



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

November 13, 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 - NRC INTEGRATED INSPECTION REPORT
05000255/2013004**

Dear Mr. Vitale:

On September 30, 2013, 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 October 11, 2013, with you and other members of your staff.

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

Based on the results of this inspection, one NRC-identified finding of very low safety significance was identified. The finding 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 violation or significance 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 copies to the Regional Administrator, Region III, the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Palisades Nuclear Plant. In addition, if you disagree with the cross-cutting aspect assigned to the 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 *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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 Documents 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/

Jamie Benjamin, Acting Chief
Branch 4
Division of Reactor Projects

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

Enclosure: Inspection Report 05000255/2013004;
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: 05000255/2013004

Licensee: Entergy Nuclear Operations, Inc.

Facility: Palisades Nuclear Plant

Location: Covert, MI

Dates: July 1, 2013, through September 30, 2013

Inspectors: T. Taylor, Senior Resident Inspector
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Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000255/2013004, 07/01/2013 – 09/30/2013; Palisades Nuclear Plant; Radiological Hazard Assessment and Exposure Controls

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding was considered a non-cited violation (NCV) of NRC regulations. The significance of 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 January 28, 2013. 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: Occupational Radiation Safety

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of Technical Specification (TS) 5.4.1. Specifically, the licensee failed to perform air sampling as required by station procedure EN-RP-122 "Alpha Monitoring." The issue was entered in the licensee's Corrective Action Program (CAP) as CR-PLP-2013-02054. The licensee's immediate corrective actions included performance management of the radiation protection technician and direct radiation protection supervisor oversight of the work activity.

The finding is more than minor because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, not monitoring the worker intake in an Alpha Level 3 area affected the licensee's ability to assess workers internal exposures in a timely manner, and adversely impacted the licensee's ability to monitor, control, and limit radiation exposures (i.e., committed effective dose equivalent or internal dose). In accordance with IMC 0609 Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined that the finding had very low safety significance (Green) because the finding did not involve: (1) as-low-as-reasonably-achievable (ALARA) planning and controls; (2) a radiological overexposure; (3) a substantial potential for an overexposure; and (4) a compromised ability to assess dose. The inspectors determined that the primary cause of this finding was related to the cross-cutting aspect of problem identification and resolution in the component of corrective actions, specifically the licensee did not take appropriate corrective actions to address safety issues and adverse trends in Alpha monitoring in a timely manner, commensurate with their safety significance and complexity. [P.1 (d)]. (Section 2RS1)

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at 100 percent power and remained at 100 percent power through the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

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:

- 'B' low pressure safety injection with 'A' train out of service for maintenance;
- 'B' and 'C' charging while plant was in single charging and letdown alignment due to speed oscillations on 'A' charging pump; and
- fire protection water system with P-41, diesel-driven fire pump, out of service for emergent maintenance.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), 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 three partial system walkdown samples as defined in Inspection procedure (IP) 71111.04-05.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On September 10-13, 2013, the inspectors performed a complete system alignment inspection of the instrument air system and nitrogen backup stations 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)

.1 Routine Resident Inspector Tours (71111.05Q)

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 Areas 13F & 13G: spent fuel pool heat exchanger room and boric acid tank room;
- fire protection system post-indicating valves;
- Fire Area 23: turbine building general areas elevation 590' and condensate pump pit; and
- Fire Area 16: component cooling water (CCW) room.

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.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On July 31, 2012, the inspectors observed fire brigade activation in response to a transformer explosion and fire scenario. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires using the B.5(b) equipment and procedures, and coordinating with off-site resources for additional help. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief; and took appropriate corrective actions. Specific attributes evaluated were:

- proper wearing of turnout gear and self-contained breathing apparatus;
- proper use and layout of fire hoses;
- employment of appropriate firefighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;
- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On August 6, 2013, 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 August 7, 2013, extreme heavy rain was experienced at the site over a short period of time. As a result of the rain and some temporary plugs installed in a portion of the storm drain system, some water entered the ground level of the turbine building and some portions of the auxiliary building. There were no adverse impacts to any equipment as a result of the water intrusion, with the exception of a direct current bus ground that occurred, which was subsequently cleared. There were no adverse effects as a result of the ground; the direct current system, as designed, remained operable. Inspectors onsite at the time responded to the control room to observe licensee efforts to address the ingress of water and review potential emergency plan implementation (emergency plan entry was not required). Inspectors also toured plant areas containing safety-related equipment to confirm no emergency plan entry was required and that various pieces of equipment were not being impacted. The inspectors evaluated the following areas:

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

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 generator ventilation system; and
- auxiliary feedwater and actuation system.

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

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

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

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

b. Findings

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:

- 480 volt breaker replacement in eight hour limiting condition for operation;
- liberation of three stuck fuel assemblies in spent fuel pool; and
- coordination of emergent emergency diesel generator ventilation, auxiliary feedwater actuation system, and reactor protection system work during the week of July 15, 2013

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

Specific documents reviewed during this inspection are listed in the Attachment to this report. These maintenance risk assessments and emergent work control activities constituted three samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- slow time-to-prime of fuel oil transfer pump P-18A;
- emergency diesel generator 1-1 fuel injection pump binding; and
- auxiliary feedwater actuation system module failure.

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 three samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following modification:

- permanent modifications to catacomb area below the safety injection refueling water tank (SIRWT) and roof surrounding SIRWT.

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 permanent plant 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:

- reactor protection system logic matrix power supply "CD" replacement;
- 'A' control room heating, ventilation, and air conditioning system preventive maintenance;
- 'C' instrument air compressor preventive maintenance;
- P-41, diesel-driven fire pump emergent maintenance and functionality testing; and
- control room filtration high-efficiency particulate air filter replacement.

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

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

b. Findings

No findings were identified.

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:

- RI-4D, steam generator level channel 'B' and 'D' calibrations (routine);
- FT-2, containment building post-tension system (routine);

- QO-14A, 'A' service water pump inservice test (inservice test);
- QO-16A, 'A' containment spray pump inservice test (inservice test);
- QI-9, reactor protection system trip unit 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, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted three routine surveillance testing samples and two inservice testing samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

1EP2 Alert and Notification System Evaluation (71114.02)

a. Inspection Scope

The inspectors held discussions with emergency preparedness (EP) staff regarding the operation, maintenance, and periodic testing of the primary and backup alert and notification system (ANS) in the plume pathway emergency planning zone. The inspectors reviewed monthly trend reports and siren test failure records from August 2011 through August 2013. Information gathered during document reviews and interviews were used to determine whether the ANS equipment was maintained and tested in accordance with emergency plan commitments and procedures. The inspectors also observed a weekly test of the ANS system. Documents reviewed are listed in the Attachment to this report.

This ANS evaluation inspection constituted one sample as defined in IP 71114.02-06.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with plant EP staff the emergency plan commitments and procedures for emergency response organization (ERO) on-shift and augmentation staffing levels. A sample of the approximately 12 ERO training records and personnel assigned to key and support positions were reviewed to determine the status of their training as it related to their assigned ERO positions. The inspectors reviewed the ERO augmentation system and activation process; the primary and alternate methods of initiating ERO activation; unannounced off-hour augmentation tests from August 2011 through August 2013; and the provisions for maintaining the plant's ERO roster.

The inspectors reviewed a sample of corrective actions related to the facility's ERO staffing and augmentation system program and activities from August 2011 through August 2013 to determine whether corrective actions were completed in accordance with the site's CAP. Documents reviewed are listed in the Attachment to this report.

This ERO staffing and augmentation system inspection constituted one sample as defined in IP 71114.03-06.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (71114.05)

a. Inspection Scope

The inspectors reviewed a sample of nuclear oversight staff's audits of the EP program to determine whether these independent assessments met the requirements of 10 CFR 50.54(t). The inspectors also reviewed critique reports and samples of CAP

records associated with the 2012 biennial exercise, as well as various EP drills conducted, in order to determine that the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities.

The inspectors reviewed a sample of EP items and corrective actions related to the facility's EP program and activities from August 2011 through August 2013 to determine whether corrective actions were completed in accordance with the site's CAP. Documents reviewed are listed in the Attachment to this report.

