



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

February 11, 2013

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 05000255/2012005

Dear Mr. Vitale:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. The enclosed report documents the results of this inspection, which were discussed on January 22, 2013, with yourself and other members of your staff.

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

Based on the results of this inspection, two NRC-identified findings of very low safety significance were identified.

One of these findings involved a violation of NRC requirements. However, because of its very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades Nuclear Plant.

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

A. Vitale

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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 Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000255/2012005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000255/2012005

Licensee: Entergy Nuclear Operations, Inc.

Facility: Palisades Nuclear Plant

Location: Covert, MI

Dates: October 1, 2012, through December 31, 2012

Inspectors: T. Taylor, Resident Inspector
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Approved by: John B. Giessner, Chief
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Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000255/2012005; 10/01/2012 – 12/31/2012; Palisades Nuclear Plant; Operability Determinations and Functional Assessments; Identification and Resolution of Problems.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two Green findings were identified by the inspectors. One of the findings was considered a non-cited violation (NCV) of NRC regulations. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross-cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated June 7, 2012. 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. The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR 50 Appendix B, Criterion V, for the failure to perform an immediate operability determination in accordance with EN-OP-104, Operability Determination Process. After discovering a non-isolable steam leak on a main steam header drain valve (an American Society of Mechanical Engineers (ASME) Class 2 system) at approximately 2:30 a.m., the licensee failed to perform the steps specified in EN-OP-104 to expeditiously evaluate and to document a basis for operability. In addition, EN-OP-104 required input from engineering to be obtained for an ASME Class 2 thru-wall leak. However, the night-shift operators did not obtain input from engineering and did not document the basis for operability. After day-shift took over in the morning around 6:30 am, engineering and management were contacted and more rigorous efforts to assess operability commenced. The licensee subsequently declared the associated primary coolant system (PCS) loop, which requires an operable steam generator, to be inoperable at 11:15 am (approximately 9 hours after the condition was initially documented) and shut down the plant to repair the leak. The inspectors determined that not completing an immediate determination in accordance with EN-OP-104 caused an unnecessary delay in commencing a plant shutdown to repair the non-isolable leak. The licensee entered this issue into their corrective action program as CR-PLP-2013-00158.

The issue was determined to be greater than minor in accordance with IMC 0612, Appendix B, because if left uncorrected, it could lead to a more significant safety concern. Specifically, the failure to perform an immediate operability determination when assessing safety-related components, including a delay in requesting assistance, could lead to more significant issues. The performance deficiency also affected the Initiating Events cornerstone attribute of Equipment Performance, adversely impacting the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The

issue was determined to be of very low safety significance (Green) because it did not cause a reactor trip AND a loss of accident mitigation equipment. The finding had an associated cross-cutting aspect in the decision-making component of the human performance area because the night-shift operators did not obtain interdisciplinary input and reviews on the safety-significant operability decision (H.1.a). (1R15)

- Green. A finding of very low safety significance was identified by the inspectors for the programmatic failure to appropriately implement procedure, EN-FAP-OM-006, "Working Hour Limits for Non-Covered Workers." Two non-covered supervisors and six individual contributors, performing work or overseeing work on a safety-related component, did not follow the procedural requirements of obtaining supervisor approval prior to exceeding working hour limits, document excess work hours in the payroll system, or initiate a condition report in a timely manner. An extent-of-condition review identified two additional instances of individuals, one contractor and one plant employee, not obtaining prior approval to exceed work hour limits nor completing the appropriate documentation. No violation of regulatory requirements occurred since the performance deficiency involved workers not covered by 10 CFR 26.205 through 26.209, which defines the work hour limitations and exceptions for covered workers. The licensee documented the programmatic weaknesses associated with the use of EN-FAP-OM-006 in their corrective action program. The "Working Hour Limits for Non-Covered Workers" procedure was revised to clarify when and by whom condition reports should be written when working hour limits are to be exceeded, as well as, who should write the report.

The finding was more than minor in accordance with IMC 0612, Appendix B, because if left uncorrected, the programmatic failure to appropriately implement work hour limitations for non-covered workers could lead to more significant safety concerns associated with fatigue potentially impacting the conduct and oversight of work on safety significant components. The performance deficiency also affected the Initiating Events cornerstone attribute of Equipment Performance, adversely impacting the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the individuals who exceeded the working hour limits for non-covered workers were involved in a forced outage for repair and inspection of a control rod drive mechanism housing (part of the primary coolant system pressure boundary) that had a thru-wall leak which caused an emergent plant shutdown. Management review of this issue per IMC 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," effective April 12, 2012, determined that this finding was of very low safety significance, or Green, since the performance deficiency did not directly contribute to the event. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, related to the cross-cutting component of Corrective Action Program, in that the licensee thoroughly evaluates problems such that the resolutions address causes and extent of conditions and also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved. In this finding, similar instances of non-covered workers not adhering to the standards for work hour limits and not initiating condition reports as required by EN-FAP-OM-006 were identified in 2011, and the corrective actions for those issues were not sufficient to prevent them from occurring again [P.1(c)]. (Section 4OA2)

B. Licensee-Identified Violations

No findings were identified.

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period operating at 100 percent power. On November 4, 2012, the plant was shut down for repairs on a non-isolable steam leak upstream of MV-MS526, the 'B' steam generator atmospheric steam dump inlet drain valve. The reactor was brought back to critical on November 7, 2012, and the plant was returned to 100 percent power on November 8, 2012. The plant remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstone: 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. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed 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 to this report. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- ultimate heat sink/warm water recirculation system; and
- safety injection and refueling water tank.

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 – High Wind Conditions

a. Inspection Scope

Since high winds were forecast in the vicinity of the facility for October 29-31, 2012, the inspectors reviewed the licensee's overall preparations/protection for the expected

weather conditions. On October 29, 2012, the inspectors walked down the 345 Kilo-Volt switchyard, transformer yard and screen house because their safety-related functions could be affected or required as a result of high winds or the loss of offsite power. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. 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. The inspectors also reviewed a sample of CAP items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment to this report.

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)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- containment spray trains 'B' and 'C';
- switchyard during relay upgrades on one off-site power source line;
- alternate chemical reactivity paths during makeup water outage; and
- 1-2 emergency diesel generator (EDG) during 1-1 EDG overhaul.

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, 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.

.2 Semiannual Complete System Walkdown

a. Inspection Scope

On November 8, 2012, the inspectors performed a complete system alignment inspection of the service water system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

These activities constituted one complete system walkdown sample 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 6: 1-2 diesel generator room;
- Fire Area 17: spent fuel pool area;
- Fire Area 10: east engineered safeguards; and
- Fire Area 19: track alley.

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 to this report, 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 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 corrective action program 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:

- Flood Protection Zone 90: screen house.

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.

.2 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 corrective action program 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 vault.

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.

1R07 Annual Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed the licensee's testing of the emergency diesel generator jacket water heat exchangers to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria, the correlation of scheduled testing and the frequency of testing, and the impact of instrument inaccuracies on test results. Inspectors also verified that test acceptance criteria considered differences between test conditions, design conditions, and testing conditions. Documents reviewed for this inspection are listed in the Attachment to this report.

This annual heat sink performance inspection constituted one sample as defined in IP 71111.07-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On November 15, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training 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 simulator sample as defined in IP 71111.11

b. Findings

No findings were identified.

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

a. Inspection Scope

On November 7, 2012, the inspectors observed the reactor startup at the conclusion of the forced outage to address a non-isolable secondary side steam leak from MS-MV526, the 'B' steam generator atmospheric steam dump control valve inlet drain valve. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;

- correct use and implementation of procedures;
- control board manipulations; and
- oversight and direction from supervisors.

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

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

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:

- emergency diesel generators;
- 125 Volt vital direct current power; and
- chemical and volume control system.

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

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

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

This inspection constituted three 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:

- overhaul of the 1-1 EDG;
- switchyard work during week of October 8-12, 2012;
- modifications to datalogger system and direct current breaker replacements; and
- troubleshooting an electrical failure of a screenwash pump breaker.

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 four 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:

- 1-1 EDG jacket water heat exchanger degradation;
- operability of both control room heating and air conditioning trains due to open door;
- pinhole leak in MV-SW136 valve;
- steam leak in main steam system (MV-MS526); and
- 'B' thermal margin monitor inoperability due to human error.

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

Introduction: The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR 50 Appendix B, Criterion V, for the failure to perform an immediate operability determination in accordance with EN-OP-104, Operability Determination Process. After discovery of a non-isolable steam leak on a main steam header drain valve, the licensee failed to accomplish the steps specified in EN-OP-104 to expeditiously evaluate and to document a basis for operability. This delayed completing the appropriate assessment on the need to shut down the plant to repair the non-isolable steam leak.

Description: During the night shift on November 4, 2012, plant operators identified a steam leak on the inlet weld of a drain valve in the main steam system (an American Society of Mechanical Engineers (ASME) Class 2 system). The drain line was connected to one of the two atmospheric steam dump lines, which tie into the steam piping associated with the 'B' steam generator and the leak was non-isolable from the steam generator. Plant operators documented the location and nature of the leak in a condition report at approximately 2:30 am. In accordance with the immediate determination requirements outlined in EN-OP-104, Operability Determination Process, input from engineering is to be obtained for an ASME Class 2 thru-wall leak. Further, the procedure required the basis for considering a system operable to be formally documented. However, the night-shift did not obtain engineering input and did not document the basis for operability. The inspectors considered this especially important in this case since a review of relevant licensing basis documents to support operability (also required by EN-OP-104) included a test procedure for the affected piping. The test procedure clearly stated that the piping should be declared inoperable if a thru-wall leak existed. In addition, the Operating Requirements Manual stated that the plant should be shut down for thru-wall flaws on the main steam lines located in the room that this leak was in if the leak could not be isolated. Despite this information, and contrary to EN-OP-104, the night-shift did not request for engineering support and did not document the basis for operability. After day-shift took over in the morning around 6:30 am, engineering and management were contacted and more rigorous efforts to assess operability commenced. The licensee subsequently declared the associated PCS loop, which requires an operable steam generator, to be inoperable at 11:15 am (approximately 9 hours after the condition was initially documented) and the plant was shut down to repair the leak. The inspectors determined that not completing an

immediate determination in accordance with EN-OP-104 caused an unnecessary delay in declaring the loop inoperable and in commencing a plant shutdown to repair the non-isolable leak.

