

b. Findings

No findings were identified.

.2 At the Controls Operator Leaves the At the Controls Area

On October 23, 2010, the at the controls (ATC) Operator left the ATC area without permission from the control room supervisor and without conducting a proper turnover, The individual's actions were contrary to Palisades TS 5.4.1.a, as implemented through Entergy Nuclear Management Manual EN-OP-115, Revision 9, "Conduct of Operations." Specifically, EN-OP-115, Section 4.13.b, requires that the reactor operator (RO) ATC remain in the ATC area of the Control Room, except as necessary to transition from one ATC area to another. Section 5.11 requires that in the case where a Control Room operator needs to be relieved during their shift, permission must be granted by the Shift Manager or Control Room Supervisor, as applicable, and a verbal turnover conducted with a qualified individual. Due to the potential willful aspects of this event, the Office of Investigations investigated the event. The traditional enforcement aspects have been addressed through a Confirmatory Order (EA-11-214, ADAMS Accession Number ML12026A383). As part of the enforcement process, Alternate Dispute Resolution resulted in a mediated settlement agreement between the licensee and NRC. Part of the agreement included that the NRC would not take additional enforcement action. However, the inspection process also screens traditional enforcement actions to determine if the violation separately constitutes a finding, in accordance with NRC IMC 0612.

The inspectors reviewed the event and concluded that in accordance with the Reactor Oversight Process, any associated finding would not be of Greater than Green significance. The inspectors arrived at this conclusion because of the short duration between the operator leaving and the Control Room Supervisor appointing a qualified watchstander as the at the control operator. The relieving operator was a member of the on-shift crew, had attended the crew brief at the beginning of shift and met the licensee's requirements to relieve the ATC operator following an abbreviated turnover. At the time of the event, the relieving operator was in the control room performing assigned duties as the nuclear controls operator turbine. In addition, a third licensed reactor operator was present performing assigned duties related to vacuum fill of the primary coolant system. In addition, the inspectors reviewed the issue and determined that no cross cutting aspect existed. Because the issue was not greater than green and no cross cutting aspect exists, there is no impact in the Reactor Oversight Process for the assessment of licensee performance. Consistent with the Alternative Dispute Resolution agreement, there will be no additional action under the Reactor Oversight Process.

.3 Closure of Unresolved Item 05000255/2011003-04 related to a trip of the Turbine Driven Auxiliary Feedwater pump

In report 05000255/2011-003, the NRC opened an Unresolved Item (URI) regarding a trip of the Turbine Driven Auxiliary Feedwater pump. The NRC opened the item pending the licensee's completion of an analysis of the trip lever and evaluation of the results. In report 05000255/2011-013 the NRC issued an apparent violation regarding the trip of the pump. In response to the apparent violation, the licensee performed additional assessment of the trip and provided the additional information to the NRC on November 28, 2011. The NRC reviewed the information as part of the SDP. The aggregate of the information considered in developing report 2011-013 and 2011-017 completes the actions needed to close the URI. In report 2011-017, the NRC provided the licensee with a final determination of White for the Associated Violation. Unresolved Item 2011-003-04 is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 19, 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 inspections of the radioactive gaseous and liquid effluent treatment program with the Site Vice President, Mr. T. Vitale, and other members of your staff, on October 6, 2011.

- An interim exit meeting to discuss results of the Operational Testing of an Independent Spent Fuel Storage Facility Installation at Operating Plants was held on December 9, 2011. The inspectors presented the inspection results to members of

the licensee management and staff. Licensee personnel acknowledged the information presented.

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 very low significance or 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.

- Technical Specification 5.4.1 requires written procedures be established, implemented, and maintained for procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, of this document recommends procedures for assuring safe operation. The licensee established EN-OP-115, "Conduct of Operations," Revision 9, Section 4.1.b, to address the requirement that station management is informed in a timely manner of conditions which may affect safety. Contrary to the above, on October 23, 2010, the on-duty operators did not inform station management in a timely manner when the on-duty ATC-RO left his watch station without permission or conducting a proper turnover. The licensee immediately assigned another on-shift operator to assume the vacant position; however, when the ATC-RO returned to the control room several minutes later, he was allowed to re-assume the watch without an evaluation by the licensee addressing the individual's ability to be fully focused on plant safety and the responsibilities of a licensed operator. Since Operating Department management was not informed in excess of 24 hours later, the individual was allowed to stand an on-shift watch the next night. After management was made aware of the incident, several corrective actions were taken in order to provide assurance of the individual's ability to perform license duties. This was documented in CR PLP-2010-05662 and also evaluated by an ACE CR-PLP-2010-06259. The failure to inform management in a timely manner and ensure corrective actions were implemented was a performance deficiency as defined in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." The inspectors determined that the finding was more than minor because if left uncorrected this could have the potential to lead to a more significant safety concern. The inspectors concluded the finding was of very low safety significance because adequate staffing was immediately available and no significant operator errors occurred.
- Technical Specification 5.4.1 requires that written procedures be established, implemented, and maintained for procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Section 9 of Regulatory Guide 1.33 states, in part, that maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to this, troubleshooting was performed on the #1 battery charger following a DC electrical transient on September 25, 2011, which failed to identify a blown fuse that resulted from the transient. As a result, the charger was declared operable and returned to service when in fact it was still inoperable. Unusual voltage indication identified later by a member of