This correction of EP weaknesses and deficiencies inspection constituted one sample as defined in IP 71114.05-06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

This inspection constituted a partial sample as defined in IP 71124.01-05.

.1 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors selected the following radiologically risk-significant work activity that involved exposure to radiation:

- liberation of three stuck fuel assemblies in spent fuel pool.

For this work activity, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the Radiological Survey Program to determine if hazards were properly identified, including the following:

- identification of hot particles;
- the presence of alpha emitters;
- the potential for airborne radioactive materials, including the potential presence of transuranics and/or other hard-to-detect radioactive materials (This evaluation may include licensee planned entry into non-routinely entered areas subject to previous contamination from failed fuel);
- the hazards associated with work activities that could suddenly and severely increase radiological conditions and that the licensee has established a means to inform workers of changes that could significantly impact their occupational dose; and
- severe radiation field dose gradients that can result in non-uniform exposures of the body.

The inspectors observed work in potential airborne areas and evaluated whether the air samples were representative of the breathing air zone. The inspectors evaluated

whether continuous air monitors were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated the licensee's program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance (Green) and associated NCV of TS 5.4.1 for the failure to perform air sampling as required by station procedure EN-RP-122, "Alpha Monitoring."

Description: The inspectors identified an issue of concern in that the licensee did not perform effective monitoring of airborne contamination in an "Alpha Level 3" area where the relative abundance of alpha emitters is likely to exceed 90 percent of the total internal dose.

The collection and analysis of air samples provide assurance that the prescribed contamination controls were effective. Additionally, when air samples are collected within the breathing zone, approximately 1 foot from the worker's face, the analytical results provide an estimate of the intake of radioactive material by the worker. Nuclear power plants have supplemental methods, such as personal contamination monitors and portal monitors, to assess whether the prescribed contamination controls were effective. However, these monitors are typically sensitive to beta-gamma radiation and are not always effective for areas where the relative abundance of alpha contamination is high when compared to the beta-gamma emitters. Consequently, the licensee has developed a graded approach to provide additional measures as the ratio of alpha emitter contamination increase, specifically:

- Alpha Level 1 – low alpha contamination where the internal exposure from alpha emitters is not likely to exceed 10 percent of the total internal exposure.
- Alpha Level 2 – medium alpha contamination where the internal exposure from alpha emitters is likely to exceed more than 10 percent of the total internal exposure; and
- Alpha Level 3 – high alpha contamination where the internal exposure from alpha emitters is likely to exceed 90 percent of the total internal exposure.

In April 2013, the licensee started a project to remove three spent fuel bundles that were stuck in the racks of the spent fuel pool. On May 2, 2013, the special tool used to perform this activity was removed from the pool and the radiation protection technician identified that the relative abundance of alpha contamination was elevated as compared to the beta-gamma emitter on the bottom of the tool. The radiation protection technician determined that this ratio for alpha contamination was 12:1 compared to beta-gamma emitters and applied the appropriate "Alpha Level 3" controls to the localized area until the tool was returned to the spent fuel pool on May 3, 2013. However, the tool had to be removed from the spent fuel pool at the end of each work day. On May 3, 2013, the appropriate monitoring techniques were not in place when the tool was removed from the spent fuel pool. Specifically, the inspectors identified the worker handling and controlling the bottom of the tool, controlled as a localized Alpha Level 3 area, was not wearing a lapel type air sampler nor was there any other type of air sample collected in the worker's breathing zone. These are conditions that are explicitly directed in

Attachment 9.7, "Alpha Level 3 Work Controls," in procedure EN-RP-122, "Alpha Monitoring."

The inspectors noted that in 2012, the licensee also failed to complete some of the actions required for workers in Alpha Level 3 areas and the licensee expended significant effort to recover from that failure including training radiation protection technicians on the requirements when controlling work in Alpha Level 3 areas.

Analysis: The inspectors determined that the issue of concern was a performance deficiency because the licensee did not perform air sampling as required by station procedure EN-RP-122, "Alpha Monitoring." The inspectors determined that the cause of the performance deficiency was reasonably within the licensee's ability to foresee and correct, and should have been prevented.

The finding was not subject to traditional enforcement since the incidents did not have a significant safety consequence, did not impact the NRC's ability to perform its regulatory function, and was not willful.

The performance deficiency was determined to be of more than minor safety significance in accordance with IMC 0612 Appendix B, "Issue Screening," issued on September 7, 2012, because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, not monitoring the worker intake in an Alpha Level 3 area affected the licensee's ability to assess workers internal exposures in a timely manner, and adversely impacted the licensee's ability to monitor, control, and limit radiation exposures (i.e., committed effective dose equivalent or internal dose). The inspectors also reviewed the guidance in IMC 0612 Appendix E, "Examples of Minor Issues," issued on August 11, 2009, and did not find any similar examples.

In accordance with IMC 0609 Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined that the finding had very low safety significance (Green) because the finding did not involve: (1) ALARA planning and controls; (2) a radiological overexposure; (3) a substantial potential for an overexposure; and (4) a compromised ability to assess dose.

The inspectors determined that the training provided to the radiation protection technician on the requirements when controlling work in Alpha Level 3 areas were not effective to ensure compliance with EN-RP-122, "Alpha Monitoring." Consequently, this finding had a cross-cutting aspect in the area of problem identification and resolution – corrective action program. Specifically, the licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. [P.1(d)].

Enforcement: Technical Specification 5.4.1 states, in part, written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, Section 7.e.3 recommends procedures for airborne radioactivity monitoring. Contrary to the above, on May 3, 2013, licensee procedure EN-RP-122, "Alpha Monitoring," was not implemented to perform air sampling in an Alpha Level 3 area. Corrective actions included performance management of the radiation protection technician. In addition, the licensee implemented direct radiation

protection supervisor oversight of the work activity. Since this finding and violation was of very low-safety significance and has been entered in the licensee's CAP as CR-PLP-2013-02054 this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000255/2013004-01; Failure to Monitor in Alpha 3 Area).

.2 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors reviewed the following radiation work permit (RWP) used to access high radiation areas and evaluated the specified work control instructions or control barriers:

- RWP 20130263; Re-rack the Spent Fuel Pool and Liberate Three (3) Stuck Fuel Assemblies; Revision 1

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

b. Findings

No findings were identified.

.3 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions (e.g., radiation levels or potential radiation levels) during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, RWPs, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. The inspectors evaluated the licensee's use of electronic personal dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

The inspectors reviewed the following RWP for work within airborne radioactivity areas with the potential for individual worker internal exposures:

- RWP 20130263, "Re-rack the Spent Fuel Pool and Liberate Three Stuck Fuel Assemblies," Revision 1

For this RWP, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels (e.g., grinding, grit blasting, system breaches, entry into tanks, cubicles, and reactor cavities). The inspectors assessed

barrier (e.g., tent or glove box) integrity and temporary high-efficiency particulate air ventilation system operation.

b. Findings

No findings were identified.

.4 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance with respect to stated radiation protection work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the radiation work permit controls/limits in place, and whether their performance reflected the level of radiological hazards present.

b. Findings

No findings were identified.

.5 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors observed the performance of the radiation protection technicians with respect to all radiation protection work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the radiation work permit controls/limits, and whether their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

The inspection activities supplement those documented in NRC IR 05000255/2012003 and constitute one complete sample as defined in IP 71124.03-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant UFSAR to identify areas of the plant designed as potential airborne radiation areas and any associated ventilation systems or airborne monitoring instrumentation. Instrumentation review included continuous air monitors (continuous air monitors and particulate-iodine-noble-gas-type instruments) used to identify changing airborne radiological conditions such that actions to prevent an over-exposure may be taken. The review included an overview of the respiratory protection program and a description of the types of devices used. The inspectors reviewed UFSAR, TSs, and emergency planning documents to identify location and quantity of respiratory protection devices stored for emergency use.

The inspectors reviewed the licensee's procedures for maintenance, inspection, and use of respiratory protection equipment, including self-contained breathing apparatus, as well as procedures for air quality maintenance.

The inspectors reviewed reported performance indicators to identify any related to unintended dose resulting from intakes of radioactive material.

b. Findings

No findings were identified.