Analysis: The failure to follow the requirements of EN-OP-104 was a performance deficiency warranting further assessment in the significance determination process. The issue was determined to be greater than minor because if left uncorrected, it could lead to a more significant safety concern. Specifically, the failure to perform an immediate operability determination when assessing safety-related components, including a delay in requesting assistance, could lead to more significant issues.

Utilizing Inspection Manual Chapter (IMC) 0609, Attachment 4, "Initial Characterization of Findings," effective July 1, 2012, the inspectors determined the Initiating Events cornerstone was adversely affected. Using Exhibit One, "Initiating Events Screening Questions," of IMC 0609 Appendix A, "The Significance Determination Process for Findings at Power," effective July 1, 2012, the finding screened as Green, or very low safety significance, because the condition was classified as a Transient Initiator and the finding did not result in a reactor trip AND the loss of mitigation equipment.

The inspectors determined the finding had an associated cross-cutting aspect in the decision-making component of the human performance area. Specifically, the night-shift operators did not obtain interdisciplinary input and reviews on the safety-significant operability decision (H.1.a).

Enforcement: 10 CFR 50 Appendix B, Criterion V, requires, in part, that activities affecting quality shall be accomplished in accordance with instructions, procedures, or drawings appropriate to the circumstances. EN-OP-104, Operability Determination Process, Revision 6, implements quality activities for operability. Contrary to this, on November 4, 2012, the licensee failed to accomplish the steps specified in EN-OP-104 to conduct an immediate operability determination and to document the basis of operability while assessing a non-isolable thru-wall leak in a main steam system piping drain valve. The basis for operability was not documented during the approximate nine hours the system was considered operable and the necessary resources to assess the condition were not requested until several hours after discovery. Consequently, the decision to declare the piping inoperable and shut down the plant to repair the non-isolable steam leak was inappropriately delayed. Licensee personnel subsequently shut down the plant to repair the leak. The licensee generated a condition report to evaluate the issue (CR-PLP-2013-00158). This violation is being treated as an NCV, consistent with section 2.3.2 of the Enforcement Policy because it was of very low safety significance and was entered into the licensee's CAP (NCV 05000255/2012005-01, Failure to Perform Immediate Operability Determination).

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following modification:

- spent fuel pool fuel liberation project.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to

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

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- 1-1 EDG following overhaul maintenance work;
- replacement of auxiliary feedwater actuation system power supplies;
- replacement of leaking service water valve MV-SW136;
- 'B' auxiliary feedwater pump maintenance window; and
- breaker 52-1214 replacement.

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

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

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Forced Outage due to Non-Isolable Main Steam Leakage

a. Inspection Scope

The inspectors evaluated outage activities for a forced outage that began on November 4, 2012 due to thru-wall leakage from a weld on manual valve MV-MS526. The valve is located on a drain line in the main steam system. The leakage was discovered by operators and was non-isolable from the 'B' steam generator. The plant was cooled-down and the valve replaced. Initial assessment by the licensee concluded the flaw developed because of inadequate welding when the valve was installed in 1986. The licensee is evaluating the issue further in the CAP. A finding and associated NCV related to the operability assessment performed by the licensee is discussed in Section 1R15 of this report. The plant was restored to 100 percent power on November 8, 2012.

This inspection constituted one 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:

- ME-12A, station battery checks (routine);
- 'C' thermal margin monitor testing (routine); and
- 1-2 EDG surveillance testing (routine).

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

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were 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, ASMEs 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 three routine surveillance testing samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The Nuclear Security and Incident Response (NSIR) headquarters staff performed an in-office review of the latest revisions of the Emergency Plan and various Emergency Plan Implementing Procedures (EPIPs) located under ADAMS accession numbers ML12019A197, ML12202A061, and ML12227A423 as listed in the Attachment.

The licensee transmitted the EPIP revisions to the NRC pursuant to the requirements of 10 CFR Part 50, Appendix E, Section V, "Implementing Procedures." The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment.

This inspection constituted one other emergency action level and emergency plan changes sample as defined in IP 71114.04-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on December 13, 2012, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Control Room Simulator, Technical Support Center, and Operations Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

The inspection activities supplement those documented in Inspection Report 05000255/2012003 and constitute one complete sample as defined in IP 71124.01-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed all licensee performance indicators for the occupational exposure cornerstone for followup. The inspectors reviewed the results of Radiation Protection Program audits (e.g., licensee's quality assurance audits or other independent audits). The inspectors reviewed any reports of operational occurrences related to occupational radiation safety since the last inspection. The inspectors

reviewed the results of the audit and operational report reviews to gain insights into overall licensee performance.

b. Findings

No findings were identified.

.2 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors determined if there have been changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors evaluated whether the licensee assessed the potential impact of these changes and has implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

b. Findings

No findings were identified.

.3 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors reviewed the following radiation work permits used to access high radiation areas and evaluated the specified work control instructions or control barriers.

- Radiation Work Permit (RWP) 20120454; Steam Generator Primary Side Activities;
- RWP 20120319; Forced Outage: Repair of Control Rod Drive (CRD)-24 Housing Including Project Support Activities; and
- RWP 20120313; Forced Outage T-58 Safety Injection Refueling Water Tank (SIRW) and Catacomb Maintenance.

For these radiation work permits, the inspectors assessed whether allowable stay times or permissible dose (including from the intake of radioactive material) for radiologically significant work under each radiation work permit were clearly identified. The inspectors evaluated whether electronic personal dosimeter alarm set-points were in conformance with survey indications and plant policy.

The inspectors reviewed selected occurrences where a worker's electronic personal dosimeter noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue was included in the CAP and dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed the licensee's means to inform workers of changes that could significantly impact their occupational dose.

b. Findings

No findings were identified.

.4 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material. The inspectors evaluated whether there was guidance on how to respond to an alarm that indicates the presence of licensed radioactive material.

The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters. The inspectors assessed whether or not the licensee has established a de facto "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact.

The inspectors evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

b. Findings

No findings were identified.

.5 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools. The inspectors assessed whether appropriate controls (i.e., administrative and physical controls) were in place to preclude inadvertent removal of these materials from the pool.

b. Findings

No findings were identified.

.6 Risk-Significant High Radiation Area and Very High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors discussed with the radiation protection manager the controls and procedures for high-risk high radiation areas and very high radiation areas. The inspectors discussed methods employed by the licensee to provide stricter control of very high radiation area access as specified in 10 CFR 20.1602, "Control of Access to Very High Radiation Areas," and Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas of Nuclear Plants." The inspectors assessed whether any

changes to licensee procedures substantially reduce the effectiveness and level of worker protection.

The inspectors discussed the controls in place for special areas that have the potential to become very high radiation areas during certain plant operations with first-line health physics supervisors (or equivalent positions having backshift health physics oversight authority). The inspectors assessed whether these plant operations require communication before hand with the health physics group, so as to allow corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspectors evaluated licensee controls for very high radiation areas and areas with the potential to become very high radiation areas to ensure that an individual was not able to gain unauthorized access to the very high radiation area.

b. Findings

No findings were identified.

.7 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. The inspectors discussed with the radiation protection manager any problems with the corrective actions planned or taken.

b. Findings

No findings were identified.

.8 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be radiation protection technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings were identified.

.9 Problem Identification and Resolution (02.09)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring and exposure controls. The inspectors assessed the licensee's process for applying operating experience to their plant.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

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

4OA1 Performance Indicator Verification (71151)

.1 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System (RCS) Leakage performance indicator for the period from the first quarter of 2012 through the third quarter of 2012. 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 logs and RCS leakage tracking data for the period of the first quarter of 2012 through the third quarter of 2012 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 reactor coolant system leakage sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 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 from the third quarter 2011 through the third quarter 2012. 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, issue reports, event reports and NRC Integrated Inspection Reports for the period of second quarter 2011 through the second quarter of 2012 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 emergency AC power system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems PI for the period from the fourth quarter of 2011 through the third quarter of 2012. 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 2011 through the third quarter of 2012 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.

.4 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS specific activity PI for Palisades Nuclear Plant for the period from the third quarter 2011 through the third quarter 2012. 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 RCS chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated Inspection Reports 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 RCS specific activity sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the occupational radiological occurrences PI for the period from the third quarter 2011 through the third quarter 2012. 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 assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope, and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness 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 Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences PI for the period from the third quarter 2011 through the third quarter 2012. 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 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 Technical Specification/Offsite Dose Calculation Manual Radiological Effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

40A2 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 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 followup, 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 Semiannual 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 40A2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of the third and fourth quarters of 2012, although some examples expanded beyond those dates where the scope of the trend warranted.

The reviews 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 identified a potential issue with respect to the preventative maintenance program associated with 480V breakers. The inspectors noted there had been some recent failures and a previous issue with a loss of tracking data associated with the overhaul frequencies of the breakers. The inspectors discussed the issue with the licensee and will continue to follow the issue under the Maintenance Effectiveness inspection module during the first quarter of 2013.

The inspectors also performed a review of actions taken to address the open substantive cross-cutting theme in the Human Performance aspect of Conservative Assumptions. The inspectors noted an overall positive trend in plant personnel exhibiting a good “stop when unsure” attitude when faced with incomplete or questionable information, such as in work instructions or in plant operational response. In situations observed by the inspectors pertaining to emergent work items, the inspectors noted methodical approaches utilized by the licensee which incorporated the appropriate risk insights. However, the inspectors also noted some weaknesses in the aspect over the last six months. One issue was documented in Section 1R13 of Inspection Report 05000255/2012004 regarding improper assumptions made during troubleshooting. Additionally, the inspectors had concerns with the assumptions made in assessing service water system leaks for operability. The inspectors also reviewed actions taken by the licensee to close gaps in the corrective action program associated with addressing the Conservative Assumptions theme discovered during the mid-cycle assessment. The inspectors concluded the gaps had been adequately addressed.