Operations Department prompted further troubleshooting of the charger, which revealed the still-blown fuse. The licensee entered the issue into the corrective action program as CR-PLP-2011-04826 and replaced the blown fuse. The issue was more than minor because it affected the Mitigating System Cornerstone attribute of equipment performance and adversely impacted the objective to ensure the availability of equipment to respond to initiating events. The inspectors concluded the finding was of very low safety significance due to answering 'no' to the phase 1questions in the Mitigating Systems column of Table 4a of IMC 0609 Attachment 4.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

C. Arnone, Nuclear Safety Assurance Director
T. Davis, Licensing Engineer
B. Dotson, Licensing Engineer
J. Hagar, RETS-REMP Analyst
D. Hamilton, General Manager Plant Operations
M. Mylnarek, Chemistry Manager
B. VanWagner, Dry Fuel Storage Project Manager
A. Vitale, Site Vice President

Nuclear Regulatory Commission

J. Giessner, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000255/2011005-01	NCV	Failure to Establish Maintenance Procedures For Safety Related Breakers in Panel D11-2 (4OA2.5)
05000255/2011005-02	FIN	Failure to Control Packing Configuration of Pressurizer Spray Control Valves (4OA2.6)

Closed

05000255/2011005-01	NCV	Failure to Establish Maintenance Procedures For Safety Related Breakers in Panel D11-2 (4OA2.5)
05000255/2011005-02	FIN	Failure to Control Packing Configuration of Pressurizer Spray Control Valves (4OA2.6)
05000255/2011003-04	URI	Turbine-Driven Auxiliary Feedwater Pump Trip (4OA5)

Discussed

05000355/2011-003-00	LER	Potential Condition Prohibited by Technical Specifications Due to Jacket Water Pump Seal Leakage
05000255/2011-002-00	LER	Automatic Reactor Trip and Auxiliary Feedwater System Actuation

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.

1R01 Adverse Weather Protection

- CR-PLP-2010-06636, "VUH-25, Boiler Room Unit Heater, Is Not Heating the Boiler Room and Maintaining Proper Temperature," December 18, 2010
- CR-PLP-2011-00891, "1-3 Diesel Generator Has Cables and other Electrical Components That Are Exposed to the Outdoor Elements," February 24, 2011
- CR-PLP-2011-04484, "Insulation Box for LT-2021, Condensate Storage Tank T-2 High-Low Level Has a Missing Latch," September 9, 2011
- CR-PLP-2011-05560, "Thermostat TS-1534 Turbine Building Unit Heater VUH-14 Does Not Start Fan," October 23, 2011
- CR-PLP-2011-06106, "Received Alarm EK-1116, Radwaste Area Fuel Handling Freeze Protection, Unexpectedly," November 10, 2011
- CR-PLP-2011-06193, "Received EK-0730, Boric Acid Critical Heat Trace Temp Hi/Lo, Alarm," November 14, 2011
- CR-PLP-2011-06341, "Operations Could Not Perform OPS PPAC OPS-348, Operational Check of P-5 (Warm Water Recirc Pump), Due to P-40A (Dilution Water Pump) Being Secured," November 18, 2011
- CR-PLP-2011-06485, "NRC Identified: Small Steam Leak from Packing of MV-VA196," November 28, 2011
- CR-PLP-2011-2011-05640, "Sheathing on Power Cable for T-41, Turbine Building Drain Tank, is Degraded," October 26, 2011
- ONP-12, Acts of Nature, Revision 28
- ONP-6.1, Loss of Service Water, Revision 16
- SOP-15, Attachment 10, Frazil Ice – Information/Prevention/Mitigation, Revision 51
- SOP-23, Attachment 8, CWCL-1: Cold Weather Checklist, Revision 36
- SOP-23, Attachment 9, CWCL-2: Cold Weather Checklist – Electrical, Revision 36
- WO 52298705, "Perform Cold Weather Check Sheets," October 24, 2011

1R04 Equipment Alignment

- Admin 4.02, Control of Equipment, Revision 59
- CR-PLP-2011-06172, "D-28, V-24C Gravity Damper's Individual Dampers are Vibrating Excessively," November 13, 2011
- DBD 1.02, Service Water System, Revision 8
- DBD 5.01, Diesel Engine and Auxiliary Systems, Revision 6
- EN-OP-119, Protected Equipment Postings, Revision 4
- M-214, "Lube Oil, Fuel Oil, and Diesel Generator Systems," Sheet 1, Revision 77
- SOP-16, Component Cooling Water System, Revision 34
- SOP-22, Diesel Generators, Checklists 22.1 and 22.2, Revision 52
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 81
- Tagout 1C22-1 CCS-018 for P-52B CCW Pump
- CR-PLP-2011-06525, NRC Identified material in top vent of EMA-1111, P-67B motor, November 30, 2011