.2 Engineering Controls (02.02)

a. Inspection Scope

The inspectors reviewed the licensee's use of permanent and temporary ventilation to determine whether the licensee uses ventilation systems as part of its engineering controls (e.g., in lieu of respiratory protection devices) to control airborne radioactivity. The inspectors reviewed procedural guidance for use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation, and assessed whether the systems are used, to the extent practicable, during high-risk activities (e.g., using containment purge during cavity flood-up).

The inspectors selected installed ventilation systems used to mitigate the potential for airborne radioactivity, and evaluated whether the ventilation airflow capacity, flow path (including the alignment of the suction and discharges), and filter/charcoal unit efficiencies, as appropriate, were consistent with maintaining concentrations of airborne radioactivity in work areas below the concentrations of an airborne area to the extent practicable.

The inspectors selected temporary ventilation system setups (e.g. high-efficiency particulate air/charcoal negative pressure units, down draft tables, tents, metal "Kelly" buildings, and other enclosures) used to support work in contaminated areas. The inspectors assessed whether the use of these systems is consistent with licensee procedural guidance and ALARA concept.

b. Findings

No findings were identified.

.3 Use of Respiratory Protection Devices (02.03)

a. Inspection Scope

For those situations where it is impractical to employ engineering controls to minimize airborne radioactivity, the inspectors assessed whether the licensee provided respiratory protective devices such that occupational doses are ALARA. The inspectors selected work activities where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether the licensee performed an evaluation concluding that further engineering controls were not practical and that the use of respirators is ALARA. The inspectors also evaluated whether the licensee established means (e.g., as routine bioassay) to determine whether the level of protection (i.e.,

protection factor) provided by the respiratory protection devices during use was at least as good as that assumed in the licensee's work controls and dose assessment.

The inspectors assessed whether respiratory protection devices used to limit the intake of radioactive materials were certified by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration or have been approved by the NRC per 10 CFR 20.1703(b). The inspectors selected work activities where respiratory protection devices were used. The inspectors evaluated whether the devices were used consistent with their National Institute for Occupational Safety and Health/Mine Safety and Health Administration certification or any conditions of their NRC approval.

The inspectors reviewed records of air testing for supplied-air devices and self-contained breathing apparatus bottles to assess whether the air used in these devices meets or exceeds Grade D quality. The inspectors reviewed plant breathing air supply systems to determine whether they meet the minimum pressure and airflow requirements for the devices in use.

The inspectors selected several individuals qualified to use respiratory protection devices and assessed whether they have been deemed fit to use the devices by a physician.

The inspectors chose multiple respiratory protection devices staged and ready for use in the plant or stocked for issuance for use. The inspectors assessed the physical condition of the device components (i.e., mask or hood, harnesses, air lines, regulators, air bottles, etc.) and reviewed records of routine inspection for each. The inspectors selected several of the devices and reviewed records of maintenance on the vital components (e.g., pressure regulators, inhalation/exhalation valves, hose couplings, etc.). The inspectors reviewed the respirator vital components maintenance program to ensure that the repairs of vital components were performed by the respirators' manufacturer.

b. Findings

No findings were identified.

.4 Self-Contained Breathing Apparatus for Emergency Use (02.04)

a. Inspection Scope

Based on the UFSAR, TSs, and emergency operating procedure requirements, the inspectors reviewed the status and surveillance records of self-contained breathing apparatuses staged in-plant for use during emergencies. The inspectors reviewed the licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions.

The inspectors selected several individuals on control room shift crews and from designated departments currently assigned emergency duties (e.g., onsite search and rescue duties) to assess whether control room operators and other emergency response and radiation protection personnel (assigned in-plant search and rescue duties or as required by emergency operating procedures or the emergency plan) were trained and qualified in the use of self-contained breathing apparatuses (including personal bottle

change-out). The inspectors evaluated whether personnel assigned to refill bottles were trained and qualified for that task.

The inspectors determined whether appropriate mask sizes and types are available for use (i.e., in-field mask size and type match what was used in fit-testing). The inspectors determined whether on-shift operators had no facial hair that would interfere with the sealing of the mask to the face and whether vision correction (e.g., glasses inserts or corrected lenses) were available as appropriate.

The inspectors reviewed the past two years of maintenance records for select self-contained breathing apparatus units used to support operator activities during accident conditions and designated as "ready for service" to assess whether any maintenance or repairs on any self-contained breathing apparatus unit's vital components were performed by an individual, or individuals, certified by the manufacturer of the device to perform the work. The vital components typically are the pressure-demand air regulator and the low-pressure alarm. The inspectors reviewed the onsite maintenance procedures governing vital component work to determine any inconsistencies with the self-contained breathing apparatus manufacturer's recommended practices. For those self-contained breathing apparatuses designated as "ready for service," the inspectors determined whether the required, periodic air cylinder hydrostatic testing was documented and up to date, and the retest air cylinder markings required by the U.S. Department of Transportation were in place.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee CAP. The inspectors assessed whether the corrective actions were appropriate for a selected sample of problems involving airborne radioactivity and were appropriately documented by the licensee.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

The inspection activities supplement those documented in NRC IR 05000255/2013002 and constitute one complete sample as defined in IP 71124.04-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the results of radiation protection program audits related to internal and external dosimetry (e.g., licensee's quality assurance audits,

self-assessments, or other independent audits) to gain insights into overall licensee performance in the area of dose assessment and focus the inspection activities consistent with the principle of “smart sampling.”

The inspectors reviewed the most recent national voluntary laboratory accreditation program accreditation report on the vendor’s most recent results to determine the status of the contractor’s accreditation.

A review was conducted of the licensee’s procedures associated with dosimetry operations, including issuance/use of external dosimetry (i.e., routine, multi-badging, extremity, neutron, etc.), assessment of internal dose (e.g., operation of whole body counter, assignment of dose based on derived air concentration-hours, urinalysis, etc.), and evaluation of and dose assessment for radiological incidents (distributed contamination, hot particles, loss of dosimetry, etc.).

The inspectors evaluated whether the licensee had established procedural requirements for determining when external and internal dosimetry is required.

b. Findings

No findings were identified.

.2 External Dosimetry (02.02)

a. Inspection Scope

The inspectors evaluated the onsite storage of dosimeters before their issuance, during use, and before processing/reading. The inspectors also reviewed the guidance provided to rad-workers with respect to care and storage of dosimeters.

The licensee does not use non-national voluntary laboratory accreditation program accredited passive dosimeters.

The inspectors assessed the use of active dosimeters (i.e., electronic personal dosimeters) to determine if the licensee uses a “correction factor” to address the response of the electronic personal dosimeter as compared to the passive dosimeter for situations when the electronic personal dosimeter must be used to assign dose. The inspectors also assessed whether the correction factor is based on sound technical principles.

The inspectors reviewed dosimetry occurrence reports or corrective action program documents for adverse trends related to electronic personal dosimeters, such as interference from electromagnetic frequency, dropping or bumping, failure to hear alarms, etc. The inspectors assessed whether the licensee identified any trends and implemented appropriate corrective actions.

b. Findings

No findings were identified.

.3 Internal Dosimetry (02.03)

Special Bioassay (In-Vitro)

a. Inspection Scope

The inspectors selected internal dose assessments obtained using in-vitro monitoring. The inspectors reviewed and assessed the adequacy of the licensee's program for in-vitro monitoring (i.e., urinalysis and fecal analysis) of radionuclides (e.g., tritium, fission products, and activation products), including collection and storage of samples.

The inspectors reviewed the vendor's laboratory quality assurance program and assessed whether the laboratory participated in an industry recognized cross-check program including whether out-of-tolerance results were resolved appropriately.

b. Findings

No findings were identified.

.4 Special Dosimetric Situations (02.04)

Declared Pregnant Workers

a. Inspection Scope

The inspectors assessed whether the licensee informs workers, as appropriate, of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

The inspectors selected individuals who had declared pregnancy during the current assessment period and evaluated whether the licensee's radiological monitoring program (internal and external) for declared pregnant workers is technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls employed by the licensee and with respect to the requirements of 10 CFR Part 20.

b. Findings

No findings were identified.

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

a. Inspection Scope

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

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

b. Findings

No findings were identified.

Shallow Dose Equivalent

a. Inspection Scope

The inspectors reviewed shallow dose equivalent dose assessments for adequacy. The inspectors evaluated the licensee's method (e.g., VARSKIN or similar code) for calculating shallow dose equivalent from distributed skin contamination or discrete radioactive particles.

b. Findings

No findings were identified.