This review constituted a single semiannual 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 work-arounds. The documents listed in the Attachment to this report 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. 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 Followup Inspection: Failure to Comply with Work Hour Limits for Non-Covered Workers

a. Inspection Scope

During a followup review of corrective actions related to work hour limitations being exceeded, the inspectors identified multiple condition reports written for similar issues. Looking into what corrective actions were established for a prior finding, it was identified that these actions did not correct the problem and there were still issues at the plant with work hours being exceeded for non-covered workers. Further inspection identified multiple instances of programmatic deficiencies and failures to follow the procedure that governs work hours for non-covered workers.

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, or Green, was identified by the inspectors for the programmatic failure to appropriately implement procedure, EN-FAP-OM-006, "Working Hour Limits for Non-Covered Workers," which establishes the guidance for working hour limits for workers not covered by 10 CFR 26 Subpart I, "Managing Fatigue," and as defined by Entergy procedure EN-OM-123, "Working Hour Limits." Numerous instances were identified where workers and supervisors did not obtain the proper approval nor complete the documentation associated with working additional hours.

Description: 10 CFR 26, "Fitness for Duty Programs," outlines the requirements and standards for implementing a fitness for duty program at a nuclear power plant. Section 26.4 states the applicability of the fitness for duty program to certain categories of workers (i.e., "covered workers"), based upon their roles and responsibilities within the nuclear plant. Entergy procedure EN-FAP-OM-006, "Working Hours for Non-Covered Workers," establishes guidance for working hour limits for non-covered workers, those who do not fit the definition of a covered worker as defined by Entergy procedure EN-OM-123, "Working Hour Limits." The following are the working hour limitations as required by EN-FAP-OM-006:

- ≤ 16 work hours in any 24-hour period;
- ≤ 26 work hours in any 48-hour period;
- ≤ 72 work hours in any 7-day period; and
- ≥ 10 hour break between work periods

Section 3.4, "Process," of procedure EN-FAP-OM-006 states, in part, that if work hour limits are to be exceeded: the worker seeks supervisor approval *prior* to working beyond the limits for a non-covered worker and documentation of approval is to be recorded as a notation in the payroll system. Section 3.3, "Documentation," states, in part, that if working hour limits are exceeded, a condition report should be generated. This

procedure contains an allowance for department level management who perform oversight functions to obtain approval from the General Manager Plant Operations (GMPO) to exceed work hour limits, which can be documented in the form of a standing memo issued from the GMPO. A standing memo issued from the GMPO on April 25, 2012, defines department level management who fall under this exemption.

An inspection was conducted into the issue of work hour limits being exceeded by non-covered workers, who were working on safety-related equipment. It was identified that two supervisors exceeded the administrative work hour limits for non-covered workers without prior approval during this time. These individuals thought they were covered by the GMPO standing memo, which exempts department level management from the prior approval and condition report documentation requirements of the plant procedure, when, in fact, they did not fall into the category of "department level management" as defined by that memo. Additionally, two individual contributors performing the work on safety-related equipment exceeded the work hour limits for non-covered workers. These workers received verbal approval to do so from their manager/supervisor, but did not document this in the payroll system or write condition reports for it until prompted by a third-party. It was also discovered, through badge transaction reports, that a contractor working on a project involving safety-related equipment exceeded work hour limits and no condition report was generated nor a notation found on the time sheet.

An extent-of-condition review was conducted on condition reports generated for exceeding work hour limits for non-covered workers since January 1, 2012. An example was found where an individual exceeded work hour limits in March/April 2012 while preparing for the refueling outage and this individual had not requested permission to exceed the limits nor documented the issue in a condition report or payroll system until approximately three weeks later. Based on interviews and document reviews, it was identified that some plant personnel were not familiar with the administrative requirements of procedure EN-FAP-OM-006.

Analysis: The inspectors determined that the programmatic failure to appropriately implement procedure, EN-FAP-OM-006, "Working Hour Limits for Non-Covered Workers," was a performance deficiency warranting a significance evaluation. The inspectors determined that the finding was more than minor in accordance with IMC 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Screening," effective September 7, 2012, because if left uncorrected, the failure to appropriately implement work hour limitations for non-covered workers could lead to more significant safety concerns associated with fatigue potentially impacting the conduct and oversight of work on safety significant components. In addition, the inspectors concluded that the failure to implement working hour limitations for non-covered workers in accordance with procedure EN-FAP-OM-006 was more than an isolated instance.

The performance deficiency also affected the Initiating Events cornerstone attribute of Equipment Performance, adversely impacting the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the individuals who exceeded the working hour limits for non-covered workers were involved in a forced outage for repair and inspection of a control rod drive mechanism housing (part of the primary coolant system pressure boundary) that had a thru-wall leak which caused an emergent plant shutdown. The questions in IMC 0609, Attachment 4, "Initial Characterization of

Findings,” effective July 1, 2012, for the Initiating Events Cornerstone, do not directly apply to this performance deficiency. The inspectors and regional Senior Risk Analyst concluded that the use of IMC 0609, Appendix M, “Significance Determination Process Using Qualitative Criteria,” dated April 12, 2012, was the appropriate method for determining the significance. In accordance with Appendix M, management review of this issue determined that this finding was of very low safety significance, or Green, since the performance deficiency did not directly contribute to the event.

The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, related to the cross-cutting component of the CAR, in that the licensee thoroughly evaluates problems such that the resolutions address causes and extent of conditions and also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved. In this finding, similar instances of non-covered workers not adhering to the standards for work hour limits and not initiating condition reports as required by EN-FAP-OM-006 were identified in 2011, and the corrective actions for those issues were not sufficient to prevent them from occurring again. Specifically, the Lower Tier Apparent Cause Evaluation completed in November 2011 (CR-PLP-2011-05116) for a similar NRC-identified work hours finding in September 2011 included corrective actions for: revising procedure EN-FAP-OM-006 (to Revision 3) to clearly delineate the documentation requirements for writing condition reports and making notations in the payroll system for department level management; having the GMPO issue a station communication on the requirements of the non-covered workers procedure if limits are going to be exceeded; and the GMPO issuing a standing memo for department level management exemptions from the procedure (issue date of February 1, 2012) [P.1(c)].

Enforcement: No violation of regulatory requirements occurred since the performance deficiency involved workers not covered by 10 CFR 26.205 through 26.209, which defines the work hour limitations and exceptions for covered workers. However, the inspectors did identify a FIN associated with this issue. The licensee documented the instances of exceeded work hour limits in its corrective action program as CR-PLP-2012-05821, CR-PLP-2012-05802, CR-PLP-2012-05843, CR-PLP-2012-03071, and CR-PLP-2012-06406. The licensee also documented the programmatic weaknesses associated with the use of EN-FAP-OM-006 in CR-PLP-2012-06144. Procedure EN-FAP-OM-006, “Working Hour Limits for Non-Covered Workers,” was revised to clarify when and by whom condition reports should be written when working hour limits are to be exceeded, as well as, who should write the report. There is also a corrective action that will be implemented to present the procedure requirements to all departments and reinforce the expectations/standards with supervisors and above at the Leadership and Alignment Meeting. (FIN 05000255/2012005-02, Failure to Manage Non-Covered Worker Hours)

.6 Selected Issue Followup Inspection: Substantive Cross-Cutting Issue in Oversight (H.4.c)

a. Inspection Scope

During the 2012 mid-cycle review, the NRC noted that licensee performance had resulted in two cross-cutting themes. One of the themes was associated with Oversight under the Work Practices component of the Human Performance cross-cutting area (H.4.c).

The inspectors reviewed the causal evaluations, effectiveness reviews, condition reports, recovery plan, NRC inspection findings, and reviews conducted by Entergy corporate, the Palisades Corrective Action and Assessment Program, and the Palisades Quality Assurance program. Of note, the effectiveness review of corrective actions from the previously performed root cause evaluation and conducted in response to the NRC's mid-cycle assessment to leave this substantive cross-cutting issue open, revealed that those corrective actions to prevent recurrence (CAPRs) were not effective and did not drive the desired behavior changes. Those CAPRs included educating site leaders on the desired leadership behaviors and having those leaders complete "What It Looks Like" (WILL) sheet evaluations. The training was completed in late September 2012 and the WILL sheets could not be identified as having been completed in the manner prescribed by the corrective action. The effectiveness review identified the need to evaluate each individual supervisor's behaviors, delineate specific WILL sheets conducted for management observations (versus those done in other observation areas), find an effective way to trend that data, and ensure there is a reinforcement of expected behaviors from leaders. Other identified weaknesses from reviews conducted were in the areas of leadership engagement and intrusiveness, management's adherence to standards, and the oversight of supplemental workers. These observations concur with findings and observations the NRC provided throughout 2012.

In reviewing licensee performance over the third and fourth quarters of 2012, the inspectors noted that issues are still being encountered in the area of management oversight. For example, condition reports reviewed identified security management not conducting semiannual and annual training observations as required by their procedure and supplemental workers not completing all required training for supporting forced outage work. The NRC identified issues with the management and oversight of the Foreign Material Control program and the Work Hours program, which contributed to findings. There was also a stream analysis conducted by Palisades' personnel that identified inconsistent alignment and communications amongst the site management, which was identified as a potential contributor and common element for long-standing organizational and equipment issues. The aforementioned issues, along with other examples, illustrate a continued need for improvement in the area of oversight. New corrective actions have been developed to complete leadership assessments, conduct dynamic training activities related to reinforcing standards, behaviors, and observation skills, tracking and trending WILL sheets used specifically for observations of management, and conducting targeted observations/reviews of supplemental worker oversight for online and outage activities. This substantive cross-cutting issue will be further reviewed as part of the NRC's end-of-cycle assessment process.

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

b. Findings

No findings were identified.

.7 Selected Issue Followup Inspection: Age Management of the Safety Injection Refueling Water Tank

a. Inspection Scope

On March 25, 2011, the Palisades Nuclear Plant entered the period of extended operation of the renewed license. On May 18, 2011, leakage from the catacombs area beneath the SIRW tank was noted in CR-PLP-2011-02491. Ultimately the leakage was determined to be from the tank itself. Repairs to the tank were attempted during Refueling Outage 1R22; however, on June 12, 2012, the plant was shut down due to leakage from the SIRW tank exceeding the operational decision-making issue process trigger point of 31 gallons per day.

This history of low level leakage caused inspectors to be concerned with the potential effects, if any, that the wet environment might have on the aluminum floor of the SIRW tank. The inspectors reviewed the root cause report, CR-PLP-2012-4451, reviewed historical documentation of leakage and tank repairs, reviewed the license renewal application, and interviewed plant personnel to determine if potential aging impacts had been properly evaluated. One unresolved item (URI) was identified.