- SOP-3, Safety Injection and Shutdown Cooling System, Revision 82

1R05 Fire Protection

- "Viking Dry System Technical Manual for Operation, Maintenance, and Troubleshooting," February 12, 2010
- CR-PLP-2011-06237, "Received Alarm EK-1148, for Corridor 106, 590' Aux Building, Unexpectedly," November 15, 2011
- CR-PLP-2011-06244, "Two Individuals Responding to Fire Alarm had EADs That Did Not Turn On," November 14, 2011
- CR-PLP-2011-06297, "NRC Observed Red Rubber Hose Traversing 590' to 611' Aux Building," November 17, 2011
- CR-PLP-2011-06301, "Gray Piece of Material was Found by NRC Laying in the Cable Tray 590' Aux Building RCA South Hallway," November 17, 2011
- CR-PLP-2011-06306, "Penetration Insulating Material is Sagging from 16" Plant Heating Steam Line (NRC-identified)," November 17, 2011
- CR-PLP-2011-06788; "Valve Stem on MV-FP256, Track Alley Sprinkler System Isolation, Is Broken Inside the Valve Body," December 12, 2011
- CR-PLP-2011-06803, "PCV-1677 is Not Controlling Pressure," December 13, 2011
- FPIP-4, Fire Protection Systems and Fire Protection Equipment, Revision 28
- Pre-Fire Plan 13A; Main Corridor – North/Elev. 590'
- Pre-Fire Plan 13A; Main Corridor – Reactor Entrance & Resin Drum Storage Room/Elev. 611' & 625'
- Pre-Fire Plan 13A; Main Corridor – South/Elev. 590'
- Pre-Fire Plan 19; Track Alley / Elev. 625'
- Pre-Fire Plan 23; Turbine Building / Elev. 571', 590', 607', 612', 625'
- Pre-Fire Plan 38; Cooling Tower Pump House / Elev. 590' & 603'

1R06 Flood Protection Measures

- CR-PLP-2011-5851, Additonal Error In Engineering Analysis, November 2, 2011
- DBD- 7.08, Plant Protection Against Flooding, rev. 6
- WO 52382147, "Inspection and Pump Out of Manholes – Bus 1C," December 1, 2011

1R11 Licensed Operator Requalification Program

- CR-PLP-2011-05831, "Site Emergency Siren Failed to Stop," November 2, 2011
- CR-PLP-2011-05902, "Emergency Drill Priority Management Issues," November 3, 2011
- CR-PLP-2011-05921, "EP Drill DEP Opportunity Unsuccessful in Contacting State of Michigan within 15 minutes," November 3, 2011
- CR-PLP-2011-05923, "Activation of Everbridge at Alert Condition was Delayed for approximately 15 minutes," November 4, 2011

1R12 Maintenance Effectiveness

- CR-PLP-2007-03653, "The Radiation Monitoring System has been placed in the Maintenance Rule (a)(1) due to poor equipment reliability," September 7, 2007
- Condition Report CR-PLP-2011-00245, RIA-1810 Pump Malfunction, February 23, 2011.
- CR-PLP-2007-03653, "Maintenance Rule Goal Setting Radiation Monitoring System," Revision 9, April 21, 2011
- CR-PLP-2007-03653, CA Number 29, "Document Basis for New RIA Performance Criteria," October 29, 2009

- CR-PLP-2007-03653, CA Number 42, “Document Basis for New RIA Performance Criteria,” August 30, 2011.
- CR-PLP-2007-04096, RV-2082 failed as-found setpoint testing, September 18, 2007
- CR-PLP-2008-03328, During the plant shutdown, PCS leakage exceeded 1 gpm, August 5, 2008
- CR-PLP-2008-03407, RV-2006 safety relief valve spare found with bent stem guide, August 8, 2008
- CR-PLP-2009-00043, CVCS system has experienced a repeat functional failure, January 7, 2009
- CR-PLP-2009-02028, RV-2082 did not get as-found tested, April 13, 2009
- CR-PLP-2011-00245, RIA-2323 Malfunction, January 1, 2011
- CR-PLP-2011-00354, RIA-2323 Spiking, January 22, 2011
- CR-PLP-2011-01431, RIA System Health – URT Reviews, February 18, 2011
- CR-PLP-2011-01458, RIA-5211 Over-range Malfunction, March 24, 2011
- CR-PLP-2011-01952, RIA-2324 Over-range Malfunction, April 19, 2011
- CR-PLP-2011-03182, RIA-0833 Over-range Malfunction, June 22, 2011
- CR-PLP-2011-04825, Letdown heat exchanger safety relief valve RV-2006 failed to seat properly, September 25, 2011
- CR-PLP-2011-04850, RV-2082, PCP controlled bleed-off relief, is leaking by at 2.5 gpm, September 26, 2011
- CR-PLP-2011-06714, CVCS Relief valves 2006 and 2082 are being placed in maintenance rule a(1), December 8, 2011
- CR-PLP-2011-354, RIA-2323 Spiking Apparent Cause Evaluation (ACE), January 23, 2011
- Diagram VEN-M235, Sheet 12, Revision 6, RV-2006
- EGAD-EP-10, Palisades Maintenance Rule Scoping Document, Revision 5
- EM-28-06, Relief Valve Program Standard, Revision 5
- EN-DC-205, Maintenance Rule Monitoring, Revision 3
- EN-DC-325, Component Performance Monitoring, Revision 7
- Maintenance Rule Scoping Document, EGAD-EP10, Attachment 2, Revision 5
- Operational log entries, August 5, 2008
- Palisades Maintenance Rule Performance Indicators for PCS, CVC, and PZR systems