Neutron Dose Assessment

a. Inspection Scope

The inspectors evaluated the licensee's Neutron Dosimetry Program, including dosimeter types and/or survey instrumentation.

The inspectors reviewed neutron exposure situations (e.g., independent spent fuel storage installation operations or at-power containment entries) and assessed whether; (a) dosimetry and/or instrumentation was appropriate for the expected neutron spectra; (b) there was sufficient sensitivity for low dose and/or dose rate measurement; and (c) neutron dosimetry was properly calibrated. The inspectors also assessed whether interference by gamma radiation was accounted for in the calibration and whether time and motion evaluations were representative of actual neutron exposure events, as applicable.

b. Findings

No findings were identified.

Assigning Dose of Record

a. Inspection Scope

For the special dosimetric situations reviewed in this section, the inspectors assessed how the licensee assigns dose of record for total effective dose equivalent, shallow dose equivalent, and lens dose equivalent. This included an assessment of external and internal monitoring results, supplementary information on Individual exposures (e.g., radiation incident investigation reports and skin contamination reports), and radiation surveys and/or air monitoring results when dosimetry was based on these techniques.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors assessed whether problems associated with occupational dose assessment are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the licensee CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving occupational dose assessment.

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 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator (PI) for the period from the third quarter of 2012 thru the second quarter of 2013. To determine the accuracy of the 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, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC integrated inspection reports for the period of the third quarter of 2012 thru the second quarter of 2013 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 safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index (MSPI) - high pressure injection systems PI for the period from the third quarter 2012 through the second quarter 2013. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 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 inspection reports for the period of the third quarter 2012 through the second quarter 2013 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 high pressure injection system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - residual heat removal system PI for the period from the third quarter 2012 through the second quarter 2013. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 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 Inspection Reports for the period of the third quarter 2012 through the second quarter 2013 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 residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Drill/Exercise Performance

a. Inspection Scope

The inspectors sampled licensee submittals for the drill/exercise performance PI for the period from the fourth quarter 2012 through the second quarter 2013. The inspectors used PI definitions and guidance contained in NEI 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 records and processes including procedural guidance on assessing opportunities for the PI; assessments of PI opportunities during pre-designated control room simulator training sessions, performance during the 2012 Biennial Exercise, and performance during other drills associated with the PI 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 Drill/Exercise Performance sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Emergency Response Organization Readiness

a. Inspection Scope

The inspectors sampled licensee submittals for the ERO readiness PI for the period from the fourth quarter 2012 through the second quarter 2013. The inspectors used PI definitions and guidance contained in NEI 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 records and processes including procedural guidance on assessing opportunities for the PI; performance during the 2012 Biennial Exercise and other drills; and revisions of the roster of personnel assigned to key ERO positions to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems were 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 ERO readiness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.6 Alert and Notification System Reliability

a. Inspection Scope

The inspectors sampled licensee submittals for the ANS reliability PI for the period from the fourth quarter 2012 through second quarter 2013. The inspectors used PI definitions and guidance contained in NEI 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 records and processes including procedural guidance on assessing opportunities for the PI and results of periodic ANS operability tests to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine whether 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 ANS reliability 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 significant conditions adverse to quality. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Annual Sample Review: Age-Related Issues

a. Inspection Scope

The inspectors assessed the effectiveness of the licensee's CAP in addressing potential age-related issues. This inspection was conducted as part of the deviation from the Reactor Oversight Process Action Matrix to increase regulatory oversight at the Palisades Nuclear Plant for calendar year 2013. This assessment consisted of interviews and reviews of condition reports and operating experience evaluations related to potential age-related issues, procedures, maintenance documents, etc. In addition, the inspectors conducted walkdowns to assess the physical and environmental conditions of selected components installed in the station and spare parts stored in the warehouse.

The inspection does not constitute a completed sample due to inspection activity continuing into the fourth quarter.

b. Findings

No findings were identified.

.4 Selected Issue for Follow-up Inspection: Status of Corrective Actions for Items Open at the Close of Supplemental Inspection per Action Matrix Deviation (described in ML12306A367, Memorandum to R. W. Borchardt, Executive Director of Operations)

a. Inspection Scope

The inspectors reviewed selected condition reports related to previously documented findings to verify that corrective actions effectively addressed the identified issues and that the corrective actions were implemented in a timely manner commensurate with their safety significance. Specifically, the inspectors assessed corrective actions that

had not yet been implemented when the NRC completed a supplemental inspection pursuant to IP 95002, "Inspection for One Degraded Cornerstone or Any Three White Performance Inputs in a Strategic Performance Area," which was completed on September 28, 2012, and documented in NRC IR 05000255/2012011. The 95002 supplemental inspection was performed to follow up on a Yellow finding with substantial safety significance, which occurred on September 25, 2011, for the failure to have adequate work instructions for work performed on panel ED-11-2; and, a White finding with low-to-moderate safety significance, which occurred on August 9, 2011, for the failure to prevent recurrence of a significant condition adverse to quality. The inspectors also reviewed selected condition reports pertaining to the Palisade's recovery plans to evaluate the effectiveness and timeliness of corrective actions. Overall, the corrective actions reviewed were appropriately focused to correct the identified issues and were implemented in a timely manner commensurate with the issue's safety significance. This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Findings

No findings were identified.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Radiological Impact of the Safety Water Refueling Tank Leak

a. Inspection Scope

On May 5, 2013, the licensee notified the NRC that a plant shutdown was commenced due to water leakage from the SIRWT exceeding the operational decision making issue process trigger point of 34 gallons per day. About 80 gallons of this low radioactivity water spread onto the roof and down drains that empty into Lake Michigan before the leakage was collected and measured by the licensee. The inspectors reviewed the exposure pathways, sample analysis, and the resultant licensee dose calculations to members of the public. The inspectors determined that this abnormal release did not exceed regulatory requirements. Additionally, the inspectors independently collected samples from the beach at the outfall of a storm drain connected to the roof drain. The results of the NRC sampling, analytical documents reviewed, and an assessment of licensee sample results taken at the same time, are described in publically available documents in the ADAMS system under ML13218A402 and ML13242A159.

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

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000255/2013-001-00: Technical Specification Required Shutdown Due to a Component Cooling Water System Leak

On January 30, 2013, plant operators noted a slowly lowering trend in CCW expansion tank level, indicating a potential leak in the system. While licensee personnel investigated the leak location, the leak rate slowly increased and on February 14, 2013, reached approximately 40 gallons per hour. Licensee personnel then confirmed that the

leak was in the 'A' CCW heat exchanger, one of two in the system. The heat exchangers transfer heat from the CCW system loads to the service water system (Lake Michigan). Per TSs, the licensee shut the plant down on February 15, 2013, to fix the leak. The licensee determined the majority of leakage was from a single tube located near the center of the tube bundle and that tube was subsequently plugged. Several minor leaks were also discovered on previously plugged tubes. Those tubes were re-plugged. On February 21, 2013, the plant was restarted after repairs and testing were complete. One finding associated with the plant's heat exchanger testing program and one associated with work done on the 'A' CCW heat exchanger during the forced outage are documented in NRC IR 05000255/2013002. The inspectors reviewed the LER and did not identify any additional findings or violations of NRC requirements. Documents reviewed as part of this inspection are listed in the Attachment to this report. This LER is closed.

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

.3 (Closed) Licensee Event Report (LER) 05000255/2013-002-00: Technical Specification Required Shutdown Due to Safety Injection/Refueling Water Tank Leak

On May 5, 2013, the plant was shut down due to leakage from the SIRWT exceeding the established limits allowed for leakage. Subsequent investigation revealed a 3/16 inch crack in a nozzle reinforcing collar to floor plate weld inside the tank. NRC inspectors assessed the cause of the failure and corrective actions taken. A finding associated with the failure was documented in NRC IR 05000255/2013003. The licensee modified some nozzle configurations and replaced a majority of the tank bottom. The plant was restarted on June 16, 2013, after repairs were complete. The inspectors reviewed the LER and did not identify any additional findings or violations of NRC requirements. Documents reviewed as part of this inspection are listed in the Attachment to this report. This LER is closed.