This review was performed as an in-depth problem identification and resolution sample as defined in IP 71152-05.

Unresolved Item: Safety Injection Refueling Water Tank Evaluation of Corrosion

Introduction: An Unresolved Item (URI) was identified by the inspectors concerning the failure to formally evaluate the aging effects of corrosion identified beneath the floor of the SIRW tank.

Description: After reviewing CR-PLP-2012-4451, the inspectors were concerned the associated aging effects of the accumulated water were not properly managed because the condition of the affected annulus region was not evaluated by the licensee. Specifically, the accumulated water beneath the floor of the SIRW tank created an environment that could promote corrosion of the tank floor, and this condition does not appear to be formally evaluated. Also, the potential for corrosion could be exacerbated by concrete-aluminum interaction. The inspectors required more information to determine whether this issue constituted a finding of significance.

This issue is considered an unresolved item pending further NRC review of the licensee's actions. (URI 05000255/2012005-03; Safety Injection Refueling Water Tank Evaluation of Corrosion)

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000255/2012-001-00, Degraded Condition Due to Control Rod Drive Mechanism Housing Assembly Crack.

On August 12, 2012, with the plant shutdown in Mode 3 as a result of rising PCS unidentified leakage, a PCS pressure boundary leak was identified in the control rod drive mechanism (CRDM) number 24 upper housing assembly. Technical Specifications do not allow any pressure boundary leakage while the plant is operating (TS 3.4.13). Upon discovery of the leak, the plant was placed into Mode 5 to effect repairs. Initial

examinations indicated the cause of the through-wall leak was transgranular stress corrosion cracking (TGSCC). Additional destructive examinations on CRDM 24 revealed eight other crack-like indications located on the inside surface of a weld in the housing assembly. The cause of this TGSCC was the result of stress on an inside weld surface due to manufacturing irregularities and misalignments between the upper housing assembly and supporting components and an additional unique stressor that has not yet been identified. The CRDM 24 upper housing assembly was replaced with a modified design and eight additional CRDM upper housing assemblies were examined using ultrasonic non-destructive testing. No deficiencies were noted on the additional eight assemblies. Palisades experienced a similar issue in a different location of the CRDM assembly in 2001. Because of the nature of this failure and potential safety significance, the NRC performed a special inspection which was documented in report 05000255/2012012. This Licensee Event Report (LER) was reviewed with no additional findings being identified and no additional violations of NRC requirements occurred. Additional inspections will be conducted to assess the licensee's cause evaluation. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

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

On March 7, 2011, the jacket water pump on the 1-2 EDG was replaced. Through subsequent surveillance testing in April of 2011, the licensee identified erratic and increasing amounts of water leakage from the tell-tale drain of the jacket water pump. The EDG was declared inoperable, and a new jacket water pump was installed. Over the next several months and into 2012, the licensee evaluated the capability of the removed jacket water pump to determine whether or not the EDG could have fulfilled its safety functions for its 30 day mission time. Part of the evaluation included the construction of a test loop at an outside contractor facility to run the degraded pump and assess its performance. Based on the testing results and measured leakage from the pump while it was installed on the EDG, the licensee concluded the EDG would have remained operable and subsequently cancelled the LER. The NRC did not have any concerns with this evaluation. The LER and cancellation were reviewed and no findings or violations of NRC requirements were identified. This LER is closed.

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

40A5 Other Activities

.1 (Closed) Temporary Instruction 2515/187 – Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

a. Inspection Scope

The inspectors verified that the licensee's walkdown packages for the diesel fuel storage tank (T-10A), the outside yard, the screenhouse, the auxiliary building, and the turbine building contained the elements as specified in NEI 12-07 Walkdown Guidance document.

The inspectors accompanied the licensee on their walkdown of the screenhouse and the turbine building and verified that the licensee confirmed the following flood protection features:

- incorporated Passive features such as berm walls; building floors, ceilings, and walls; instrumentation panels; electrical junction boxes; penetrations; floor drains; and cable tray ways; and
- incorporated Active features such as watertight doors and hatches, sump pumps, and check valves in floor drains.

Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspections for indications of degradation that would prevent its credited function from being performed were completed. Critical structures, systems, and components' dimensions were measured. The available physical margin to flood height, where applicable, was determined. Flood protection feature functionality was determined using visual observation and by reviewing applicable plant documents.

The inspectors independently performed a walkdown of the auxiliary building and verified that the following flood protection features were in place and able to perform their intended functions:

- auxiliary building and containment building external walls;
- diesel generator room, 1C Switchgear room, component cooling water room, and engineered safeguards rooms' watertight doors, walls, floors, and ceilings; and
- other incorporated passive features such as piping and conduit penetrations, floor drains, cable tray ways, electrical junction boxes, and instrumentation panels.

The inspectors verified that noncompliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into the licensee's corrective action program. In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and the licensee's ability to mitigate the consequences of a flood will be subject to additional NRC evaluation.

b. Findings

No findings were identified.

.2 (Closed) Temporary Instruction 2515/188 – Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

The inspectors accompanied the licensee on their seismic walkdowns of the cable spreading room on October 17, spent fuel pool heat exchanger room on October 4, and west engineered safeguards room on October 9, and verified that the licensee confirmed that the following seismic features associated with the spent fuel pool heat exchangers and cooling pumps, shutdown cooling heat exchangers, various pneumatic and electrical components in the auxiliary feedwater system, and various safety-related electrical cabinets were free of potential adverse seismic conditions. Conditions checked were:

- anchorage was free of bent, broken, missing or loose hardware;
- anchorage was free of corrosion that is more than mild surface oxidation;
- anchorage was free of visible cracks in the concrete near the anchors;
- anchorage configuration was consistent with plant documentation;
- SSCs will not be damaged from impact by nearby equipment or structures;
- overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment;
- attached lines have adequate flexibility to avoid damage;
- the area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area;
- the area appears to be free of potentially adverse seismic interactions that could cause a fire in the area, and;
- the area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding).

The inspectors independently performed their walkdown on November 27 and verified that the 1-1 EDG and its various support equipment adhered to the above criteria and compared their notes to those generated by the licensee.

Observations made during the walkdown that could not be determined to be acceptable were entered into the licensee's corrective action program for evaluation.

Additionally, inspectors verified whether there were items that could allow the spent fuel pool to drain down rapidly and if they had been added to the Seismic Walkdown Equipment List (SWEL) and walked down by the licensee.

b. Findings

No findings were identified.

.3 (Discussed) Temporary Instruction -2515/182 - Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks

a. Inspection Scope

Leakage from buried and underground pipes has resulted in ground water contamination incidents with associated heightened NRC and public interest. The industry issued a guidance document, NEI 09-14, "Guideline for the Management of Buried Piping Integrity" (ADAMS Accession No. ML1030901420) to describe the goals and required actions (commitments made by the licensee) resulting from this underground piping and tank initiative. On December 31, 2010, NEI issued Revision 1 to NEI 09-14, "Guidance for the Management of Underground Piping and Tank Integrity," (ADAMS Accession No. ML110700122), with an expanded scope of components which included underground piping that was not in direct contact with the soil and underground tanks. On November 17, 2011, the NRC issued TI-2515/182, "Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks," to gather information related to the industry's implementation of this initiative.

The inspectors reviewed the licensee's programs for buried pipe, underground piping and tanks in accordance with Temporary Instruction (TI)-2515/182 to determine if the

program attributes and completion dates identified in Sections 3.3 A and 3.3 B of NEI 09-14 Revision 1 were contained in the licensee's program and implementing procedures. For the buried pipe and underground piping program attributes with completion dates that had passed, the inspectors reviewed records to determine if the attribute was in fact complete and to determine if the attribute was accomplished in a manner which reflected good or poor practices in program management.

Based upon the scope of the review described above, Phase I of TI-2515/182 is considered complete. However, the inspectors could not determine if the licensee's program met all applicable aspects of NEI 09-14 Revision 1 pending resolution of the URI discussed below.

Unresolved Item: Underground Pipe and Tank Program- Potential Deviations from Nuclear Energy Institute 09-14 Guideline

Introduction: The inspectors identified an URI associated with the licensee's Underground Piping and Tanks Inspection and Monitoring Program, for potential deviations from NEI 09-14 "Guideline for the Management of Buried Piping Integrity."

Description: The licensee's buried piping and underground piping and tanks program was inspected in accordance with Paragraphs 03.01.a through 03.01.c of TI-2515/182 and the inspector could not determine if the program met all applicable aspects of NEI 09-14 Revision 1, as set forth in Table 1 of the TI. Specifically, the following six issues were identified that appeared to deviate from the NEI 09-14 guideline.

- The inspectors identified a site procedure, EN-DC-343, "Underground Piping and Tanks Inspection and Monitoring Program," that allowed exclusion of buried pipe line segments and appeared to conflict with Section 3.1 "Scope" of NEI 09-14, which included: "All piping that is below grade and contains any fluid and is in direct contact with the soil." Specifically, EN-DC-343 Section 5.3, "Risk Ranking," step 4, stated, "An underground segment whose failure is inconsequential and would cause no direct or collateral damage to plant SSC's may be excluded from the scope of the program." The inspectors were concerned that providing a procedure which allowed excluding pipe segments within the scope of the NEI 09-14 guidelines from the risk ranking process, may require a deviation from NEI 09-14, Section 3.1.
- The licensee had previously identified (reference LO-HQNLO-2008-00015, CA 511) that site procedures EN-DC-343, "Underground Piping and Tanks Inspection and Monitoring Program," and CEP-UPT-0100, "Underground Piping and Tanks Inspection and Monitoring," did not contain instructions for justifying and approving exceptions to the initiative and assigned a due date of December 30, 2013, to correct this error. However, the licensee had not considered Section 6.2.1, "Procedures and Oversight," of NEI 09-14, which required that the necessary procedural governance and oversight responsibilities be in place by June 30, 2010, and this included a process for justifying and approving exceptions to the initiative. The inspectors were concerned that lack of procedural instructions for justification of exceptions to the initiative by the due date, may require a deviation from the NEI 09-14 Section 6.2.1.