1R13 Maintenance Risk Assessments and Emergent Work Control

- Admin 4.02, Control of Equipment, Revision 59
- EC 30926, P-7C Feeder Breaker Control Circuit Fuse Modification, Revision 0
- EN-WM-104, On Line Risk Assessment, Revision 4
- Operations Narrative Logs, selected entries
- Palisades work week schedule, November 28, 2011
- Risk Assessment Program (EOOS) Run
- SOP-12, Feedwater System, Revision 61

1R15 Operability Evaluations

- ASME Code Case N-513-3, Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1
- CR-PLP-2001-00433, Cracks Found in Primary Coolant Pump Impellor, January 22, 2001
- CR-PLP-2001-5393, Insufficient Followup to Signs of Leakage from P-50C, December 29, 2001
- CR-PLP-2004-01884, Spare Primary Coolant Pump Inspection data, March 10, 2004
- CR-PLP-2004-02548, Primary Coolant Pump Rebuild As-found condition, April 6, 2004

- CR-PLP-2004-05039, Primary Coolant Pump p-50C high Vibration, August 13, 2004
- CR-PLP-2004-4989, Primary Coolant Pump p-50B Vibration Alert, August 11, 2004
- CR-PLP-2004-6130, P-50C Half Coupling Reversed, September 25, 2004
- CR-PLP-2005-0002, P-50C Vibrations Have Risen, February 8, 2005Cr-PLP-2005-03743, Minor Change in P-50C Vibration, July 13, 2005
- CR-PLP-2006-03743, Pinhole leak downstream of CV-0824, July 30, 2006
- CR-PLP-2011-03207, Leakage originating from downstream side of CV-0824, June 26, 2011
- CR-PLP-2011-05013, PIA-0102DLL failed channel check, October 1, 2011
- CR-PLP-2011-05466, Second pinhole leak observed near CV-0824, October 19, 2011
- CR-PLP-2011-05468, During replacement of PIA-0102DLL, new indicator face not same as installed in field, October 19, 2011
- CR-PLP-2011-07085, Evidence that service water flow to 'A' CCW heat exchanger may be limited, December 28, 2011
- CR-PLP-2011-6427, P-50C Vibration Step Changed, November 23, 2011
- CR-PLP-5744, NCO-Rx Noted P-50C Vibration Change, October 29, 2011
- CR-PLP-5752, P-50C Rising Vibration trend, October 30, 2011
- Drawing E-84, Pressurizer Pressure Control and Measurement Channel Instrumentation, Sheet 2C, Revision 1
- Event summary, primary coolant Pump vibrations
- Operations Logs December 28-29, 2011
- Primary Coolant Pump, P-50C ODMI for elevated Vibration, November 14, 2011
- ODMI on Cooling Tower Structural Degradation, November 7, 2011

1R18 Plant Modifications

- CR-PLP-2011-1712, Stack Release Calculations Incorrect, April 6, 2011
- DABD-03, Palisades Stack Release Rate Calculations, Revision 1
- DAD-04, Palisades Steam Dump Release Rate Calculations, Revision 1
- EC 030209, RE-2328 Installation Requirements, July 8, 2011
- EC 31337, Service Water Pump Coupling Material change, Revision 0

1R19 Post Maintenance Testing

- CR-PLP-2010-04255, Appendix R Non-Compliance Associated With a Potential Loss of Safety Related 2400 VAC Power During a Fire, October 1, 2010
- CR-PLP-2011-04826, During reactor trip, battery charger #1 appears to have zero output, September 25, 2011
- CR-PLP-2011-04920, While performing WO 291319, battery charger fuse F302 found open, September 29, 2011
- CR-PLP-2011-04958, Breaker 72-02 would trip free when trying to close breaker, September 30, 2011
- Drawing E-84, Pressurizer Pressure Control and Measurement Channel Instrumentation, Sheet 2C, Revision 1
- EC 30926, P-7C Feeder Breaker Control Circuit Fuse Modification, Revision 0
- EN-MA-118, Foreign Material Exclusion, Revision 7
- EN-WM-107, Post Maintenance Testing, Revision 3
- FWS-M-6, Auxiliary Feedwater Turbine Maintenance, Revision 20
- Mtl Request 02569311, ST-0520, Inspect and Repair PM., October 23, 2011
- Mtl Request 03224828, ST-0520, Inspect and Repair PM., October 23, 2011
- Operations Log entries, September 25-28, 2011
- RI-3D, Pressurizer Pressure Channel D Calibration, Revision 2