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

40A6 Management Meetings

.1 Exit Meeting Summary

On October 11, 2013, the inspectors presented the inspection results to Mr. A. 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

The following interim exits were conducted:

- an update on inspection activities associated with active component aging were discussed with Mr. C. Arnone on September 13, 2013;
- the results of the emergency preparedness program inspection were discussed with Mr. A. Vitale on September 12, 2013; and

- the inspection results for the areas of radiological hazard assessment and exposure controls; in-plant airborne radioactivity control and mitigation; and occupational dose assessment were discussed with Mr. A. Vitale on July 18, 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

A. Vitale, Site Vice President
D. Corbin, Operations Manager
B. Dotson, Licensing Specialist
C. Arnone, NSA Director
L. Engelke, Engineering Supervisor
D. Foster, RETS-REMP Specialist
J. Fontaine, Emergency Planner
T. Fouty, Engineering Supervisor
L. Green, Radiation Protection Supervisor
G. Heisterman, Maintenance Manager
D. Malone, Emergency Preparedness Manager
J. Miksa, Licensing Engineer
T. Mulford, Assistant Operations Manager
K. O'Connor, Design Engineering Manager
C. Plachta, NOS Manager
J. Ridley, Emergency Planner
P. Schmidt, Training Superintendent
C. Sherman, Radiation Protection Manager
D. Watkins, Radiation Protection Manager
T. Williams, General Manager Plant Operations

Nuclear Regulatory Commission

Jamie Benjamin, Acting Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000255/2013004-01 NCV Failure to Monitor in Alpha 3 Area (2RS1)

Closed

05000255/2013004-01 NCV Failure to Monitor in Alpha 3 Area (2RS1)

05000255/2013-001-00 LER Technical Specification Required Shutdown Due to a
Component Cooling Water (CCW) System Leak (4OA3.2)

05000255/2013-002-00 LER Technical Specification Required Shutdown Due to Safety
Injection/Refueling Water Tank Leak (4OA3.3)

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.

1R04 Equipment Alignment

- CR-PLP-2013-01363, C-2C First Stage Discharge Temperature Above eSOMS Limit, March 28, 2013
- CR-PLP-2013-01899, While Swapping Instrument Air Compressors, C-2A Made a High Pitched Whining Whistle Noise, April 28, 2013
- CR-PLP-2013-03394, C-2C Failed to Start When Handswitch was Taken from Auto to Hand, August 6, 2013
- CR-PLP-2013-03491, P-55A, 'A' Charging Pump, Has Speed Oscillations, August 11, 2013
- CR-PLP-2013-03537, No specified Torque Values for Fasteners and Fittings for the Instrument Air Compressors Resulting in Oil and Air Leaks, August 14, 2013
- CR-PLP-2013-03753, C-2C First Stage Discharge Temperature Above eSOMS Limit, August 26, 2013
- CR-PLP-2013-03757, C-2C Instrument Air Compressor Unload Time Outside of eSOMS Band, August 26, 2013
- Design Basis Document 1.04, Chemical and Volume Control System, Revision 6
- Design Basis Document 1.05, Compressed Air Systems, Revision 5
- EOP Supplement 25, Align Feedwater Purity Building Air to Plant Instrument Air Header, Revision 8
- FPIP-4, Fire Protection Implementing Procedure: Fire Protections Systems and Fire Protection Equipment, Revision 31
- FPSP-MO-1, Fire Suppression Water System Valve Alignment, Revision 16
- M-202, P&ID Chemical and Volume Control System, Sheet 1, Revision 73
- M-202, P&ID Chemical and Volume Control System, Sheet 1A, Revision 63
- M-202, P&ID Chemical and Volume Control System, Sheet 1B, Revision 56
- M-203, P&ID Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet 2, Revision 25
- M-204, P&ID Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet 1A, Revision 42
- M-204, P&ID Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet 1, Revision 84
- M-204, System Diagram for Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet A, Revision 8
- M-212, P&ID Instrument Air Walkdown, Sheet 3, Revision 36
- M-212, P&ID Service and Instrument Air System, Sheet 1, Revision 82
- M-212, P&ID Service and Instrument Air System, Sheet 2, Revision 50
- M-216, P&ID Fire Protection System, Sheet 1, Revision 46
- M-216, P&ID Fire Protection System, Sheet 2, Revision 66
- ONP-7.1, Loss of Instrument Air, Revision 13
- SOP-19, Instrument Air System, Revision 59
- SOP-21, Fire Protection System, Revision 26
- SOP-2A, Chemical and Volume Control System, Revision 77
- SOP-2B, Attachment 2, Checklist 2.1, CVC System Checklist, Revision 43

- SOP-3, Safety Injection and Shutdown Cooling System, Revision 92

1R05 Fire Protection

- CR-PLP-2013-03358, Work Order 297469 Required an Augmented Quality Pipe that was not Procured as AQ, August 2, 2013
- CR-PLP-2013-03361, Upon Excavation to Replace MV-FP-116, Turbine Building FPS Header Isolation Valves, the Pipe was Found Deeper than Originally Expected, August 2, 2013
- CR-PLP-2013-03622, Self-Contained Breathing Apparatus Used By Control Room Staff Should have Voice Amplifiers, August 19, 2013
- Fire Hazards Analysis, Revision 7
- FPIP-4, Attachment 3, Fire Hose Station Locations, Revision 31
- FPIP-4, Fire Protection Systems and Fire Protection Equipment, Revision 31
- FPSP-SO-4, Fire Suppression Water System Post Indicator Valve Operation, Revision 4
- M-216, P&ID Fire Protection System, Sheet 2, Revision 66
- ONP-12, Act of Nature, Revision 30
- ONP-25.1, Fire Which Threatens Safety-Related Equipment, Revision 21
- Pre-Fire Plan for Boric Acid Equipment Rooms / Elev. 590', Fire Area 13F
- Pre-Fire Plan for Condensate Pump Pit / Elev. 570', Fire Area 23
- Pre-Fire Plan for Spent Fuel Pool Heat Exchanger Room / Elev. 590', Fire Area 13G
- Pre-Fire Plan for Turbine Building General Areas / Elev. 590', Fire Area 23
- Simulator Training Guide, STG PLSEG-OPS-FIRE, Transformer Fire, Revision 0
- Pre-Fire Plan for Component Cooling Water Room / Fire Area 16 / Elev. 590', 611', and 625'

1R11 Licensed Operator Regualification Program

- Emergency Action Level Technical Bases, Revision 6
- EOP-1, Standard Post-Trip Actions, Revision 13
- EOP-6, Excess Steam Demand Event, Revision 18
- FSAR Section 5.4, Design of Structures, Systems, and Components, Revision 24
- ONP-12, Acts of Nature, Revision 30
- ONP-3, Main Feedwater Transients, Revision 28
- ONP-9, Excessive Load, Revision 8
- Simulator Exam Scenario 11, Revision 2

1R12 Maintenance Effectiveness

- CR-PLP-2006-0556, Maintenance Rule a(1) action plan for AFAS Power Supplies
- CR-PLP-2010-02551, Unexpected Alarms Associated with AFAS, June 27, 2010
- CR-PLP-2010-03809, AFAS Power Supply Failure, June 27, 2010
- CR-PLP-2011-00858, As-found Timing of Relay for P-8C High out of Band, February 22, 2011
- CR-PLP-2011-02348, P-8A Start Time Slow, May 10, 2011
- CR-PLP-2011-02380, Steam Traps not Discharging Condensate, May 12, 2011
- CR-PLP-2011-05991, Power Available Light Not Lit and Fan Would Not Start for V-24A during PMT, November 8, 2011
- CR-PLP-2011-05999, Address Operability of 1-1 DG Due to V-24A Being Declared Not-functional, November 8, 2011
- CR-PLP-2012-00106, V-24B was Cycling per the Temperature While in STANDBY, January 6, 2012
- CR-PLP-2012-04796, Green Light Indication will not Illuminate for V-24C, July 1, 2012
- CR-PLP-2012-05801, V-24C with not Start in AUTO or When Handswitch is Taken to HAND, August 20, 2012