- The licensee had previously identified (reference LO-HQNLO-2008-00015, CA 511) that site procedures EN-DC-343, "Underground Piping and Tanks Inspection and Monitoring Program," and CEP-UPT-0100, "Underground Piping and Tanks Inspection and Monitoring," did not contain instructions to report buried pipe inspection results to the Electric Power Research Institute (EPRI) and established a due date of December 30, 2013, to correct these procedures. However, the licensee had not considered Section 3.3.A.4, "Plan Implementation," of NEI 09-14, which required implementation of the inspection plan to start no later than June 30, 2012, and Paragraph 6.2.4, "Plan Implementation," of NEI-09-14 required all inspection results (whether degradation exists or not) be reported to EPRI in the manner proscribed by the Buried Piping Integrity Group Project Manager. The licensee could not provide records to demonstrate that the results of buried pipe inspections were reported to EPRI (most recent inspections of buried pipe were completed in November of 2012). The inspectors were concerned that not providing EPRI with the buried pipe inspection results may require a deviation from the NEI 09-14 Sections 3.3.A.4 and 6.2.4.
- The licensee had previously identified (reference CR-PLP-2012-00631 and LO-PLPLO-2011-00127) that 16 buried lines containing radiological materials and in excess of 75 nonradiological buried lines were not included in the buried pipe program and risk evaluation completed in 2008 (reference LO-HQNLO-2008-00015, CA 25, 26 and 27). The licensee had contracted with a vendor to redo a risk evaluation of the piping within the program by February of 2013 and stated the scope of this new risk evaluation would include the buried lines missed in the original reviews. However, the licensee had not considered Section 3.3. A.2 "Risk Ranking" of NEI 09-14 which required completion of the risk ranking of buried pipe segments by December 31, 2010, to determine the likelihood and consequences of failure for each buried pipe segment. The inspectors were concerned that by not including a substantive number of buried pipe lines in the original risk ranking by the due date, may require a deviation from the NEI 09-14 Section 3.3.A.2.
- The inspectors identified that the licensee's buried pipe risk ranking had not been periodically reviewed and updated since the original risk ranking was completed in 2008 (reference LO-HQNLO-2008-00015, CA 25, 26 and 27). This appeared to conflict with Sections 3.3.A.2 and 6.2.2 of the NEI guidelines, which stated that the risk ranking shall be periodically reviewed and updated as necessary to reflect inspection results, changes in operating conditions, and design modifications. Further, the lack of a review was not consistent with Section 5.9.2 of CEP-UPT-0100, "Underground Piping and Tanks Inspection and Monitoring," which required the Underground Pipe and Tank Program Engineer and the Groundwater Protection Specialist to perform a periodic review (at six month intervals) to update the scope and risk ranking for changes that have occurred. The inspectors were concerned that the lack of periodic reviews of the program scope and risk ranking may require a deviation from the NEI 09-14 Section 3.3.A.2 and 6.2.2.
- The inspectors identified that SEP-UIP-005, "Underground Components Inspection Plan," Revision 1, did not contain each of the attributes required for an inspection plan as discussed in NEI 09-14 Section 3.3.A.3. Specifically, for

buried piping containing radiological material identified in Appendix A1 of SEP-UIP-005, 13 lines did not identify the portion of the line (piping segment) subject to inspection and 7 lines did not identify the intended/potential inspection technique. Additionally, for non-radioactive buried piping lines identified in Appendix A2 of SEP-UIP-005, each of the 27 lines listed did not identify the risk ranking nor the pipe segment subject to inspection, and for 10 lines the intended/potential inspection technique was not identified. Therefore, SEP-UIP-005 appeared to conflict with NEI 09-14 Section 3.3.A.3, "Inspection Plan," that required the inspection plan to include the following key attributes: identification of piping segments to be inspected, potential inspection techniques, inspection schedule based on risk ranking, and assessment of cathodic protection (if applicable). The inspectors were concerned that licensee's Underground Components Inspection Plan did not identify specific pipe segments to be inspected, included pipe segments without inspection techniques, and set an inspection schedule without risk ranking pipe segments, and may require a deviation from NEI 09-14 Section 3.3.A.3.

NEI 09-14 Section 6.2.6 states, "If a utility finds itself outside of a required initiative element, and takes immediate action to meet the element, a deviation justification is not required, but the condition should be entered into the CAP and the Buried Pipe Integrity Task Force should be notified." At the conclusion of the inspection, the licensee documented these issues in CR-PLP-2012-07697 and intended to discuss resolution of these issues with NEI. These examples of potential deviations from NEI 09-14 represent an unresolved item (URI 05000255/2012005-04, Underground Pipe and Tank Program-Potential Deviations from NEI 09-14 Guideline) pending completion of reviews by the licensee and NEI to determine the final status/disposition of these items.

.4 (Closed) NRC Temporary Instruction 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01)"

a. Inspection Scope

During an earlier inspection period, the inspectors verified the licensee had implemented or was in the process of implementing the commitments, modifications, and programmatically controlled actions described in the licensee's response to NRC Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." This earlier activity was conducted in accordance with TI 2515/177 and was documented in Inspection Report 05000255/2011009. The TI remained opened for Palisades Nuclear Plant because, at the conclusion of that inspection period, questions remained unresolved regarding the methodology used by the licensee to develop their suction side void acceptance criteria.

During this inspection period, the inspectors consulted with the Office of Nuclear Reactor Regulation (NRR) and it was determined further evaluation by NRR was required in order to better understand the acceptability of the licensee's methodology and determine an adequate resolution. Therefore, this issue is being followed up as an URI as described below. Based on the inspection results documented in Inspection Report 05000255/2011009 and tracking the resolution of the questions associated with the acceptability of the licensee's methodology for developing void suction side acceptance criteria as an URI, this TI is considered closed for Palisades Nuclear Plant.

The documents reviewed are listed in the Attachment to this report.

Unresolved Item: Concerns with the Methodology Used to Determine Suction Side Void Acceptance Criteria

Introduction: The inspectors identified an URI regarding the methodology used by the licensee to develop their suction side void acceptance criteria. Specifically, the licensee's acceptance criteria was developed assuming an average over the transient duration time. As a result the inspector questioned if the methodology was acceptable.

Description: On January 11, 2008, the NRC requested each addressee of GL 2008-01 to evaluate its emergency core cooling, decay heat removal, and containment spray systems licensing basis, design, testing, and corrective actions to ensure gas accumulation was maintained less than the amount which would challenge the operability of these systems, and take appropriate actions when conditions adverse to quality were identified. In order to determine what amount of gas could challenge the operability of the subject systems, the licensee needed to develop appropriate acceptance criteria for evaluating identified voids. As part of this effort, the licensee developed acceptance criteria for evaluating voids identified in the suction side of the subject systems' pumps.

The suction side void acceptance criteria were based on an average over the transient duration time. This was inconsistent with the 0.5-second criterion recommended by NRR in TI 2515/177 Inspection Guidance (ML111660749). The NRR-recommended methodology was more conservative because it ensured there were no significant deviations exceeding the maximum recommended void fractions. However, because the licensee's methodology averaged over the entire transient duration time, it allowed void volumes that could significantly exceed the recommended void fraction when the actual duration transient time was shorter than the maximum allowable duration time specified by the recommended void fraction acceptance criteria. The inspectors discussed this observation with NRR. This issue was captured in the licensee's CAP as CR-HQN-2011-00853. Because the inspectors did not identify an existing void which would have exceeded the more conservative acceptance criteria, this issue does not involve current operability of any system.

This issue is unresolved pending further evaluation of the licensee's methodology (URI 05000255/2012005-05, Concerns with the Methodology Used to Determine Suction Side Void Acceptance Criteria)

.5 Review of Palisades 2012 INPO Evaluation

a. Inspection Scope

The inspectors reviewed the results of the 2012 INPO Evaluation per Executive Director of Operations Policy 220.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 22, 2013, the inspectors presented the inspection results to Mr. Anthony 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 Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks (TI -2515/182) with Site Vice President, Mr. T. Vitale, on December 13, 2012.
- The inspection results for the TI 2515/177 with Ms. B. Dotson, Regulatory Assurance, on December 12, 2012.
- The inspection results for the areas of radiological hazard assessment and exposure controls; and RCS specific activity, occupational exposure control effectiveness, and Radiological Effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences performance indicator verification with Mr. T. Vitale, Site Vice President, on January 7, 2013.

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

No violations were identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

T. Vitale, Site Vice President
B. Dotson, Licensing Specialist
J. Miksa, Engineering Program Manager
D. Moody, Radiation Protection Operations Supervisor
J. Hager, Program Engineering- Backup Buried Pipe Program Owner
C. Sherman, Radiation Protection Manager
B. Stacks, Senior Engineer
D. Watkins, Radiation Protection Operations Supervisor

Nuclear Regulatory Commission

A.M. Stone, Chief, Division of Reactor Safety, Engineering Branch 2
J. Corujo-Sandín, Reactor Engineer
N. Feliz Adorno, Reactor Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000255/2012005-01	NCV	Failure to Perform Immediate Operability Determination (1R15)
05000255/2012005-02	FIN	Failure to Manage Non-Covered Worker Hours (4OA2.5)
05000255/2012005-03	URI	Safety Injection Refueling Water Tank Evaluation of Corrosion (4OA2.7)
05000255/2012005-04	URI	Underground Pipe and Tank Program- Potential Deviations from NEI 09-14 Guideline (4OA5.3)
05000255/2012005-05	URI	Concerns with the Methodology Used to Determine Suction Side Void Acceptance Criteria (4OA5.4)

Closed

05000255/2012005-01	NCV	Failure to Follow Operability Determination Procedure (1R15)
05000255/2012005-02	FIN	Failure to Appropriately Implement Procedure, "Working Hour Limits for Non-Covered Workers." (4OA2.5)
05000255/2012-001-00	LER	Degraded Condition Due to Control Rod Drive Mechanism Housing Assembly Crack (4OA3.1)
05000255/2011-003-00	LER	Potential Condition Prohibited by Technical Specifications due to Jacket Water Pump Seal Leakage (4OA3.2)