- SPS-E-23, Testing of AC or DC Molded Case Circuit Breakers without Static Trip Devices, Revision 6
- WO 00271042 02, P-7C Feed Breaker Control Circuit PMT, November 30, 2011
- WO 00271042 04, P-7C, Install Fuses IAW EC-30926/30989, November 28, 2011
- WO 257006, PRV-1072 leaks by seat
- WO 278745, PRV-1071 leaks by seat
- WO 291601, 72-01 check as-founds, adjust trip settings, and check as-lefts
- WO 291603, 72-02 check as-founds, adjust trip settings, and check as-lefts
- WO 293262, PIA-0102DLL meter movement sticking
- WO 299947, "FUZ/Y1014-2, FW P/S, Downstream Indications Lost," December 15, 2011
- WO 52209511, ST-0520 Inspect/Repair
- WO-00255500 01, ST-0513 Steam Trap Is Leaking Steam More Than Is Expected, October 27, 2011
- WO-00274345 01, K-13, Adjust Speed Droop/Check Governor Linkage October 26, 2011
- WO-00281389 04, CV-0598, K-8 Spring Rate of Reset Arm Needed>Trip Analysis, October 26, 2011
- WO-00287886, P-7C remove Pump, October 20, 2011
- WO-51626850 01, ST-0520, Inspect and Repair PM, October 25, 2011
- WO-52209511 01, ST-0520, Inspect and Repair PM, September 19, 2011
- WO-52209511 02, ST-0520, Inspect and Repair PM., October 26, 2011
- WO-52274740 01, P-8B, K-8, "B" Aux. Feed Pump & turbine Oil Change (OPS320), October 26, 2011
- WO-52283297 01, ST-0513, Inspect, Clean and Repair, October 25, 2011
- WO-52283297 03, ST-0513, Inspect, Clean and Repair, October 23, 2011
- WO-52350882, Inservice Test Service Water Pump, November 20, 2011

1R20 Outage Activities

- Post-trip Report for 12/14/2011 Plant Trip
- SOP-8, Main Turbine and Generating Systems, Revision 86
- GOP-14, Shutdown Cooling Operations, Revision 43
- PO-2, PCS Heatup/Cooldown Operations, Revision 4
- GOP-4, Mode 2 to Mode 1, Revision 22
- SOP-6, Reactor Control System, Revision 32
- SOP-1C, Primary Coolant System-Heatup, Revision 10
- GOP-2, Mode 5 to Mode 3, Revision 32
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 80

1R22 Surveillance Testing

- Calcsheet 1D/201/150-151, Revision 4
- Calcsheet 1D/201/150B-151B, Revision 2
- CR-PLP-2011- 06040, "Found Oil on Floor Under Motor Outboard Bearing Oiler for P-54B during Inspection," November 9, 2011
- CR-PLP-2011-05497, RIA-I-9 Functional Check Issues, October 20, 2011
- CR-PLP-2011-05510, NRC Identified Setting Sheet Error, October 20, 2011
- CR-PLP-2011-06059, "MV-ES523, DPI-0391B Vent Valve, Missing Its Label," November 9, 2011
- CR-PLP-2011-06381, "1-2 EDG Jacket Water Pump Leaking Oil/Water Mixture," November 21, 2011

- CR-PLP-2011-06516, “Overall Voltage Indicated 0 VDC When It Should Have Been Between 137.5 and 138.5 VDC per RE-134,” November 30, 2011
- EN-HU-102, Human Performance Tools, Revision 8
- EN-WM-105, Planning, Revision 9
- MO-7A-2, Emergency Diesel Generator 1-2, Revision 76
- Operator Risk Report, November 29, 2011
- Procedure PD-01, Protective Device Test Work Instruction, Revision 12
- QO-16, Inservice Test Procedure – Containment Spray Pumps, Revision 31
- RE-134, Performance Test – Battery Charger No. 2 (ED-16), Revision 7
- WI-EPS-E-01, Battery Charger Maintenance, Revision 10
- WO 52352557, ME-12A Battery Checks
- WO 52354776, QO-1 Safety Injection Actuation System Test
- WO-52317678, ED-16 Battery Charger #2 PM, November 29, 2011
- Work Order Package 52218592 01, Bus 1D Relay Testing, October 17, 2011