- CR-PLP-2012-05930, Received AFAS and Low Steam Generator Water Level Alarms, December 5, 2012
- CR-PLP-2013-00444, Diesel Generator Room HVAC System is Near Maintenance Rule (a)(1) Status, January 31, 2013
- CR-PLP-2013-00926, Received AFAS Alarms During RIA-1808 Work, March 1, 2013
- CR-PLP-2013-01835, As-found AFW Flow Low Out of Tolerance, April 24, 2013
- CR-PLP-2013-02534, Portions of TDAFW Pump Carbon Seal Rings Fused to Gland Casing, June 6, 2013
- CR-PLP-2013-02765, V-24C Never Started During Monthly Diesel Surveillance Test, June 24, 2013
- CR-PLP-2013-02766, Address Operability of 1-2 DG Due to V-24C Being Declared Non-functional, June 24, 2013
- CR-PLP-2013-02780, Evaluate the Timeliness of Troubleshooting and Returning to Service V-24C, June 25, 2013
- CR-PLP-2013-02980, V-24C Not Running with Handswitch in AUTO, July 9, 2013
- CR-PLP-2013-02981, Address Operability of 1-2 DG Due to V-24C Being Declared Non-functional, July 9, 2013
- CR-PLP-2013-02982, AFAS Alarms Unexpectedly, July 9, 2013
- CR-PLP-2013-03063, Unexpected AFAS alarm, July 15, 2013
- CR-PLP-2013-03146, Emergency Diesel Generator Ventilation System has Exceeded Its Maintenance Rule Criterion for Functional Failures, July 19, 2013
- CR-PLP-2013-03524, EDG Vent Fans Equipment Classification, August 13, 2013
- CR-PLP-2013-03590, V-24A Diesel Generator Room Supply Fan Control Switch in AUTO but Did Not Start Properly When Temperature was Reached, August 15, 2013
- CR-PLP-2013-03907, New Maintenance Rule Functional Failure Identified for Diesel Generator Room Fan Ventilation System, September 3, 2013
- Design Basis Document 1.07, Auxiliary Building HVAC Systems, Revision 5
- EN-DC-150, Condition Monitoring of Maintenance Rule Structures, Revision 5
- EN-DC-153, Preventative Maintenance Component Classification, Revision 6
- EN-DC-205, Maintenance Rule Monitoring, Revision 4
- EN-DC-206, Maintenance Rule (a)(1) Process, Revision 2
- Engineering Report PLP-RPT-12-00026, Maintenance Rule Scoping Document, Revision 0
- SPS-E-11, 480 Volt Breaker Inspection and Repair, Revision 24
- Work Order #355011, V-24C Thermal Overloads Reset, Perform Additional Checks, July 10, 2013

1R13 Maintenance Risk Assessments and Emergent Work Control

- EN-HU-106, Procedure and Work Instruction Use and Adherence, Revision 2
- EN-WM-104, On Line Risk Assessment, Revision 7
- EN-WM-107, Post Maintenance Testing, Revision 4
- ES-IS-123, Electrical Safety, Revision 9
- SPS-E-17, Temporary Installation and Removal of Spare Circuit Breakers, Revision 22
- WO 52326144, Remove Spare Breaker and Install Original 52-1112
- Admin 4.02, Control of Equipment, Revision 65

1R15 Operability Determinations

- CR-PLP-2013-02855, Test Start Results of P-18A in Response to Slow Prime-Time, June 28, 2013

- CR-PLP-2013-03902, Binding Discovered While Performing Lubrication on 2 of 18 Fuel Pumps for 1-1 Emergency Diesel Generator, September 3, 2013
- Design Basis Document 5.01, Diesel Engine and Auxiliary Systems, Revision 6
- EA-FC-958-04, Calculation to Size and Provide Instrumentation Levels for the Replacement of the Diesel Fuel Oil Tank T-10 with T-10A, Revision 3
- EA-SC-96-051-01, Calculation associated with self-priming ability of P-18A and P-18B
- M12, ALCO Instruction Manual, MI-11068C, "Fuel Injection Pump Removal, Installation, and Timing"
- Work Order 52495601, 1-1 Diesel Generator: Fuel Rack Lubrication, September 3, 2013
- Work Order 52496367, 1-2 Diesel Generator: Fuel Rack Lubrication, September 18, 2013

1R18 Plant Modifications

- CR-PLP-2012-04763, During Core Boring Activities in SIRW Tank, Water was Also Observed Dripping Inside of Panel C-12, June 29, 2012
- CR-PLP-2012-04885, During Core Boring Activities in T-58, SIRW Tank, Water was Observed Dripping in the Main Control Room in the Vicinity of C-12 Control Panel, July 5, 2012
- CR-PLP-2013-02489, Water Identified Dripping from the Ceiling Between Panels EC-02 and EC-12, June 4, 2013
- EC 39794, Installation of Separation/Isolation Seal Details Between SIRW Tank and the SIRW Tank Roof; and General Roofing Replacement for the SIRW Tank Roof, Revision 0
- EC 44773, SIRW Tank Roof Repair Including Removal of Retired-in-Place Equipment T-102 and T-103, Revision 0
- EC 45725, Waterproof East and West Catacomb Cell Floor Below SIRW Tank Nozzles, Revision 0
- Reply EC 41779, Engineering Input for Recoating the Catacomb Areas Below T-58, Revision 0
- Specification Field Change 81-063, Application of Protective Coating to Concrete Surface, October 20, 1983
- Specification Field Change 81-064, Add Moisture Barrier Between Crawl Space Under SIRW Tank and the North End of the Main Steam Penetration Room, October 11, 1983
- TMod No. EC 38633, Placement of Liners and Drip Pans to Collect and Control Water from the Safety Injection Refueling Water Tank to Prohibit Contact with the Primary System Control Panel C-12, Revision 0
- WI-A-PAL-01, Application of Non-Safety Related Coatings (Paint), Revision 10
- WO 320438, Grout/Coat T-58 Catacomb Area to Prevent Water Intrusion, June 21, 2013
- WO 354118, T-58; Investigate/Repair Water Bedding on SIRW Tank Roof, September 23, 2013
- WO 361704, T-58; Waterproof East and West Catacombs per EC 45725, September 23, 2013
- Work At-Risk No. 1, Removal of Retired-in-Place Equipment and Temporary Roof Installation for SIRW Tank Roof, Revision 0

1R19 Post Maintenance Testing

- CR-PLP-03026, Defective Power Supply Removed
- CR-PLP-2013-03012, RPS Matrix Ladder CD Power Light is Extinguished
- CR-PLP-2013-03025, Work Order Specified Wrong Power Supply to Remove
- CR-PLP-2013-03517, Temperature Indicator for Condensing Unit VC-11 Service Water Temperature was Reading Lower than Expected, August 13, 2013
- CR-PLP-2013-03549, CV-1655, VC-11 Service Water Control Valve, Packing Gland Found Severely Pitted and Eroded, August 14, 2013

- CR-PLP-2013-03557, VC-11 Cooler Inspection of Opportunity of Service Water Piping Identified Corrosion in Inlet and Outlet Flanges, August 14, 2013
- CR-PLP-2013-03568, During Performance of Leak Checks on VC-11 a Minor Freon Leak was Identified After Pressurization, August 14, 2013
- CR-PLP-2013-03613, D-5, Discharge Damper for V-26A, Did Not Position Correctly, August 17, 2013
- CR-PLP-2013-03895, MV-SW270, SW to Instrument Air Compressor C-2C, is Not Isolating Flow When Fully Closed, September 3, 2013
- CR-PLP-2013-03905, While Performing 6 Month PM on C-2C Discovered Rubber Coupling Between Motor and Air End is Degraded, September 3, 2013
- CR-PLP-2013-03953, C-2C Annual PM to Perform Main Motor Overload Relay Test Could Not be Completed as Written, September 5, 2013
- CR-PLP-2013-03955, C-2C Instrument Air Compressor Relief Valve (RV-1244) is Leaking, September 5, 2013
- CR-PLP-2013-04008, While Testing Main Motor Overload Relay, Did Not Receive Anticipated Control Room Alarm, September 11, 2013
- CR-PLP-2013-04150, P-41, Diesel Fire Pump, Oil Sump Level is High with Strong Fuel Oil Odor Present, September 20, 2013
- FPSP-RM-4, Inspection and Preventive Maintenance of Fire Pump Diesel K-10, Revision 11
- MO-7B, Fire Water Pumps P-9A, P-9B, and P-41, Revision 36
- Work Order 00356695-01, RPS Logic Matrix CD Power Supply Replacement, July 11, 2013
- Work Order 362870, P-41, Diesel Fire Pump, Has Fuel In Oil Sump, September 24, 2013
- Work Order 52246086, CV-1655 Inspect Valve and Replace Diaphragm PM, August 14, 2013
- Work Order 52282759, VC-11 Control Room HVAC Refrigeration Condensing Unit, August 14, 2013
- Work Order 52442709, C-2C Annual Plant Air Compressor PM, September 3-5, 2013
- Work Order 52495594, C-2C 6 Month PM for Heat Exchangers and Filters, September 3-5, 2013
- CR-PLP-2013-04327, NRC Asked About Flow Reference in RT-85D Versus Technical Specifications, October 3, 2013
- CR-PLP-2013-04152, Unusable test results for section 5.7 of RT-85D, September 20, 2013
- RT-85D, Control Room Emergency Ventilation Filtration Testing, Revision 15 and 16
- WO 52371218, VFH-26B, HEPA Filter replacement