Discussed

None

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-2011-03634, Safeguards Transformer Berm Level Evaluation, August 16, 2011
- CR-PLP-2011-03746, Plant Access Road Washout East of Switchyard, August 2, 2011
- CR-PLP-2011-06298, Roadway Warning Signs for Overhead Hazards Needed, November 23, 2011
- CR-PLP-2012-06637, DRN for cold weather checklist not implemented properly, October 9, 2012
- ENS-EP-302, Severe Weather Response, Revision 11
- Maintenance Rule a(1) action plan for Ultimate Heat Sink in CR-PLP-2011-03766
- National Weather Service Reports for October 29-October 31
- ONP-12, Acts of Nature Off Normal Procedure, Revision 29
- SOP-14, Circulating Water and Chlorination Systems, Revision 68
- SOP-15, Service Water System, Revision 54
- SOP-23, Cold Weather Checklist, Revision 38
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 89
- WO 54217325, Op Check P-5 and Recirc

1R04 Equipment Alignment

- Admin 4.02, Control of Equipment, Revision 62
- Admin 4.28, Control of Switchyard Activities, Revision 5
- CR-PLP-2012-06944, Floor covered in boric acid due to leaky pump seal, October 30, 2012
- EN-FAP-WM-002, Critical Evolutions, Revision 1
- M-208, P&ID Service Water System, Sheet 1A, Revision 62
- M-214, P&ID Lube Oil, Fuel Oil, and Diesel Generator Systems, Sheet 1, Revision 77
- SOP-15, Service Water System, Revision 53
- SOP-22, Attachment 8, Diesel Generator System Checklist, Revision 54
- SOP-2A, Chemical and Volume Control System, Revision 75
- SOP-3, Engineering Safeguards System, Revision 89
- SOP-4, Containment Spray System, Revision 24
- Tagout 1C23-1, CVC-027-A-RV-2238 REP, Boric Acid to Blender Relief

1R05 Fire Protection

- EA-FPP-03-001, Fire Protection Calculation, Revision 3
- Fire Hazards Analysis, Revision 7
- Palisades Auxiliary Building – East Engineering Safeguards Room / Elev. 570' Pre-Fire Plan (Fire Area 10)
- Palisades Auxiliary Building – Spent Fuel Pool Area / Elev. 649' Pre-Fire Plan (Fire Area 17)
- Palisades Auxiliary Building – Track Alley / Elev. 625' (Fire Area 19)
- Palisades Fire Protection Compensatory Measures Report, dated November 13, 2012
- Palisades Turbine Building – 1-2 Diesel Generator Room / Elev. 590' (Fire Area 6)

1R06 Flood Protection Measures

- Cable and Raceway Schedules for Bus 1C Raceways (A001 through A563)
- DBD-7.08, Plant Protection Against Flooding Design Basis Document, Revision 6
- EA-C-PAL-95-1526-01, Internal Flooding Evaluation for Plant Areas Outside of Containment, Revision 2
- EPRI White Paper: Review of Suitability of EPR Medium Voltage Cables for Wet and Submerged Conditions, August 18, 2009
- List of Cable Codes for Cables in Bus 1C Raceways
- SPEC-E-21, Specification for 5kV and 3kV Insulated Power Cable, November 16, 1966
- SPEC-E-22, Specification for 600V Insulated Power and Control Cable, Revisions 2/3
- Tan-Delta Report Summary for Testing of 152-105 Cables, October 19, 2010

1R07 Heat Sink Performance

- FSAR Chapter 9, Auxiliary Systems, Revision 30
- GL 89-13, Service Water Problems Affecting Safety-Related Equipment, July 18, 1989
- MO-7A-2, Emergency Diesel Generator 1-2, Revision 81
- WO 213359, E-22B One-time inspection for renewed license
- WO 51670959, K-6B, PM of Aftercooler and Heat Exchangers

1R11 Licensed Operator Regualification Program

- EI-1, Emergency Classification and Actions, Revision 49
- EN-RE-327, PWR Startup Critical Predictions and Evaluation Process, November 6, 2012
- EOP-1.0, Standard Post-Trip Actions, Revision 13
- EOP-9.0, Functional Recovery Procedure, Revision 22
- GOP-3, Mode 3 \geq 525°F to Mode 2, Revision 31
- ONP-1, Loss of Load, Revision 10
- ONP-23.1, Primary Coolant Leak, Revision 26
- ONP-23.2, Steam Generator Tube Leak, Revision 14
- Palisades Site Emergency Plan, Supplement 1
- PLSXM-OPS-128, Simulator Exam Scenario, Revision 2
- SOP-2A, Chemical and Volume Control System, Revision 75
- SOP-6, Reactor Control System, Revision 32

1R12 Maintenance Effectiveness

- 125V Vital DC Power System Health Report, dated November 13, 2012
Activities for Charging Pumps P-55A, P-55B, and P-55C
- ARP-20B, Diesel Generator 1-2 Scheme EK-30, Revision 5
- Charging Pump Reliability Improvement Plan, March 16, 2011
- Chemical Volume Control (CVC) – Charging/Letdown System Health Report, 2nd Quarter 2012
- CR Interim and Periodic Review for CR-PLP-2009-00043, CVC Has Had a Repeat Functional Failure, August 6, 2012
- CR-PLP-2009-00043, Chemical and Volume Control System Has Had a Repeat Functional Failure, January 7, 2009
- CR-PLP-2010-05859, Cracks in Turbocharger Support Weld, November 8, 2010
- CR-PLP-2011-00062, Petcock Valve for Cylinder 1L of EDG 1-1 Vibrated Open, January 4, 2010
- CR-PLP-2011-01933, K-6B Diesel Generator has Jacket Water Seal Leak, April 18, 2011

- CR-PLP-2011-02469, Emergency Diesel Generator Exceeds Maintenance Rule Performance Criteria, May 17, 2011
- CR-PLP-2011-02469, Maintenance Rule (a)(1) Action Plan Emergency Diesel Generator K-6B, Revision 2
- CR-PLP-2011-04822, Reactor Trip occurred during maintenance on a DC supply panel, September 25, 2011
- CR-PLP-2011-04831, Received unexpected alarm for DC powered equipment, September 23, 2011
- CR-PLP-2011-04835, Breaker 72-01, Isolation Breaker to DC Battery No 1, September 26, 2011
- CR-PLP-2011-05470, Maintenance Rule plant level performance criteria for Vital DC Power System has been exceeded, October 19, 2011
- CR-PLP-2012-00031, K-6A Starting Air Pressure Indicator reading High out of Spec, January 3, 2012
- CR-PLP-2012-01175, K-6B Starting Air Pressure Indicator reading High out of Spec, March 17, 2012
- CR-PLP-2012-03042, Charging Pump P-55C Did Not Start During RT-8C, Engineered Safeguards Testing, April 22, 2012
- CR-PLP-2012-03677, Functional Failure Identified for Charging Pump P-55C Breaker 52-1105 Failure to Close when Pump Start was Commanded, May 6, 2012
- CR-PLP-2012-04083, Erratic Coolant Temperatures for Diesel Generator 1-3, May 23, 2012
- CR-PLP-2012-05123/5920, Maintenance Rule Functional Failure Identified for Charging Pump P-55C Which Has Degraded Flow, July 17, 2012
- CR-PLP-2012-06514, K-6A Lube Oil and Jacket Water Temperature Instruments found out of Calibration, October 1, 2012
- CR-PLP-2012-07051, Breaker 52-1105 Tripped on Overcurrent Which Tripped Charging Pump P-55C, November 4, 2012
- CR-PLP-2012-07383, Charging Pump P-55C Experienced Additional Functional Failure While in Maintenance Rule (a)(1), November 26, 2012
- CR-PLP-2012-07416, Local Charging Flow Indicator FI-0212 is Reading Low When Compared with Control Room Charging Flow Indicating Alarm and Expected Charging Pump Flows, November 27, 2012
- CR-PLP-2012-07434, Charging Pump P-55A Suction Accumulator T-105A Had an As-Found Pressure High Out of Spec, November 28, 2012
- CR-PLP-2012-07435, Charging Pump P-55A Discharge Accumulator T-106A Had an As-Found Pressure Low Out of Spec, November 28, 2012
- CR-PLP-2012-0754, CR-PLP-2012-0788, CR-PLP-2012-0978 and CR-PLP-2012-01071 ODMI, February 15, 2012
- EGAD-EP-10, Maintenance Rule Scoping Document, Revision 5
- Emergency Diesel Generators System Health Report, 2nd Quarter 2012
- EN-DC-150, Condition Monitoring of Maintenance Rule Structures, Revision 2
- EN-DC-204, Maintenance Rule Scope and Basis, Revision 2
- EN-DC-206, Maintenance Rule (a)(1) Process, Revision 2
- LO-WTPLP-2012-00413, Work Task to Track Outstanding Maintenance Rule (a)(1) Monitoring
- Maintenance Rule (a)(1) Action Plan for Charging Pumps P-55A, P-55B, and P-55C, Revision 10
- Maintenance Rule Unavailability Performance Indicator Data K-6B from October 2010-October 2012
- Maintenance Rule Unavailability Performance Indicator Data K-6B from October 2010-October 2012

- Operational Decision-Making Issue (ODMI): Double Charging and Letdown Pump Operational Guidance, Revision 6, January 13, 2011
- WO 52300736, P-55B Charging Pump 18 Month PM and Install EC 33705, October 18, 2012
- WO 52320270, P-55C Charging Pump 18 Month PM and Install EC 38063, October 24, 2012
- Work Order Summary report for 125V DC system, report run November 15, 2012

1R13 Maintenance Risk Assessments and Emergent Work Control

- Administrative Procedure 4.02, Control of Equipment, Revision 62
- Administrative Procedure 4.28, Control of Palisades Switchyard Activities, Revision 5
- Drawing E-8 Sheet 3, Power Supply for Datalogger and Critical Function Monitor, Revision 14
- Drawing E-943, Sheet 5, ED-205 Schematic Power Feeds, Revision 5
- EN-FAP-WM-002, Critical Evolutions, Revision 1
- EN-OP-102, Protective and Caution Tagging, Revision 14
- EN-OP-119, Protected Equipment Postings, Revision 5
- EN-WM-104, Online Risk Assessment, Revision 6
- WO 262786, Replace Breaker 72-901