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

- 2009 Annual Radioactive Effluent Release and Waste Disposal Report, April 30, 2010
- 2010 Annual Radioactive Effluent Release and Waste Disposal Report, May 2, 2011
- CH 6.23, Waste Gas Decay Tank Release; Revision 3
- CH 6.42, LADTAP, Revision 3
- CH 6.43, GASPAR, Revision 1
- CH.20, Radioactive Effluent Operating Procedure, Revision 1
- CH.40, Annual Radioactive Effluent Release Report, Revision 3
- COP-35, Ground Water Monitoring Program, Revision 2
- Corrections to Palisades Nuclear Plant 2007 and 2009 Radioactive Effluent Release and Waste Disposal Reports, August 16, 2010
- CR-PLP-2010-02067, Incorrect Data Used in 2009 Annual Radioactive Effluent Release Report, May 20, 2010
- CR-PLP-2010-03803, Turbine Sump Compositor Found Not Running, August 3, 2011
- CR-PLP-2010-04308, Turbine Sump Compositor Found Not Running, October 3, 2010
- CR-PLP-2010-04706, Turbine Sump Compositor Found Not Running, October 9, 2010
- CR-PLP-2011-0028, RIA-2327 ‘High Range Noble Gas Monitor’ Failed Monthly Functional Checks, January 4, 2011
- CR-PLP-2011-01532, Turbine Sump Compositor Found Not Running, March 29, 2011
- CR-PLP-2011-0923, RIA-2327 ‘High Range Noble Gas Monitor’ Failed Quarterly Functional Checks, February 24, 2011
- DWR-10, Stack Effluent Sampling and Calculations, Revision 32
- EN-CY-102, Laboratory Analytical Quality Control, Revision 3
- EN-CY-109, Sampling and Analysis of Groundwater Monitoring Wells, Revision 2
- EN-CY-111, Radiological Ground Water Monitoring Program, Revision 1
- EN-RP-113, Response to Contaminate Spills/Leaks, Revision 5
- Work Order 52230144 01, RT-85C-SFP Ventilation HEPA and Charcoal Testing, July 22, 2010

4OA1 Performance Indicator Verification

- Control Room Logs, September 9, 2011 through November 29, 2011
- EN-LI-114, Performance Indicator Process, Revision 4
- NRC Indicator RETS/ODCM Radiological Effluent Occurrence (PR-1), July 2010 through September 2011
- Palisades MSPI Basis Document, June 26, 2008

- Emergency AC Power (EDG) Mitigating Systems Performance Indicator Validation Packages, October 2010 thru September 2011
- CR-PLP-2010-05859/06019, “Functional Failure Determination for D/G 1-1 Cracks Found in Turbocharger Support Welds,” November 8, 2010
- CR-PLP-2011-00481, “Functional Failure Determination for D/G 1-2 Air Leak on Starting Air Pressure Switch, PS-1489,” February 1, 2011
- CR-PLP-2011-01142, “14 of 18 Injection Nozzles Didn’t Pass Acceptance Criteria During EPS-M-14, Diesel Generator Preventative Maintenance for D/G 1-2,” March 9, 2011
- CR-PLP-01139, “Operability Evaluation for D/G 1-2 Broken Flange,” March 9, 2011
- CR-PLP-2011-01933, “D/G 1-2 Jacket Water Seal Leaking,” April 18, 2011
- CR-PLP-2011-04422, “D/G 1-1 Lube Oil TCV-1477 Leaking Oil,” September 19, 2011
- Cooling Water Support Systems Mitigating Systems Performance Indicator Validation Packages, October 2010 thru September 2011
- CR-PLP-2011-01083, “Functional Failure Determination for Service Water Pump, P-7A, Basket Strainer Hi dP,” March 5, 2011
- CR-PLP-2011-03207, “Service Water Leakage Downstream of CV-0824, Service Water from Containment,” June 26, 2011
- CR-PLP-2011-03902, “Functional Failure Determination for P-7C,” August 9, 2011
- CR-PLP-2011-04211, “Functional Failure Determination for P-7A,” August 23, 2011
- CR-PLP-2011-04220: CA-05, “Past Operability Determination for P-7B,” August 26, 2011
- Various Operations Logs, fourth quarter 2010 thru third quarter 2011
- Palisades LER 2010-002-00, Condition that could have Prevented Fulfillment of Safety Function, October 18, 2010
- Palisades LER 2011-004-00, Turbine Driven Auxiliary Feedwater Pump Inoperable in Excess of Technical Specification Requirements due to Unexpected Trip, July 8, 2011
- Palisades LER 2011-005-00, Service Water Pump Shaft Coupling Failure, October 3, 2011
- Palisades LER 2011-006-00, Valve Packing Failure Resulted in Trip and Auxiliary Feedwater Actuation, November 10, 2011