1R22 Surveillance Testing

- CR-PLP-2008-04477, Water Found in Dome Tendon D1-38 and V212 Grease During Containment Post-Tensioning System Surveillance, October 31, 2008
- CR-PLP-2009-05161, Vertical Tendon V16 Not Inspected Per Requirements of IWE/IWL Master Plan, November 9, 2009
- CR-PLP-2010-02532, Oily Substance Found at Base of Containment Exterior Northeast Corner, June 25, 2010
- CR-PLP-2013-03333, Large Corner of Concrete Found Broken Adjacent to Bearing Plate V182 on Top of Containment Building, August 1, 2013
- CR-PLP-2013-03335, Observed Water Squirting out of Grease Cap Bolt from Tendon D2-03, August 1, 2013
- CR-PLP-2013-03336, Level 4 Corrosion Found on Bearing Plate V334, August 1, 2013
- CR-PLP-2013-03380, Work Order to Repair Containment Tendon Grease Leakage was Closed to a Condition Report Without Documentation that the Work was Performed, August 5, 2013
- CR-PLP-2013-04226, Missing Buttonhead on V22, September 26, 2013

- FSAR Chapter 5, Section 5.8, Containment, Revision 30
- FT-2, Containment Building Post-Tension System, Revision 14
- QO-14, Technical Specification Surveillance Procedure: Inservice Test Procedure – Service Water Pumps, Revision 36
- QO-16, Technical Specification Surveillance Procedure: Inservice Test Procedure – Containment Spray Pumps, Revision 32
- REP-1087-510, Final Report for the 40th Year Tendon Surveillance at Palisades Nuclear Plant, Revision A
- RI-4B, Technical Specification Surveillance Procedure: Steam Generator Level Channel B Calibration, Revision 8
- RI-4D, Technical Specification Surveillance Procedure: Steam Generator Level Channel D Calibration, Revision 7
- SEP-CISI-PLP-001, Containment Structural Integrity Program Section, Revision 0
- QI-9, Reactor Protective Trip Units, Revision 16

1EP2 Alert and Notification System Evaluation

- CR-PLP-2013-01642, Annual Population Verification
- CR-PLP-2013-01643, Back-up Route Notification
- Documentation of PWS Monthly Tests, October 2011 through August 2013
- Federal Emergency Management Agency Letter, Provisions for Backup Alert and Notification (ANS) for the Palisades Nuclear Power Plant Emergency Planning Zone (EPZ), December 10, 2012
- Federal Emergency Management Agency Palisades Nuclear Plant Public ANS Approval Letter, December 20, 2002
- PAL PWS, Palisades Nuclear Plant Public Warning System Operating Procedure, Revision 21
- Palisades Nuclear Plant PWS Quarterly Inspections, October 2011 through August 2013
- Palisades Public Warning System Individual Siren Site Functionality Tests, November 13, 2002
- Palisades Public Warning System Replacement 2002 Audio Coverage Test Results, November 8, 2013
- REP-NAK-2002-HQ-A-04, Technical Review of the Palisades Nuclear Power Plant Conceptual Design of a Proposed Replacement Alert and Notification System, January 22, 2002
- REP-NAK-2002-HQ-A-04, Technical Review of the Palisades Nuclear Power Plant Replacement Primary Warning System (PWS) Final Design, December 19, 2002
- Selected Documentation of ANS Repair and Annual Preventative Maintenance, October 2011 through August 2013
- West Shore Services, Inc. Agreement for Inspection, Annual Preventative Maintenance and General Repairs Covering Federal 2001 AC/Dc Outdoor Warning Equipment, October 1, 2002
- West Shore Services, Inc. Letter, Subject: Public Warning System Compliance with FEMA-REP-10, October 7, 2001

1EP3 Emergency Response Organization Staffing and Augmentation System

- Current ERO Team Staffing, August 26, 2013
- EI-2.2, Emergency Staff Augmentation, Revision 15
- EI-4.1, Emergency Operations Facility Augmentation, Revision 26
- EI-4.1, Technical Support Center Augmentation, Revision 22
- EI-4.2, Operations Support Center Augmentation, Revision 23
- Emergency Response Organization Off-hours, Unannounced, Augmentation Response Test Records, August 2011 through August 2013

- Palisades Nuclear Station On-Shift Staffing Analysis Final Report, Revision 0

1EP5 Maintenance of Emergency Preparedness

- 2012 4th Quarter Drill Report
- 2012 EP Graded Exercise Report
- 2012 EP Practice Exercise Report
- 2013 1st Quarter Drill Report
- 2013 2nd Quarter Drill Report
- 2013 3rd Quarter Drill Report
- CR-PLP-2011-06927, Emergency Response Organization Qualification Maintenance
- CR-PLP-2012-02256, Lapsed ERO Qualifications by Several Personnel Across Departments
- CR-PLP-2012-07020, EP Drill, Incorrect Release Path
- CR-PLP-2012-07022, EP Drill, Incorrect Dose Assessment
- CR-PLP-2012-07028, EP Drill, ERO KI Issuance Training Deficiency
- CR-PLP-2012-07430, Failure of On-Duty ERO Team Member to Respond to Quarterly Augmentation Test
- CR-PLP-2012-07775, Radiation Monitor Indication Upgrade Invalidates Quick Dose Procedure
- CR-PLP-2012-07776, On-Shift Staffing Analysis Radiation Assessment Conflict
- CR-PLP-2012-07777, On-Shift Staffing Analysis Communicator Conflict
- CR-PLP-2013-00941, EP Drill, Dose Extension/ALARA Conflict Issue
- CR-PLP-2013-01928, JIC Effectiveness
- CR-PLP-2013-03701, EP Drill, ERO Phone Talker Inadequacy
- CR-PLP-2013-03707, EP Drill, Over Simulation Radiation Protection Performance
- CR-PLP-2013-03712, EP Drill, Chemistry Technician Skill Deficiency
- CR-PLP-2013-03714, EP Drill, Chemistry Technician Control Room Integration Issue
- CR-PLP-2013-03716, EP Drill, EOF Phone Talker Inadequacy
- CR-PLP-2013-03838, Third Quarter 2013 ERO Augmentation Test – Failure of EOF Van Buren County Liaison to Respond
- CR-PLP-2013-03840, Third Quarter 2013 ERO Augmentation Test – Failure of Radiation Protection Technician to Respond
- CR-PLP-2013-03944, 2012 ETE Not Incorporated into Emergency Plan
- CR-PLP-2013-04006, EAL Threshold Change Evaluation Insufficient Information
- EI-17, Compensating Measures for OOS EAL Equipment and Listing of Non-EAL Equipment Important for Emergency Preparedness, Revision 4
- Emergency Action Level Technical Basis, Revision 6
- EN-LI-102, Corrective Action Process, Revision 21
- LO-HQNLQ-2012-104, Snapshot Assessment on: Pre NRC/INPO Assessment, 2/1-30/2013
- LO-PLPLO-2010-00094, Snapshot Assessment on: 2011 NRC Emergency Planning Inspection Readiness, March 7–9, 2011
- LO-PLPLO-2010-00107, Snapshot Assessment on: Site Emergency Plan, June 11, 2010
- LO-PLPLO-2010-00201, Snapshot Assessment on: Performance Review and Effectiveness for the New EOF, October 22, 2011
- LO-PLPLO-2011-00148, Snapshot Assessment on: Pre- NRC EP Inspection, August 6, 2012
- LO-PLPLO-2011-00167, Snapshot Assessment on: Site Emergency Plan, December 1, 2012
- NOUE Event Summary of August 23, 2011
- NOUE Event Summary of September 16, 2011
- Palisades Nuclear Plant Site Emergency Plan, Revision 24
- QA-7-2013-PLP-01, Quality Assurance Audit Report – Emergency Planning, July 9, 2013
- QS-2012-PLP-012, Palisades Quality Assurance Surveillance Report – Emergency Planning, April 4, 2012