1R15 Operability Determinations and Functionality Assessments

- ASME Code Case N-513-3, Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping, January 26, 2009
- CR-PLP-2010-00551, Past operability evaluation regarding unfiltered air in-leakage into control room envelope
- CR-PLP-2012-06323, NRC identified puddle under MV-SW136, September 20, 2012
- CR-PLP-2012-06365, UT measurements show less than nominal wall thickness, September 25, 2012
- CR-PLP-2012-06521, ET inspection identified need for tube plugging, October 1, 2012
- CR-PLP-2012-06739, NRC questions regarding accuracy of jacket water heat exchanger tube thickness, October 3, 2012
- CR-PLP-2012-07030, NRC concern regarding potentially missed 50.72 report, November 1, 2012
- CR-PLP-2012-07047, Steam water leak on inlet side of MV-MS526, November 4, 2012
- CR-PLP-2012-07134, 'B' TMM failed, November 8, 2012
- CR-PLP-2012-07693, Unclear guidance in DWO-1, December 12, 2012
- DBD 1.06, Control Room HVAC System, Revision 8
- Drawing FDM-911(Q), Heating, Ventilating, and air conditioning control room analysis, Revision 11
- DWO-1, Operator's Daily/Weekly Items Modes 1-4, Revision 100
- EC Reply 40168, E-22A Jacket water cooler condition, Revision 0
- EN-OP-104, Operability Determination Process, Revision 6
- Operating Requirements Manual, Revision 12
- RT-71E, Main Steam, Feedwater, and Auxiliary Feedwater Systems, Class 2 System Inservice Test, Revision 8
- SEP-ISI-PLP-003, Palisades Inservice Inspection Master Plan Fourth Interval, ASME Section XI, Division 1, Revision 0
- SOP-35, Neutron Monitoring System, Revision 16

1R18 Temporary and Permanent Modifications

- Connecticut Yankee LER 78-04/1T regarding gas generation in SFP racks, May 1, 1978
- EA-SFP-91-001, Determination of Maximum Lifting Load to Apply to a Fuel Assembly

- EM-04-29 Fuel Move Sheets for stuck assembly liberation
- EN-LI-100, Process Applicability Determination, Revision 12
- FHSO-5, Movement of Fuel Using Overhead Crane, Revision 7
- FSAR Section 9.11, Auxiliary Systems, Revision 29
- PLP-RPT-10-00047, Palisades Stuck Bundle in Rack-Bundle Damage Assessment, Revision 0
- TMOD No. EC 38643, Addition of Vent Holes in Region 1 Spent Fuel Storage Racks to support Stuck Bundle Extraction, Revision 1
- WO 299458, Remove 11 stuck fuel assemblies

1R19 Post-Maintenance Testing

- Admin Procedure 9.06, ASME Boiler and Pressure Vessel Code Section XI Repair/Replacement Plan, Revision 13
- Administrative Procedure 4.02, Section 11.0, Control of Doors, Hatches, and Floor Plugs, Revision 62
- CR-PLP-2012-06506, Entrance Door to Both D/G Rooms from Outside Open Without Operations Authorization, October 1, 2012
- CR-PLP-2012-06580, During K-6A EDG 1-1 PMT Run an Oil Leak was Found Between Lube Oil Filter and Its Upper Drain, October 4, 2012
- CR-PLP-2012-07082, Incorrect PMT specified for MV-SW136, November 6, 2012
- CR-PLP-2012-07270, Computer Failed During Check Valve Testing for CK-FW729, P-8A/B AFW Supply to S/G E-50A, November 15, 2012
- Drawing VEN-J447, Sheet 43(6), Auxiliary Feedwater Actuation System, Revision 76
- EM-09-14, VT-2 Examinations, Revision 8
- FWS-M-28, Auxiliary Feedwater Pumps P-8A and P-8B Pump Maintenance, Revision 9
- FWS-M-6, Attachments 5 & 6, Auxiliary Feedwater Turbine Maintenance, Revision 24
- MO-7A-1, Technical Specification Surveillance Procedure: Emergency Diesel Generator 1-1, Revision 81
- Procedure SOP-30, Station Power, Revision 67
- Procedure SPS-E-17, Temporary Installation and Removal of Spare Circuit Breakers, Revision 20
- SOP-22, Emergency Diesel Generators, Revision 54
- WO 30871-01, P-8B (Steam Driven Aux Feedwater Pump) Replace Inboard Bearing Housing Oil and Inspect Inboard Packing, November 14, 2012
- WO 327249, MV-SW136 has a pinhole leak through valve body wall
- WO 51657171, Return Breaker 52-1214 to Service, November 30, 2012
- WO 52294708, P/S 0708, Replace Power Supply AFAS Sensor Channel Logic
- WO 52359659-01, K-8 AFW Pump P-8B Turbine Driver Mechanical Maintenance, November 14, 2012
- WO 52419158, MO-7A-1 Emergency Diesel Generator 1-1 (K-6A), October 4, 2012

1R20 Outage Activities

- EN-RE-327, PWR Startup Critical Predictions and Evaluation Process, November 6, 2012
- GOP-14, Shutdown Cooling Operations, Revision 44
- GOP-3, Mode 3 $\geq 525^{\circ}\text{F}$ to Mode 2, Revision 31
- GOP-8, Power Reduction and Plant Shutdown to Mode 2 or 3 $\geq 525^{\circ}\text{F}$, Revision 30
- SOP-1B, Primary Coolant System, Cooldown, Revision 13
- SOP-6, Reactor Control System, Revision 32

1R22 Surveillance Testing

- WO 52426447, ME-12A Battery Checks
- RI-23C, Functional Testing of TMM- Channel C, Revision 17
- WO 52433801, MO-7A-2, 1-2 Emergency Diesel Generator

1EP4 Emergency Action Level and Emergency Plan Changes

- EI-1, Emergency Classification and Actions, Revision 55
- EI-4.1, Technical Support Center Activation, Revision 22
- EI-4.2, Operations Support Center Activation, Revision 23
- EI-4.3, Emergency Operations Facility Activation, Revision 24 and 26
- EI-7.0, Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates, Revision 13

1EP6 Drill Evaluation

- Drill guide, December 13, 2012 Emergency Plan Drill
- Site Emergency Plan, Revision 22

2RS1 Radiological Hazard Assessment and Exposure Controls

- CR-PLP-2011-04657, Inappropriate Use of Anticipated Dose Rate Alarms, September 17, 2011
- CR-PLP-2012-04093, Worker Entered the Radiologically Controlled Area Using another Worker's Dosimeter of Legal Record, June 12, 2012
- CR-PLP-2012-7689, Procedure SR-12 "Sealed Source Leak Test" Duplicates the Efforts Established in EN-RP-143 "Source Control", December 12, 2012
- CR-PLP-2012-7690, Semiannual Door Surveillance Not Performed, December 12, 2012
- EN-RE-220, PWR Control of Miscellaneous Material in the Spent Fuel Pool, Revision 2
- EN-RP-101, Access Control for Radiologically Controlled Areas, Revision 7
- EN-RP-121, Radioactive Material Control, Revision 7
- EN-RP-143, Source Control, Revision 9
- Radiation Work Permit and Associated ALARA Files, RWP 20120313, Forced Outage T-58 Safety Injection Refueling Water Tank (SIRW) and Catacomb Maintenance, Revision 11
- Radiation Work Permit and Associated ALARA Files, RWP 20120319, Forced Outage: Repair of CRD-24 Housing Including Project Support Activities, Revision 8
- Radiation Work Permit and Associated ALARA Files, RWP 20120454, S/G Primary Side Activities, Revision 5
- SR-12, Sealed Source Leak Test, Revision 9
- WI-RSD-H-010, Release of Items, Revision 15
- Work Order 52381998 01, Inventory Non-Fuel Items in Spent F Pool, June 18, 2012
- Work Order 52406049 01, SR-12 – Sealed Source Leak Test, September 14, 2012

4OA1 Performance Indicator Verification

- Cooling Water Support Systems Mitigating Systems Performance Indicator Validation Packages, October 2011 thru September 2012
- EN-LI-114, Performance Indicator Process, Revision 4
- EN-LI-114, Performance Indicator Process, Revision 4
- Mitigating System Performance Index Basis Document, June 26, 2008
- MSPI Validation Packages

- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), October 6, 2011
- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), January 6, 2012
- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), October 2, 2012
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (B1-1), October 4, 2011
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (B1-1), January 5, 2012
- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), April 12, 2012
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (B1-1), April 4, 2012
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (B1-1), July 1, 2012
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- NRC Indicator RETS/ODCM Radiological Effluent Occurrences (PR-1), January 5, 2012
- NRC Indicator RETS/ODCM Radiological Effluent Occurrences (PR-1), April 4, 2012
- NRC Indicator RETS/ODCM Radiological Effluent Occurrences (PR-1), July 3, 2012
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- Palisades LER 2011-005-00, Service Water Pump Shaft Coupling Failure, October 3, 2011
- Palisades MSPI Basis Document, June 26, 2008
- Selected logs, October 1, 2011 through September 30, 2012
- Various Operations Logs, fourth quarter 2011 thru third quarter 2012

40A2 Problem Identification and Resolution

- 51-9186021-000, Palisades T-58 SIREW Nozzle L Weld Location Destructive Evaluation Report, July 11, 2012
- Control Room Alarms report, October 2011 through October 2012
- Control Room Deficiencies report, October 2011 through October 2012
- CR-PLP-2011-00676, Review of Operating Experience, February 11, 2011
- CR-PLP-2011-00684, Potential NRC Finding, February 11, 2011]
- CR-PLP-2011-03406, Screenwash pump charging springs open, July 11, 2011
- CR-PLP-2011-03766, a(1) action plan for Ultimate Heat Sink
- CR-PLP-2012-01091, SIRW Tank Operability Evaluation, February 16, 2012
- CR-PLP-2012-04451, SIRW Tank leakage, June 12, 2012
- CR-PLP-2012-06211, SCCI in Conservative Assumptions to remain open, September 13, 2012
- D-PAL-90-248, Control Room Ceiling Leakage, October 8, 1990
- EN-FAP-OM-006, Working Hour Limits for Non-Covered Workers, Revisions 4 & 5
- EN-OM-123, Fatigue Management Program, Revision 4
- LO-PLPLO-2012-21, Maintenance Recovery Plan and Work Preparation Focused Self-Assessment, July 16-19, 2012
- Nuclear oversight fleet trend report, July 2012-October 2012
- Operations Aggregate List, November 1, 2012
- Operations Department performance indicators, November 2011 thru November 2012
- Operator Aggregate Impact Index, October 2011 through October 2012
- Operator Burden Report, October 2011 through October 2012
- Operator Workarounds report, October 2011 through October 2012
- Palisades Operator Aggregate Index Report, November 1, 2012
- PAL-UT-12-022, T-58 SIRW Tank UT Results, July 2, 2012
- PMCR 00157732, T-58 SIRW Tank Inspection PM, 11/14/2012
- Procedure No 4.12, Operator Work-Around Program, Revision 7
- T-12241-HK, Low Frequency Electromagnetic Technique of Safety Injection Refueling Water Tank, July 2, 2012
- Third quarter CA&A trend report
- Third quarter Operations trend report