4OA2 Identification and Resolution of Problems

- 11-01 OWA, Steam Generator E-50B Level Transmitter Failed High, July 21, 2011
- 11-02 OB, Primary System Makeup SIRW Tank Dilution Concern, October 10, 2011
- 11-03 OB, CVC2073, Hydrogen and Nitrogen Supply to VCT Check Valve is Sticking Closed Requiring Agitation, October 11, 2011
- Accountability Culture Presentation, Not Dated
- Admin 4.08, Post-Event Review Requirements, Revision 6
- Chesterton 5800E/5800 Packing Installation Instructions
- CR-2011-03121, Site Received Fourth and Fifth findings With H.1(b) Crosscutting Aspects, June 26, 2011
- CR-PLP-1341, NRC Concerns with Part 21, March 18, 2011
- CR-PLP-1389, SAMG Assessment, March 22, 2011
- CR-PLP-2009-03115, OB 07-01 Not Complete, June 12, 2009
- CR-PLP-2011-01522, Potential cross-cutting violation in human performance-Design, Procedures, and Labeling (H2C), May 5, 2011
- CR-PLP-2011-02004, Missed opportunity to identify NRC cross cut issue in H2C closed out narrowly, April 21, 2011
- CR-PLP-2011-03391, LIA-0704, “Steam Generator E-50B Level Alarm Indication,” Failed Low, July 12, 2011
- CR-PLP-2011-04194, Primary Makeup Water Flow Abnormal, August 23, 2011
- CR-PLP-2011-04501, OWA Online Database Not Complete, September 11, 2011

- CR-PLP-2011-04620, PCS Leak-CV-1057, September 16, 2011
- CR-PLP-2011-04827, RV-2096 lifted and did not reseat, September 25, 2011
- CR-PLP-2011-04859, Water discovered on 590' of containment, September 26, 2011
- CR-PLP-2011-06320, Corrective Action Program Deficiencies, November 17, 2011
- CR-PLP-2011-2011, CVC2073 Sticking Close, October 11, 2011
- CR-PLP-2011-4931, Trend in Operator Control Apparent Cause Evaluation, October 31, 2011
- CR-PLP-2512, SAMGs Outdated, April 19, 2011
- CR-PLP-5631, Follow-up for Failure to Update SAMG's, October 26, 2011
- EA-SC-87-122, Packing Configuration Changes, April 29, 1987
- EN-DC-105, Configuration Management, Revision 3
- EN-DC-313, Procurement Engineering Process, Revision 6
- EN-Hu-102, Human Performance Tools, Revision 8
- EN-MA-125, Troubleshooting Control of Maintenance Activities
- EN-OM-119, On-Site Safety Review Committee, Revision 7
- EN-TQ-900, Maintenance Worker Training Program, Revision 1
- LPN-PLLP-HPE-Conservative Assumptions, Attendance Summary Report, December, 20 2011
- Material Request 2860325, CV-1059 Disassemble, inspect, repair valve and operator
- MO-29, Engineered Safety System Alignment, Revision 37
- Operational Excellence MRM Presentation, November 1, 2011
- Operations logs, September 25-27, 2011
- Palisades Equipment Reliability Index History and Projection, May 2011 thru September 2012
- Palisades Nuclear Plant Quarterly Trend Report, Second Quarter 2011
- Palisades Nuclear Plant Quarterly Trend Report, Third Quarter 2011
- Palisades Operator Workarounds and Operator Burdens, January thru November 2011
- Palisades Performance Recovery Plan
- Palisades Quality Assurance Program Manual
- Palisades second and third quarter assessments for planning and procedure quality, 2011
- PCS-M-8, Repairing Pressurizer Spray Valves CV-1057 and CV-1059, Revision 18
- Planning Quality Checklist/Scoresheet, Revision 0
- PLLP-ADM-Procedures Training Material on procedure quality, Revision 0
- PLLP-HPE Conservative, Conservative Assumptions Lesson Plan, Revision 0
- Procedure No. 4.12, Operator Work-Around Program, Revision 7
- QA Trimester Report, July-October 2011
- Temporary Modification Log, October 13, 2011
- TMOD 25780, Power Data Logger Distribution Panel With Alternate Battery Charger, December 8, 2010
- TMOD 30635, Disable SG 'B' Level Xmtr LT-0704 High Level Override Signal, July 11, 2011
- WO 232206, CV-1057 Disassemble, inspect, repair

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

- CR-PLP-2011-00336, Palisades experienced reactor trip on loss of load, January 22, 2011
- CR-PLP-2011-01933, During MO-7A-2, jacket water line leakage measured at 50ml/min, April 18, 2011
- EOP-1, Standard Post-Trip Actions, Revision 13
- ONP-3, Main Feedwater Transients, Revision 24
- Palisades LER 2011-002-00, Automatic Reactor Trip and Auxiliary Feedwater System Actuation, March 23, 2011
- Palisades LER 2011-003-00, Potential Condition Prohibited by Technical Specifications due to Jacket Water Pump Seal Leakage, June 16, 2011