- QS-2012-PLP-013, Palisades Quality Assurance Surveillance Report – Emergency Planning, May 4, 2013

2RS1 Radiological Hazard Assessment and Exposure Controls

- EN-RP-122, Alpha Monitoring, Revision 7
- EN-RP-123, Radiological Controls for Highly Radioactive Objectives, Revision 0
- IN-90-08, Kr-85 Hazards from Decayed Fuel, February 1, 1990
- Procedure for Plasma Cutting of NUS Spent Fuel Rack at Palisades Nuclear Plant, Procedure No. HOLTEC-13582-1, May 1, 2013
- Radiation Work Permit and Associated ALARA File, RWP 20130263, Re-rack the Spent Fuel Pool and Liberate Three (3) Stuck Fuel Assemblies, Revision 1

2RS3 In-Plant Airborne Radioactivity Control and Mitigation

- Certificate of Analysis, Grade D Breathing Air, May 8, 2013
- CR-PLP-2013-03804, Questions and Confusion Regarding Respiratory Fit Tests and Corrective Lens, July 16, 2013
- EN-RP-501, Respiratory Protection Program, Revision 4
- EN-RP-502, Inspection and Maintenance of Respiratory Protection Equipment, Revision 8
- EN-RP-503, Selection, Issue, and Use of Respiratory Protection Equipment, Revision 5
- EN-RP-505, Portacount Respirator Fit Testing, Revision 3
- EN-RP-505-01, OHD Quantifit Respirator Fit Testing, Revision 0
- Focused Benchmark Assessment, Alpha Monitoring and DAC Hr Tracking, May 2, 2013

2RS4 Occupational Dose Assessment

- EN-RP-203, Dose Assessment, Revision 5
- EN-RP-204, Special Monitoring Requirements, Revision 6
- EN-RP-208, Whole Body Counting/In-Vitro Bioassay, Revision 5
- Procedure No. HP 8.11, Whole Body Counting, Revision 16
- TID 2011-008, Internal Dose Assessment Associated with Exposure Documented in CR-PLP-2011-01425
- TID 2013-004, Radiation Protection Program Annual Review [10CFR20.1101(c)], May 27, 2013

4OA1 Performance Indicator Verification

- NRC Indicator Mitigating Systems Performance Index, High Pressure Injection System, 3rd Quarter 2012 through 2nd Quarter 2013
- NRC Indicator Mitigating Systems Performance Index, Residual Heat Removal System, 3rd Quarter 2012 through 2nd Quarter 2013
- CR-PLP-2012-06918, HPSI valve MO-3062 Motor Operator Failed Post-Maintenance Test, October 26, 2012
- CR-PLP-2013-02615, CV-3030, Containment Sump to Safeguards Pumps Control Valve Could not be Cycled from the C-33 Panel, June 13, 2013
- CR-PLP-2012-07568, No Time Entered for the Step to Unlock and Close MV-ES3178 HPSI Pump 'B' Discharge Valve During QO-1 Testing, December 5, 2012
- EN-LI-114, Performance Indicator Process, Revision 6
- NRC Performance Indicator Technique/Data Sheets, NRC Indicator Alert and Notification System Reliability (EP-3), 4th Quarter 2012 through 2nd Quarter 2013

- NRC Performance Indicator Technique/Data Sheets, Emergency Preparedness – ERO Participation, 4th Quarter 2012 through 2nd Quarter 2013
- NRC Performance Indicator Technique/Data Sheets, Emergency Preparedness – Drill/Exercise Performance, 4th Quarter 2012 through 2nd Quarter 2013
- Palisades MSPi Basis Document, December 2011
- Selected Logs, July 2011 through July 2012
- LER 2013-002-00, Technical Specification Required Shutdown due to SIRWT Leak, June 25, 2013
- LER 2013-001-00, Technical Specification Required Shutdown due to a Component Cooling Water System Leak, April 15, 2013
- LER 2012-001-00, Degraded Condition due to Control Rod Drive Mechanism Housing Assembly Crack, October 11, 2012
- LER 2012-002-00, Technical Specification Required Shutdown due to Unisolable Secondary Side Drain Valve Leak, December 20, 2012

4OA2 Problem Identification and Resolution

- CR-PLP-2011-4822, Palisades September 25, 2011 Reactor Trip, Corporate Event Response Team Report, May 7, 2012
- CR-PLP-2011-04822-39, Completed Actions to Address Weaknesses in Management Oversight of Work Activities, February 28, 2012
- CR-PLP-2011-04822-37, Complete the Plan to Eliminate Outdated References, November 2, 2011
- CR-PLP-2011-04822-70, Develop and Implement Training per the Training Needs Analysis, January 23, 2012
- CR-PLP-2012-05116, Root Cause Effectiveness Review Action not Performed as Approved, July 17, 2012
- CR-PLP-2012-06419, Programmatic Gap with Respect to Previous Occurrence Evaluations, September 27, 2012
- CR-PLP-2013-01173, Scope Survival Performance Indicator, March 18, 2013
- CR-PLP-2013-02335, Recovery Plan Snapshot Assessment, May 23, 2013
- CR-PLP-2013-00609, 4th Quarter Trend Report Inputs, February 12, 2013
- LO-PLPLO-2011-00055, Track the Effectiveness Review Plan, September 8, 2011
- LO-PLPLO-2011-00061, Perform an Effectiveness Review, November 3, 2011
- LO-PLPO-2012-00190, Perform Four Snapshot Assessments, November 30, 2012
- LO-PLPO-2012-00191, Perform Four Snapshot Assessments, November 30, 2012
- LO-PLPLO-2013-00005, Synergy Survey Action Plan, January 8, 2013
- WT-WTPLP-2011-00298, Develop and Implement 2011 Maintenance Action Plan, August 4, 2011
- WT-WTPLP-2011-00298-30, Procedure Improvement Action Plan, November 15, 2011
- WT-WTPLP-2011-00366, 2011 Palisades Recovery Plan, October 19, 2011
- WT-WTPLP-2011-00366-176, Execute the Plan to Review all Maintenance Procedures, October 20, 2012
- WT-WTPLP-2011-00366-705, Conduct Snapshot Assessment of T-28 and Preventive Maintenance Oversight Group Effectiveness, February 8, 2012
- WT-WTPLP-2011-00366-171, Develop Plan to Accelerate Backlog Reduction for Maintenance Procedures, October 19, 2011
- WT-WTPLP-2011-00366-522, Complete Site Leadership Assessments, December 8, 2011
- Administrative Procedure 10.41, Site Procedure Process, Revision 47
- Recovery Plan Phase 2 LO-PLPLO-2012-00186 Snapshot Assessment, February 27, 2013

4OA3 Followup of Events and Notices of Enforcement Discretion

- LER 05000255/2013-001-00: Technical Specification Required Shutdown Due to a Component Cooling Water (CCW) System Leak, April 9, 2013
- LER 05000255/2013-002-00: Technical Specification Required Shutdown Due to Safety Injection/Refueling Water Tank Leak, June 25, 2013

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Reasonably-Achievable
ANS	Alert and Notification System
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
EP	Emergency Preparedness
ERO	Emergency Response Organization
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
PARS	Publicly Available Records System
PI	Performance Indicator
RWP	Radiation Work Permit
SIRWT	Safety Injection Refueling Water Tank
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report

A. Vitale

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Sincerely,

/RA/

Jamie Benjamin, Acting Chief
Branch 4
Division of Reactor Projects

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