- Third quarter PS&O trend report
- Third quarter Radiation Protection Trend report
- VEN-C18, Lap Welded Bottom for 46'0" I.D. Tank, Revision 3

40A3 Followup of Events and Notices of Enforcement Discretion

- Cancellation of Licensee Event Report (LER) 2011-003, Potential Condition Prohibited by Technical Specifications due to Jacket Water Pump Seal Leakage, Entergy letter dated June 6, 2012
- Licensee Event Report (LER) 05000255/2011-003-00, Potential Condition Prohibited by Technical Specifications due to Jacket Water Pump Seal Leakage, Revision 0
- Licensee Event Report (LER) 05000255/2012-001-00, Degraded Condition Due to Control Rod Drive Mechanism Housing Assembly Crack, Revision 0

40A5 Other Activities

- ARP-1, Alarm Response Procedure: Turbine Condenser and Feedwater Scheme EK-01, Revision 69
- AT-0175, Deficiencies noted on day tank bolts, March 14, 2006
- Auxiliary Building and External Barriers Flooding Walkdown List, September 26-28, 2012
- AWC-04, Diesel generator room walkby checklist
- C-12, Plant Area Grading Plan, Revision 9
- C-228, Tank T-10A Foundation Sections and Details, Sheet 3, Revision 4
- C-228, Tank T-10A Foundation, Sheet 2, Revision 0
- C-4, Plant Area Plan Detail Area A, Sheet 1, Revision 14
- C-5, Plant Area Plan Detail Area B, Sheet 1, Revision 28
- C-6, Plant Area Plan Detail Area C, Revision 21
- C-7, Plant Area Plan Detail Area D, Revision 39
- C-8, Plant Area Plan Detail Area E, Revision 8
- C-853, Plant Area Plan Detail Area G, Revision 16
- C-9, Plant Area Plan Detail Area F, Revision 9
- CEP-UPT-0100, Underground Piping and Tanks Inspection and Monitoring, Revision 1
- Consumers Drawing 950W48, Sheet 68, Diesel Day Tank
- CR-HQN-2011-00853, CDBI Identified Criteria And Methodology For Determining Acceptable Void Sizes On The Suction Side Of Pumps Has Changed Since Initially Calculated At Palisades, August 4, 2011
- CR-PLP-2012-00631, Errors and Omissions in the Inspection Population of the Buried Pipe and Tanks Program, January 25, 2012
- CR-PLP-2012-06369, T-10A Diesel Oil Storage Tank Junction Box J1199 Has a Loose Hatch and Conduit A631 Has a Deformed Cover, September 25, 2012
- CR-PLP-2012-06370, LT-1400 Diesel Oil Storage Tank T-10A Level Transmitter Pipe Has Some Minor Degradation, September 25, 2012
- CR-PLP-2012-06381, Junction Box J14R is Not Protected Against External Flooding, September 25, 2012
- CR-PLP-2012-06382, Junction Box J91 is Not Protected Against External Flooding, September 25, 2012
- CR-PLP-2012-06383, Service Water Pump Pressure Switches Not Protected Against External Flooding, September 25, 2012
- CR-PLP-2012-06401, Junction Box J14L is Not Protected Against External Flooding, September 26, 2012

- CR-PLP-2012-06471, Conduit for Card Reader at Aux Feed Pump Room is Not Sealed for Flooding or Fire Protection, September 28, 2012
- CR-PLP-2012-06472, Conduit for Card Reader at 1C Switchgear Room Door is Not Sealed for Flooding or Fire Protection, September 28, 2012
- CR-PLP-2012-06643, Water intrusion noted in west safeguards room, October 9, 2012
- CR-PLP-2012-06644, PT-0762C AFW low suction pressure trip missing nut, October 9, 2012
- CR-PLP-2012-06662, Conduit for Aux Feed Room Sump Pump P-970 Switch Was Not Sealed for Flooding Protection, October 10, 2012
- CR-PLP-2012-06670, Open S-hook for lighting fixture, October 11, 2012
- CR-PLP-2012-06742, Piping span exceeds unsupported length, October 16, 2012
- CR-PLP-2012-07083, No full thread engagement on SFP heat exchanger bolt, October 4, 2012
- CR-PLP-2012-07149, CST level transmitters should have been installed in seismic configuration, November 8, 2012
- CR-PLP-2012-7687, Periodic Review of Buried Pipe Risk Ranking, December 12, 2012
- CR-PLP-2012-7692, VT-1 Certification records for inspector that were completed in November 2012 not available, December 12, 2012
- CR-PLP-2012-7694- Lack of Access and Control for Buried Pipe Program Data Base Controls, December 12, 2012
- CR-PLP-2012-7697 – Implementation Deficiencies Identified for the Underground Piping and Tanks Program, December 12, 2012
- Design Basis Document 7.08, Plant Protection Against Flooding, Revision 6
- Diesel Fuel Storage Tank (T-10A) Flooding Walkdown Package, September 24, 2012
- E-154, Schematic Diagram Service Water Pump, Sheet 1, Revision 23
- E-154, Schematic Diagram Service Water Pump, Sheet 2, Revision 16
- E-154, Schematic Diagram Service Water Pump, Sheet 3, Revision 3
- E-219, Schematic Diagram Service Water Valves, Sheet 1, Revision 13
- E-219, Schematic Diagram Service Water Valves, Sheet 2, Revision 13
- E-219, Schematic Diagram Service Water Valves, Sheet 3, Revision 18
- E-307, Embedded Conduit and Grounding Turbine Building Elev. 590', Revision 30
- E-309, Embedded Conduit and Grounding Reactor Building Elev. 590', Revision 12
- E-402, Lighting and Communications Turbine Building, Area 6 Elev. 590'-0", Sheet 0, Revision 42
- E-618, Connection Diagram Junction Box J14L, Sheet 14L, Revision 4
- E-618, Connection Diagram Junction Box J14R, Sheet 14R, Revision 9
- ECH-EP-10-0001, Radiological SSC Groundwater Initiative Risk Evaluation Criteria, Revision 0
- ECH-EP-12-00001, Guidelines for Management of Reasonable Assurance of Integrity for Above and Underground SSC Containing Radioactive Material, Revision 0
- EN-DC-170, Fukushima Near Term Task Force Recommendation 2.3 Flooding Walkdown Procedure, Revision 0
- EN-DC-174, Engineering Program Section, Revision 4
- EN-DC-343, Underground Piping and Tanks Inspection and Monitoring Program, Revision 6
- EN-EP-S-002-MULTI, Underground Piping and Tanks General Visual Inspection, Revision 1
- Engineering Report No. PLP-RPT-12-00142, Palisades Nuclear Plant Flooding Walkdown Submittal Report for Resolution of Fukushima Near Term Task Force Recommendation 2.3: Flooding, Revision 0, November 20, 2012
- Final Safety Analysis Report, Section 2.2, Hydrology, Revision 30
- Final Safety Analysis Report, Section 5.4.1, Flooding From Natural Sources, Revision 30
- FTK-ESPP-G00121, Underground Piping/Tanks Program Owner, Revision 5

- Letter - Structural Integrity Associates, Palisades Buried Piping Program Support: BP Works 2.0 database and MapProView, August 2, 2012
- MSM-M-16, Inspection of Watertight Barriers, Revision 17
- NRC Letter: Resolution of Unresolved Safety Issue A-46, Verification of Seismic Qualification of Equipment in Operating Plants, September 25, 1998
- Operability Evaluation for Condition Reports CR-PLP-2012-06381, 06382, 06401, and 06472, October 4, 2012
- Operability Evaluation for Conduit at Security Card Reader at Entrance to Aux Feedwater Pump Room, September 29, 2012
- Outside (Yard) Flooding Walkdown Package, September 25, 2012
- Screenhouse Flooding Walkdown List, September 24, 2012
- Seismic walkdown checklists associated with 1-1 EDG and day tank
- Seismic walkdown checklists for cable spreading room
- Seismic walkdown checklists for SFP heat exchanger room
- Seismic walkdown checklists for west engineering safeguards room
- Turbine Building Flooding Walkdown List, September 25, 2012
- VEN-M101 Sheet 2526(1), Diesel Generator Heat Exchanger, Revision 7
- WO 327102-04, Seal Conduit at Auxiliary Feedwater Pump Room Outlet, October 10, 2012
- WO 52233622-01, Annual Inspection of Watertight Barriers, January 21, 2011
- WO 52319806-01, Annual Inspection of Watertight Barriers, February 7, 2012
- WO 52358031-01, AFW Pump Room Sump Pump P-970 Op Check, July 27, 2012
- WR 285993, J-14L, Repair J-Box to Prevent Flood Water Entry, October 4, 2012
- WR 285994, J-14R, Repair J-Box to Prevent Flood Water Entry, October 4, 2012

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CAPR	Corrective Action to Prevent Recurrence
CFR	Code of Federal Regulations
CRD	Control Rod Drive
CRDM	Control Rod Drive Mechanism
EDG	Emergency Diesel Generator
EPIP	Emergency Plan Implementing Procedures
EPRI	Electric Power Research Institute
GL	Generic Letter
GMPO	General Manager Plant Operations
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NSIR	Nuclear Security and Incident Response
PARS	Publicly Available Records System
PCS	Primary Coolant System
PI	Performance Indicator
RCS	Reactor Coolant System
RWP	Radiation Work Permit
SIRW	Safety Injection Refueling Water
SSC	Structure, System and Components
TGSCC	Transgranular Stress Corrosion Cracking
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WILL	What It Looks Like

A. Vitale

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Sincerely,

/RA/

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

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SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION
REPORT 05000255/2012005

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