4OA5 Other Activities

- [ISFSI] Workgroup Qualification Matrix; October 12, 2011
- 2008 Dry Fuel Storage Loading Campaign Contingency Plans; Revision 0
- 2010 Radiological Environmental Report; May 13, 2011
- 72.48 Screening; FHS-M-37 Revision; May 23, 2011
- 72.48 Screening; FHS-M-39C Revision; December 23, 2009
- Certificate of Conformance; DSC Serial Number 24PTH-S-2A-008
- Certificate of Conformance; DSC Serial Number 24PTH-S-2A-009
- Certificate of Conformance; DSC Serial Number 24PTH-S-2A-010
- Certificate of Conformance; DSC Serial Number 24PTH-S-2A-011
- Certificate of Conformance; DSC Serial Number 24PTH-S-2A-012
- Certificate of Conformance; DSC Serial Number 24PTH-S-2A-013
- Certificate of Conformance; OS197-1-FC-B [Transfer Cask]; August 31, 2011
- Certificate of Conformance; OS197-2 Lifting Yoke; August 31, 2011
- CR-PLP-2011-05260; Delay of ISFSI Loading; October 12, 2011
- CR-PLP-2011-05286; Incorrect Values For Acceptance Criteria for Dose Rates; October 12, 2011
- CR-PLP-2011-5663; Wrong Acceptance Criteria Used For Monitoring Horizontal Storage Modules for Dry Fuel Storage Casks; October 27, 2011
- Design Basis Document for VSC-24 Independent Spent Fuel Storage Installation; June 23, 2010
- Dry Fuel Loading Operations Loaded NUHOMS DSC/ Transfer Cask Transfer to ISFSI; Revision 14
- Dry Storage Loading Campaign Contingency Plans; Revision 0
- DSC Loading Plan; DSC Serial Number PNP-24PTH-S-2A-01; October 11, 2011
- EN-MA-119; Material Handling Program; Revision 12
- GWS-1; General Welding Standard 1; Revision 4
- MSLT-DSC-PCI; Helium Mass Spectrometer Leak Test Procedure; Revision PAL-0
- MSM-M-13C; Spent Fuel Crane L-3 Periodic Inspection; October 20, 2011
- NUH-03-10100; Specification for Generic Temperature Monitoring of Standardized NUHOMS ISFSI Horizontal Modules; Revision 2
- NUH24PTH-10100; Specification for Generic Temperature Monitoring of NUHOMS HSM-H loaded with 24PTH DSC with up to 40.8 kW Total Decay Heat Load; Revision 0
- NUHOMS HSM-H Air Temperature Rise vs. Decay Heat Calculation; June 27, 2005
- Palisades 2011 Dry Fuel Storage Loading Campaign Dry Run Plan
- Palisades Dry Fuel Storage Training Overview Qualification Matrix; October 27, 2011
- PNP 10 CFR 72.212 Report; Revision 3
- Procedure 3.20; Dry Fuel Storage FSAR Control; Revision 6
- Procedure AT-36; ISFSI Pad Monitoring Program; Revision 1
- Procedure AT-9; Inspection of Ventilated Storage Cask Exterior; Revision 3
- Procedure CH 6.10; Radiological Environmental Monitoring Program; Revision 4
- Procedure DWO-1; Operator's Daily/Weekly Items Modes 1, 2, 3, and 4; Revision 95
- Procedure FHS-M-23; Movement of Heavy Loads in the Spent Fuel Pool Area; Revision 33
- Procedure FHS-M-39A; Equipment Preparation for NUHOMS Dry Fuel Loading Operations; Revision 7
- Procedure FHS-M-39B; Fuel Loading and DSC Sealing Operations for NUHOMS Dry Fuel Loading Operations; Revision 19
- Procedure MSM-M-13C; Spent Fuel Crane L-3 Periodic Inspection; June 22, 2011
- TID 2011-004; Palisades 2010 Area Monitoring Dose Report; Revision 0
- TID 2011-004; Palisades Area Monitoring Dose Report; March 25, 2011

- TN NCR 2011-100; Supplier Non-Conformance Report; Revision 0
- TN NCR 2011-125; Supplier Non-Conformance Report; Revision 0
- TN NCR 2011-158; Supplier Non-Conformance Report; Revision 0

4OA7 Licensee-Identified Violations

- Apparent Cause Evaluation (ACE) CR-PLP-2010-06259, November 23, 2010
- Condition Report CR-PLP-2010-05662, October 26, 2010
- EN-OP-115; Conduct of Operations, Revision 9

LIST OF ACRONYMS USED

AC	Alternating Current
ACE	Apparent Cause Evaluation
ADAMS	Agencywide Document Access Management System
ATC	At-The-Controls
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DC	Direct Current
DSC	Dry Shielded Canister
EDG	Emergency Diesel Generator
HSM	Horizontal Storage Module
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
LER	Licensee Event Report
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PCS	Primary Coolant System
PI	Performance Indicator
PZR	Pressurizer
RFO 21	Refueling Outage 21
RO	Reactor Operator
SAMGs	Severe Accident Management Guidelines
SC	Specification Change
SDP	Significance Determination Process
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VSC	Ventilated Storage Cask
CDF	Delta Core Damage Frequency
LERF	Delta Large Early Release Frequency

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Sincerely,

/RA/

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

Docket No. 50-255; 72-007
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